YEAR 2013 I VOLUME 21

ISSN 2321-8428



ANNUAL JOURNAL OF OTOLARYNGOLOGY AND HEAD & NECK SURGERY

THE NORTH EASTERN BRANCH OF THE ASSOCIATION OF OTOLARYNGOLOGY OF INDIA

OFFICIAL PUBLICATION OF THE NORTH EASTERN BRANCH OF THE ASSOCIATION OF OTOLARYNGOLOGY OF INDIA

GOVERNING BODY OF NORTH EASTERN BRANCH OF THE ASSOCIATION OF OTOLARYNGOLOGY OF INDIA

> Past President: Dr. Dr. Th. Ibohal Singh President : Dr. S.N. Mukherjee President Elect : Dr. K. Ahmed Vice President : Dr. S.C. Goswami Hony. Secretary : Dr. D.K. Nath Hony. Treasurer :Dr. R. Borgohain Hony. Jt. Secretary : Dr. S. Chakravorty Chairman, Editorial Board : Dr. Jyotirmoy Phookan Secretary, Journal of NEBAOI: Dr. H. B. Nongrum

Executive Body Members

Dr. Samsuddin Dr. Jego Ori Dr. Kedozeto Dr. Isha Tuli Dr. Biplab Nath Members

Editorial Board

Dr. N. B. Shunyu Dr. M. D. Goswami

Advisory Board

Dr. Th. Ibohal Singh Dr. M.N. Baruah



ANNUAL JOURNAL OF OTOLARYNGOLOGY AND HEAD & NECK SURGERY

YEAR 2013 I VOLUME 21

ISSN 2321 - 8428



CONTENTS

1

4

9

15

20

23

26

29

1. DR L.H. HIRANANDINI - A tribute C. Das

2. ORIGINAL ARTICLE

- i. Bone conduction improvement after middle ear ossicular chain reconstruction Mohammad Sadegh Maleki, Farbood Kalantari, saleh Mohebi, amrollah hosseini
- ii **Roaming into the depths of silence** Smrity Rupa Borah Dutta
- iii. A Clinicopathological Study of Extracranial Complications of Chronic Suppurative Otitis Media and their Management Prathipati Kiran Kumar, Swagata Khanna, Deepanava Jyoti Das
- iv. Bacterial aetiology of chronic suppurative otitis media : an institutional workup in central india Vishal Tyagi, Vijayshree Deotale, Dipika Garg, Monika Malgonde.
 13
- v. Result of fess in chronic rhinosinusitis A. C. Sarma
- vi. Electronystagmographic changes in cases of hypertension
 M. P. Puttewar, P. S. Nagpure, N. Baisakhiya, H. B. Nongrum
- vii. Comparative study of antimicrobial treatment with and without antral wash in chronic maxillary sinusitis Tenzing J Bhutia, Rita Z, HP Devi, Nim N Bhutia, Sathish k, Prasantha B
- viii. Seasonal Variation To Epistaxis A Clinical Study Deepanava Jyoti Das, Swagata Khanna, Prathipati Kiran Kumar

3. CASE REPORT

 Endoscopic Thyroid Gland surgery-A gasless Technique Aakanksha Rathor, Sachender Pal Singh, Kripamoy Nath

ii.	Aggressive salivary duct carcinoma of parotid gland – a case report Biji Rose, Girish Rai	32
iii.	kikuchi – fujimoto lymphadenitis with systemic lupus erythematosus: a rare case report with revi of literature.	ew
	R. N. Gonsai, Kalpesh	34
iv.	Rare and Unusual Head and Neck Cancers- Two Case reports. Z.Hazarika, H.B Nongrum, R Veerbadran, AJGhosh,	
	R Chyne, H Dkhar	37
V.	Hoarseness Due to Cardiovascular Disease: A case report of Cardiovocal Syndrome.	40
	Nabajyoti Saikia, Palikaj Neog	40
vi.	A Case Report on Benign Sinonasal Paragan glioma	
	Smrity Rupa Borah Dutta, Sachender Pal Singh, Aakanksha Rathor	42
vii.	An unusual case of Aural polyp with Foreign body following Penetrating injury through Oral cavity: a case report.	
	Nency Brahma, Rohan C. Fuladi, Rupam Borgohain	45
viii.	Atypical presentation of tuberculosis in ENT practices-three case reports Soumik Saha, Soma Mandal, Arvind kr Verma, Souvik Roychoudhury, Anjan Kr Das, Ranjan paul	48
4.	TECHNICAL NOTE	
i.	Small incision thyroid and salivary gland surgery(SITSS) Jyotirmoy phookan	51
ii.	Cochlear implant by Veria Technique N. Brian Shunyu, Amit Goyal, Jayanta Medhi, Hanifa Lashkar, Nirupam Bhattacharjee, Eusibia B Khyriem, Collete W Nongsiej.	54
5.	AUTHORS GUIDEI INFS	57

Dr L.H. Hiranandani, Padmabhusan:

Dr L.H. Hiranandani, Padma Bhusan, a Doyen of ENT and Head & Neck Surgery, Past president of AOI and internationally reputed ENT and Head & Neck Surgeon who left for heavenly abode on the 5th September, 2013 at the age of 96years.

Dr Hiranandani was born in September, 1917 at a place 80 miles away from karachi. His father had a business in Baharain which he lost. His father died when he was only 5 years old. He passed his school life through poverty and hardship. Dr Hiranandani came to Bombay in 1937 at the age of 19 years and he was already married. He did his MBBS from Seth GS Medical college (King George K.E.M Hospital) in Bombay. Thereafter he left for the United Kingdom and completed his FRCS and D.L.O After returning from the U.K in 1942, he joined BYL Nair Hospital and Topiwallah National Medical College as an ENT surgeon and later he served the same college and hospital as Hon. Professor and Head of the Department of ENT for 30 years with untarnished dedication, in acknowledgement of which the department was aptly name the "Dr L.H. Hiranandani Department of Otolaryngology and Head and Neck". After his retirement, he worked as professor Emeritus. In past few decades the world had come to know Shushruta's opinion and call the speciality ENT and Head and Neck Surgery. In India, since 1972 Dr. Hiranandani tried to change the name of ENT to Otolaryngology and Head and Neck Surgery, which he ultimately succeeded. He owned the "Dr Hiranandani ENT Hospital. After his retirement from his service, he worked as Hon. ENT surgeon in Bombay Hospital, Breach Candy Hospital and Jaslok Hospital.

The Numerous literary activities that be undertook with success, proved the versatility of this great man. Many of his original articles and certain operative procedure known as "Hiranandani's Techniques" were published in the National and international Journals. His monologues "Middle Ear Pathology" and "Head and Neck Cancer" deserve special mention. He was the only Indian appointed as Honorary member of the American Society of the Head and Neck Surgery. Further his numerous social articles were published in various prestigious magazines.

Dr. Hiranandani's contribution to the society especially to the poorer section is worth mentioning, providing medical services including invaluable service to drought affected victims. He was responsible for the establishment of several institutions like Post Graduate ENT Hospital, Speech and Audiology School and Vestibular Research Unit at BYL Nair Hospital and National Medical College.

Dr Hiranandani was one of the Founder Members and Past President of the Association of Otolaryngologist of India (AOI). His contribution to the AOI were immense. He was the chief leader for establishing a Corpus fund of Rupees one million in order to start the Research and Education Foundation of AOI. He also collected funds for establishing different oration and awards for several Universities of India. He donated money to initiate several awards for the North Eastern Branch of the Association of Otolryngologist of India for which the members of this branch are grateful and will remember him always.

Dr Hiranandani was also an active member in the Executive Committee of the Medical Council of India (M.C.I). We appreciated his participation with important and valuable suggestions and counsels in the meeting of the Executive Committee of M.C.I

He was a great Philanthropist, Medical Luminary, Educationist, Social activist and crusader for humanity. In recognition to bis greatness and invaluable contributions to the society, the Government of India bonoured him with the title of "PADMA BHUSAN".

He also won the prestigious "DHANVANTARI" Award. The Award was given in the name of "DHANVANTARI" the great Indian Doctor of more than 3000 years ago.

We are Plunged into grief and stunned with the words "Dr. L.H. Hiranandani", the great leader of ENT and Head and Neck world, is no more. His sad demise has been an immense loss to all. He is survived by his wife and two worthy sons besides daughters-in-law, grand and great grandsons and daughters. His eldest son who was the professor and head of department in ENT expired early.

We wish his soul an eternal and heavenly bliss.

Dr C. Das Guwahati





Bone conduction improvement after middle ear ossicular chain reconstruction

Mohammad Sadegh Maleki, Farbood Kalantari, saleh Mohebi, amrollah hosseini

ABSTRACT :

Introduction: middle ear diseases are the most prevalent causes of surgically correctable hearing loss, among them the ossicular chain dysfunctions have most extensive effects on patients hearing. Successful reconstruction of this chain certainly improves the air conduction thresholds and seals the air-bone gap on audiogram. But the effect of this reconstruction on bone conduction, though physiologically acceptable has not been yet clarified and only few standard clinical trials, mostly retrospective, have been reported. The goal of this study was to determine the efficacy of ossicular chain reconstruction on bone conduction.

Methods: in a case control prospective clinical trial study the bone conduction thresholds of speech frequencies were studied in 68 patients before and after middle ear surgery. In order to determine the rate of effectiveness of ossicular chain reconstruction on bone conduction, the patients were categorized in 2 groups. In the first group the middle ear surgery and ossicular chain reconstruction were carried out in the same session and in the second group the reconstruction was postponed to another stage. By using paired-samples t-text the changes of the mean bone conduction thresholds was evaluated for each frequency before and after surgery in each group.

Result: there was a significant improvement in bone conduction in 1 and 2 kHz frequencies in reconstruction group with a maximum of 9.7 dB in 2 kHz. In non-reconstruction group no significant changes was noted in any frequency.

Conclusion: improvement of bone conduction after ossicular chain reconstruction is an indicator of its role in this type of sound conduction. Our findings showed changes of bone conduction as a mechanical phenomenon affected by activity of ossicular chain. In other words, Bone Conduction threshold is not solely influenced by cochlear function.

Keywords : ossicular chain reconstruction, bone conduction

Mohammad Sadegh Maleki Department of Otolaryngology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran

Farbood Kalantari(), Saleh Mohebi Departmnent of Otolaryngology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Amrollah Hosseini Otolaryngologist , head and neck surgeon, Tehran, Iran.

Email: farboodkt@gmail.com

INTRODUCTION:

The relation between "bone conduction" and ossicular chain dysfunction, is a complicated phenomenon and has been under consideration and controversies.

Some authors consider the chronic middle ear infection as one of the causes of "weakening of the bone conduction", with induction of sensory neural hearing loss and have described different mechanisms like the effects of endotoxins, ototoxic drugs and etc. for it^[1.6].

Other studies have considered these effects of little importance and negligible and have rejected the effect of chronic ear infection in inducing sensory neural hearing loss except in inner ear complications^[7,8].

The relation between bone conduction and middle ear disease is another interesting aspect and many researchers have stressed that the bone conduction thresholds of audiogram are not pure measure of cochlear function and may be affected by other factors.

Different approaches have been used for evaluation of bone conduction in chronic middle ear diseases^[1,2,5,12-14].

Studies based on comparison of surgical results have values for clinical understanding about the role of middle ear in bone conduction but studies in this field up to now show major methodological problems including being mostly retrospective, lacking proper control groups and improper measures for improvement of bone conduction. For example the minimum of 10-15 dB increase in at least two consecutive frequencies considered improvement and the changes of each frequency has not been calculated^[12].

The aim of this study was assessment of bone conduction changes in relation to ossicular chain reconstruction, observing the necessary creditable results. The search for studies containing such specifications revealed few reports that were far from being complete^[12-15].

MATERIAL AND METHODS :

In a prospective 2 years study (Feb 2008 – Feb 2010) in Firouzgar hospital (Tehran) 68 patients enrolled in a clinical trial in two groups.

All these patients had ossicular chain impairment according to the observation during surgical procedure. In the first group the main surgery and ossicular chain reconstruction was carried out in one session and in the second group the reconstruction



was impossible or was postponed to another session. The staging of the reconstruction operation and existence of second group made it possible to use them as a control group for the first one. So regardless of the role of ossicular chain both groups had the same characteristics for bone conduction.

The reconstruction group consisted of 15 males and 19 females. The age of the patients ranged from 13 to 54 years, with a mean of 23 years.

The middle ear pathology was choleteatoma in 17, extensive granulation tissue in 4, tympanosclerosis in 9, mucosal hypertrophy in 1 and relatively normal mucosa in 3 cases. Tympanoplasty was carried out in 9 cases and others underwent tympano mastoidectomy, almost half of them with open cavity canal wall down technique.

Autograft or homograft was used in all members of this group and incus interposition was the most frequent method. Reconstruction was carried out as one step procedure in 27 cases and two steps in another 7.

Non reconstruction group consisted of 16 males and 18 females. The age of the patients ranged from 13 to 54 years, with a mean of 27 years. The middle ear pathology was choleteatoma in 19, extensive granulation tissue in 9, and tympanosclerosis in 5, and mucosal hypertrophy in 1 case. Surgical procedure was tympano mastoidectomy for all, of which one was radical mastoidectomy, and 19 cases underwent open cavity canal wall down technique.

Excluding criteria were the age less than 12 (children), otosclerosis, Preoperative severe or profound sensorineural hearing loss, non-cooperative in audiology testing, postoperative perforated tympanic membrane, those unsuccessful reconstructed patients with an air-bone gap more than 20 dB postoperatively, or those diagnosed as having labyrinthine fistula or other inner ear complications.

The preferred criteria for reporting the results of reconstruction^[15] have been completely observed in this survey. In both groups complete clinical assessments (physical and history) and audiologic tests including Pure Tone Audiometry, Acoustic Reflex, Tympanogram, Speech Discrimination Score, speech Reception Threshold were carried out 2 months preoperatively and repeated 3 months postoperatively.

Pre and post-operative audiologic tests were carried out in one center by the same audiologist and the hardware's used were Madsen zo174 and Amplaid 319 audiometers.

Mean duration of audiologic assessment was nearly 1 month pre and 6.5 months post-operatively. In those cases that the patients could not be reached for follow up, their last audiograms were used for assessment.

The condition of middle ear mucosal and ossicular chain, type of operation, type of reconstruction and surgical planning

(for those candidates of 2 stages operation) have been described thoroughly in surgical report.

RESULTS :

According to statistical data the mean value of bone conduction thresholds had normal distribution pre and postoperatively in both groups. The pre and post-operative difference of bone conduction thresholds of each speech frequencies (250, 500, 1000, 2000 and 4000 Hz) were tested by paired samples t-test in each group. The results are shown in table 1 for reconstruction group and in table 2 for no reconstruction group. In first group bone conduction thresholds in all frequencies have had some improvement but the changes in 1000 and 2000 Hz frequencies were significant and the maximum change was in 2000 Hz frequency with a value of 9.7 dB.

In second group there were slight improvements in bone conduction thresholds in 250 and 2000 Hz frequencies and slight increase in thresholds of the other frequencies but these changes were not statistically significant.

	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
Mean pre-op BCT*	6.9118	8.8529	9.5882	16.1471	18.7941
Mean post-op BCT	6.6176	7.4118	5.6265	6.4412	16.9412
Mean Bc difference	0.2941	1.4412	4.2647	9.7059	1.8529
P-value	0.805	0.319	0.001	0.000	0.420

Table 1 - The pre and post-operative difference of bone conduction thresholds of each speech frequencies in reconstruction group

	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
Mean pre-op BCT	9.8235	11.9412	12.2647	20.7647	27.0000
Mean post- op BCT	9.4706	13.2941	14.3235	20.7335	27.1176
Mean Bc difference	0.3229	-1.3229	-2.0588	0.0294	0.1176
P-value	0.777	0.315	0.198	0.982	0.935

Table 2 - The pre and post-operative difference of bone conduction thresholds of each speech frequencies in non-reconstruction group



DISCUSSION :

The studies of Tonndorf et al, as forerunner of these researches on physiology of hearing, has clearly shown that skull vibrations are transferred to cochlea with three different mechanism during measurement of bone conduction by bone vibrators^{[9-11].}

These three mechanisms in fact show that outer, middle and inner ear have a role in bone conduction^[1,2].

Outer ear: acoustic radiation

Middle ear: inertial response

Inner ear: compression - distortional response

Regarding the role of ossicular chain in bone conduction it is expected that bone conduction suffer some loss in destruction of ossicular chain and to be improved after its reconstruction. Some researchers have paid attention to "artificial sensory neural hearing loss" due to dysfunction of ossicular chain which is correctable with reconstruction^[8].

From clinical standpoint the otosclerosis is the clearest example of this fact. An increase in thresholds of frequencies around 2 kHz., first described by Carhart et al, is one of the characteristics of this disease and its mechanism has been attributed to the role of middle ear in bone conduction (inertial response)^[7,11]. It is noteworthy that ossicular chain dysfunction is not limited to stapedial ankylosis (otosclerosis) and can be attributed to many other middle ear diseases.

Browning and Gatehouse suggested that elevated bone conduction thresholds in chronic otitis media were likely to reflect the Carhart effect rather than damage to the inner ear due to disease^[18].an elevation in the bone conduction threshold could be caused by a disruption of the middle-ear mechanism of hearing. The bone conduction response is not always induced by sound conduction from the skull directly to the cochlea. The ossicular chain is also involved in the bone conduction response^[19].

In the study of H-S Lee et al, One hundred and six patients with unilateral chronic otitis media who had undergone a tympanomastoidectomy were reviewed retrospectively to assess the elevation of bone conduction threshold. After ossicular reconstruction, bone conduction thresholds improved significantly at all frequencies, with the greatest improvement being observed at 2000 Hz^[20].

Significant changes seen in bone conduction thresholds especially in 1000 and 2000 Hz frequencies after ossicular chain reconstruction and the lack of significant improvement in non-reconstruction group is the indicator of ossicular chain role in bone conduction. This mechanical role depends on the continuity of it. Any factor causing ossicular chain disruption omits this role and increases the bone conduction threshold and causes some pseudo sensory neural hearing loss. This is the same as "Charharts" finding in improvement of bone conduction seen in otosclerotic patients after stapedectomy^[7,8,11,16].

So changes in bone conduction thresholds after reconstruction operation can be justified because of reestablishment of middle ear role in helping the bone conduction.

Ossicular chain effects are generally evident in the range of 1000-2000 Hz which can be explained by natural resonance of $it^{[11]}$.

The range of this effect is about 10 dB. Both of our findings are in accordance with results of Teufert et al. who surveyed the outcome of tympanosclerosis surgeries^[12] and report of Tuz et al. who described the results of their tympanoplasties (without distinction of reconstructions)^[16] and also the research by Linstrom et al. explaining the effects of ossicular chain on bone conduction (with few cases)^[14].

The meaningful improvement in bone conduction threshold of some speech frequencies in reconstruction group and lack of it in non- reconstruction group indicates the lack of sensory neural hearing loss as a frequent finding following middle ear surgery. This type of hearing loss is not a frequent finding as an iatrogenic complication even with manipulation of ossicular chain.

Although the prevalence of SNHL secondary to middle ear infections and middle ear surgeries remain controversial^[4,5,17], researchers consider its probability as rare^[6,8].

CONCLUSION :

Measurement of bone conduction thresholds in reconstruction group were meaningfully improved in 2 speech frequencies of 1000 and 2000 Hz, while no changes could be traced in non-reconstruction group. This finding clearly explains 3 otologic concepts:

- 1)Manipulation on ossicular chain for reconstruction has not induced any SNHL.
- 2)Reconstruction is effective on bone conduction mechanism and improves it.
- 3) This improvement is limited to few speech frequencies; although it is statistically significant but its maximum value is about 10 dB, so as it should be considered by otologists, it should not be overemphasized.

REFERENCES :

- Gelfand, s: "essential of audiology", 2nd edition. Thieme NewYork, 140-143, 2001.
- 2. Roeser, R: "Audiology diagnosis" first edition. Thieme New York 244-246, 2000.



- Booth, J: ((Scott Brown's otolaryngology)), sixth edition.Butterworth – Heinemann, oxford, 3/1/17, 2003.
- English, G: "Otolaryngology", revised edition. Lippincott Reven

philadelphia, chapter 3: 17-18, 2006.

- 5. Paparella, M: ((otolaryngology)), third edition, W.B. saunders, Philadelphia. 1438, 1991
- Conalis, R: "the ear comprehensive otology", first edition. Lippincott Williams & wilkins 2204-206, 2000.
- 7. Hughes, G: "clinical otology", second edition. Thieme, New York, 243, 2003.
- Lee, K "Essential otolaryngology head & neck surgery", Eight edition Mc Grow-Hill New York,24,2003.
- Bailey, B: ((Head and neck surgery otolaryngology)), second edition. Lippincott Ravan, New York, 206-70, 1998.
- Snow james, B : ((Ballenger's otorhino laryngology head and neck surgery)), sixteenth edition. BC Decker, Hamilton 318, 2003.
- Cummings, c: "Otolaryngology head & neck surgery", third edition. Mosby, st Louis, 3115-3117, 2894-2907, 2010.

- Kautz, J: "Hand book of clinical Audiology, Fifth edition, Lippincott Williams & Wilkins, Baltimore: 76-79, 2002.
- 13. Noordzij JP, Dodson E, Roger R, ((Chronic otitis media and sensorineural hearing loss: Is there a clinically significant relation", 420-423, 1995.
- Papp Z, Rezs S, Jokey I, "sensorineural hearing loss in Chronic otitis media" otology & Neurotology, 141-144, 2003.
- Sakagami M.Maeda A, Node M, "Long-term observation on hearing changes patient with Chronic otitis media", Auris Nasus Larynx, 27: 117-120, 2000.
- Cureoglu schachern P, Paparella M, "Chochlear changes in COM", Laryngoscope, 114(4), 622-626, 2004.
- Macaondie D, O'reilly B, "sensorineural hearing loss in Chronic otitis media", clinical otolaryngology & allied sciences, 24(3):220-222, 1999.
- Browning GG, Gatehouse S. Hearing in chronic suppurative otitis media. Ann Otol Rhinol Laryngol, 98: 245–50, 1989.
- Tsai V, Ostroff J, Korman M, Chen JM. Bone-conduction hearing and the occlusion effect in otosclerosis and normal controls. Otol Neurotol 2005;26:1138–42
- H-S LEE et al, Ossicular chain reconstruction improves bone conduction threshold in chronic otitis media. The Journal of Laryngology & Otology, 122, 351–356, 2008.





Roaming into the depths of silence

Smrity Rupa Borah Dutta

ABSTRACT :

Every physical defect, be it blindness or deafness, alters the child's attitude towards the universe and, primarily, towards its fellow beings. Often their lives are handicapped by physical & social barriers which hamper their full participation in society & enjoyment of equal rights & opportunities. This is a prospective study done in the department of ENT in Silchar Medical College & Hospital, Silchar during the time period from January 2009-August 2010 which includes all Deaf Mute cases attending the Out Patient Department of E.N.T., Silchar Medical College and Hospital & also District Disability Rehabilitation Centre (DDRC) Ghungoor, Silchar. This study mainly highlights the prevalence of deaf mute persons in Southern Assam, type of population affected & its causes & the various ways to tackle this problem with special emphasis on the need for screening of high risk group & surveillances at regular intervals for their better management & social adjustment.

Keywords: Deaf mute, screening & surveillance, speech therapy.

INTRODUCTION:

More than 500 million people of the world suffer from some form of physical, sensory or mental disability^[1]. Hearing loss is the most common sensory deficit in humans. A beautiful day begins with the sweet chirping of birds. But, for a person whose hearing mechanism is lost, is deprived of the beauties of the environment, the soft rustling of leaves, the blowing of breeze, the roaring of waves. His life is devoid of the rhythms of music.

Physically challenged persons (here deaf mute) are a burden not only to their family members but also to the society but early-identified children demonstrates significantly better language scores than the later-identified children^[2]. So, it is the duty of the Otorhinolaryngologists to look into the root of the matter and find out means for early rehabilitation, to develop a better world.

Smrity Rupa Borah Dutta

Smrity Rupa Borah Dutta(
) Department of ENT, Silchar Medical College and Hospital, Silchar. Email: smritylana@gmail.com

a + 919435348294

Surveillance for childhood hearing loss is of considerable importance, since^[3]:

- Newborn hearing screens will not find all those with preschool permanent hearing loss, because of late onset and progressive hearing loss;
- (2) Any screening programme will miss an irreducible minimum of true cases; and
- (3) Surveillance is a more justifiable approach to identification of children with persistent Otitis Media with Effusion than a screening programme.

The prevalence of congenital hearing loss in newborns is approximately 1–3 cases per 1000. More than 60% of the prelingual cases (ie, hearing loss before the acquisition of speech) are attributed to congenital causes. A further 1 in 1000 children become deaf before adulthood^[4].

Causes & distribution of genetic deafness:

- Syndromic 30%
- Non syndromic 70% = 80% autosomal recessive; 19% autosomal dominant; 1% mitochonrial X linked^[4].

Post-meningitic hearing loss and hearing loss due to trauma are the most common causes of acquired hearing loss in children.

The three major risk factors are:

- history of treatment in a neonatal intensive care unit (NICU) or special care baby unit (SCBU) for more than 48 hours;
- 2. family history of early childhood deafness;
- 3. craniofacial anomaly (e.g. cleft palate) associated with hearing impairment ^[4, 8].

About 60 percent of congenital bilateral permanent hearing loss of moderate degree or greater is associated with one or more of these three risk factors, in the proportions 29.3%, 26.7% and 3.9% with NICU admission, family history and craniofacial anomaly respectively.

MATERIALS AND METHODS :

This study was done in the department of Otorhinolaryngology, Silchar Medical College and Hospital (SMCH) in collaboration with the District Disability Rehabilitation Center (DDRC), Ghungoor, Silchar. The Aim of the study was to find out: the burden of Deaf Mute people in the Southern part of the state of Assam (In the three districts of Cachar, Karimganj & Hailakandi), incidence in respect to age, sex, religion etc., the type of handicap(congenital/acquired), the type of population involved, the cause of such high prevalence in this region. The cases included were all the hearing impaired patients attending both the departments (DDRC caters to all the handicapped persons of the three districts of the Southern part of Assam – Cachar, Karimganj & Hailakandi. A few patients from North Cachar hills have also been registered here) between January 2009 and August 2010. Of these only the Deaf-Mute cases were studied.

A thorough history taking, Clinical examination and a complete audiological investigations were done (which included BERA). Computed Tomogram of the temporal bone was advised to those who could afford.

RESULTS :

The total number of patients attending the Out Patient Department at SMCH, between January 2009 and August 2010 was 31,870. Of which 1748 had otologic disorders and of these 71 (4.06%) suffered from Deaf-Mutism. During the same period 4247 patients with physical Otologic, Eye and Mental handicapped visited DDRC. Of which 802 suffered from hearing impairment and out of these 291 (36.28%) suffered from Deaf-Mutism. The below charts represents the findings in the study.



Fig.1: showing age group of deaf mute persons attending SMCH



Fig. 2: showing age group of deaf mute persons attending DDRC.



Fig. 3: showing sex ratio of deaf mute persons



Fig. 4: showing religion of deaf mute persons



Fig. 5: showing congenital and acquired deafness.

DISCUSSION:

Approximately 50% of congenital deafness is inherited^[5,6] and hearing loss has been described in over 400 syndromes^[7]. A large Wessex study^[8] reported that, of 25,000 newborns screened, 8.1 percent fulfilled high-risk criteria for permanent childhood hearing loss. 95% of babies admitted to NICU for more than 48 hours are more likely to develop permanent



hearing loss (>50dBHL) compared to those who did not require NICU admission^[9]. A presence of family history with early permanent childhood deafness increases the prevalence by 14 fold^[10]. The 2000 Joint Committee on Infant Hearing has recommended that infants with at least 1 of the risk indicators for progressive or delayed-onset hearing loss who may have passed the hearing screening should, nonetheless, receive audiologic monitoring every 6 months until 3 years of age^[11].

On analysis, the prevalence of deaf mute persons in SMCH and DDRC to be 4.06% and 36.28% respectively. Majority were male persons from Muslim community from a low socio economic class. The commonly affected were between 0-10 years. Most were congenital hearing loss. There were cases with congenital auditory imperceptions or "WORD DEAFNESS". The causes of such high prevalence of deaf mute persons in this region were attributed to consanguineous marriage, which is very common in the region, low socio economic condition leading to Poor hygienic living condition and predisposition to ear infections, Maternal infections & diseases during pregnancy and delivery, last but not the least is illiteracy.

Ways and means to tackle this problem :

Population awareness must be created regarding avoidance of consanguineous marriage. BERA machines should be installed in peripheral hospitals which can detect pathologies not only in newborns and neonates, and premature infants of 30 weeks gestational age but also when the baby is in-utero in the later stages of gestation^[12]. BERA is an effective screening tool in the evaluation of hearing in newborns, with a sensitivity of 100% and specificity of 96-98%^[13]. The High risk groups should be screened as described earlier.

Hearing Aids should be used. Multi channel non linear (MCNL)amplification allows temporal characteristics of individual phonemes to be maximally maintained to preserve phoneme and speech recognition while allowing comfortable amplification of quiet speech sounds without over-amplifying loud sounds^[14]. Cochlear Implants are advisable whenever possible taking into consideration the economic condition of the patient. Owing to the severe handicap of combined disorders(hearing & vision), in some congenital cases, early diagnosis is of crucial importance as the progressive deterioration of sight hinders the use of sign language. Therefore a cochlear implant constitutes an invaluable aid at an early age. Speech therapy should be given by a qualified personnel. Living standard and economic condition should be improved in general. This is possible only with the help from the government.

Social education must be given to educate the masses. This very system of social education contains the newest and most significant reforms for the education of the deaf mute individuals.

- 'The bringing up and education of children must proceed within society, through society and for society.' This is the basis for social education as defined by one of the theorists. The education of the deaf mute is based on the same principle.
- ' 'The consecutiveness in the development of speech of a deaf and dumb', says Natalia Rau, founder of the first Children's Garden for the Deaf and Dumb in Russia, 'must be copied from that of a normal child : the stages of development of speech must be the same, the difference is only so far as means and time are concerned - a deaf and dumb child will be able to say at the age of three to four what a normal child will say at the age of one year.'

In some institutions all the pupils who are supposed to be of very inferior mental capacity from the regular classes, are placed in a class by themselves, thus making a class of the ordinary size composed of outcasts, commonly called the "dunce class." This class is difficult to manage. If they are ever to be reformed, need the influence of the good ones to bring about their reformation, and the dull ones need the stimulus and example of the bright scholars to excite them to efforts for improvement.

CONCLUSION:

In today's world of science & technology, the old aims & concepts are replaced with new ones. Today's emphasis is on the overall development of an individual, giving him all the opportunities to develop to his fullest inspite of his disabilities. For deaf mute persons it is achieved by means of screening of high risk group & regular surveillance by which we can diagnose the cases early, then manage them with hearing aid, & with the help of highly advanced technology like cochlear implants(where feasible) along with speech therapy. Social education can help even a deaf mute person to live his life satisfactorily with better adjustment in society being a part of its development & not as a burden to his family & society. And moreover we can decrease the prevalence of deaf mute persons by making the public aware about the problem arising as a consequence of consanguineous marriage & educating the masses about hygiene. So it is the duty of the government to look into this matter seriously so as to decrease the burden of the significant number of deaf mute individuals in the society.

(This article won the Prestigious L.H. Hiranandani II award Paper and was presented at the 25th Annual Conference of the North-Eastern Branch of Association of Otolaryngologist of India, 2012, held at guwahati NEBAOICON 2012, Guwahati.)



REFERENCES:

- 1. Dr. Jose Murickan S.J., persons with disabilities in society; Kerala Federation Of The Blind, 1995;9.
- Yoshinaga-Itano C, Sedey AL, Coulter DK, Mehl AL. Language of early- and later-identified children withhearing loss. *Pediatrics*. 1998; 102: 1161-71.
- Scott –Brown's, Otorhinolaryngology, Head & Neck Surgery, 7th Edition; 829.
- Current Diagnosis & Treatment Otolaryngology, Head & Neck Surgery, 2nd edition; Anil K. Lalwani; Congenital Disorders Of The Middle Ear.
- 5. Morton NE. Genetic epidemiology of hearing imparment. Ann N Y Acad Sci 1991; 630:16–31.
- Marazita ML, Ploughman LM, Rawlings B, et al. Genetic epidemiological studies of early-onset deafness in the U.S. school-age population. Am J Genet 1993;46: 486–91.
- Gorlin A, Toriello H, Cohen M. Hereditary hearing loss and its syndromes. New York: Oxford University Press; 1995.
- 8. Kennedy CR, Kitnm L, Dees DC, Campbell MJ, Thornton ARD, Bamber J et *al.* Controlled trial of universal neonatal screening for early identification

of permanent childhood hearing impairment. *Lancet.* 1998; 352: 1957-64.

- Davis A, Wood S. The epidemiology of childhood hearing impairment: Factors relevant to planning services. *British Journal* of *Audiology*. 1992; 26: 77-90.
- Fortnum H, Davis A. Epidemiology of permanent hearing impairment in rent region, 1985-1993. British Journal of Audiology. 1997; 31: 409-46.
- ASHA Joint Committee On Infant Hearing. Year 2000 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Available at: http://professional.asha.org.
- Clinical Audio-Vestibulometry For Otologists And Neurologists; 3rd Edition; By Anirban Biswas; 88.
- 13. Auditory Brainstem Response Audiometry; Author : Neil Bhattacharyya, MD,Associate Professor of Otology and Laryngology, Harvard Medical School; Consulting Surgeon, Department of Surgery, Division of Otolaryngology, Brigham and Women's Hospital; Chief Editor : Arlen D Meyers, MD, MBA.
- 14. Beck and Schum; 2005; Oticon, audiologiacal research documentation; 2006





A Clinicopathological Study of Extracranial Complications of Chronic Suppurative Otitis Media and their Management

Prathipati Kiran Kumar, Swagata Khanna, Deepanava Jyoti Das

ABSTRACT :

Otitis media is a potentially serious disease chiefly because of its complications. Complications of chronic suppurative otitis media (CSOM) develop if infection is not controlled at the early part of the disease. The aim of this study was to evaluate the incidence, clinical presentation, diagnosis and management of extracranial complications of CSOM. Mastoiditis (44.8%) and subperiosteal abscess (29.6%) were the most common extracranial complications of CSOM, followed by postauricular fistula (14.8%), labyrinthitis (5.5%) and facial palsy (5.5%). Mastoid abscess was the most common abscess (62.5%). The complications of CSOM have subtle presentations and require a high degree of suspicion to diagnose. Early surgical treatment is necessary to prevent the sequelae of otitis media.

Keywords : CSOM, Extracranial complications

INTRODUCTION:

Otitis media is a potentially serious disease chiefly because of its complications. This fact has been recognized from antiquity, when Hippocrates, about 460 B. C noted that " acute pain of the ear with continued high fever is to be dreaded for the patient may become delirious and die"^[1].

Chronic suppurative otitis media (CSOM) is defined as persistent infection or inflammation of the middle ear and mastoid air cells. Complications of CSOM develop if infection

Prathipati Kiran Kumar, Swagata Khanna(🖂), Deepanava Jyoti Das

Department of ENT, Gauhati Medical College & Hospital, Guwahati, India Email: swagatakhanna@sify.com

\$\$\begin{aligned} +919864094140

spreads from the middle ear cleft to structures from which this mucosa-lined space is usually separated by bone. In the preantibiotic era, the morbidity and mortality of CSOM were high, since both extracranial and intracranial complications were common. In modern times, these complications are relatively less common.

Nowadays, chronic middle ear infection is a greater hazard. The aim of this study was to evaluate the incidence, clinical presentation, diagnosis and management of extracranial complications of CSOM.

MATERIALS & METHODS :

The study was conducted in the Department of ENT and Head & Neck surgery, Gauhati Medical College & Hospital, Guwahati; from 1st August 2011 to 31st July 2012. A total of 54 cases with complications due to otitis media were taken up. They were admitted for management of complications as sequelae of suppurative conditions of middle ear. Cases below 4 years and above 70 years of age were excluded. All cases underwent a detailed history and clinical examination. Aural swab was sent for culture and sensitivity, pre- and postoperative pure tone audiometry after proper aural toilet and examination under microscope were done. Radiological assessment of the middle ear, mastoids were done with CTscan. Patients were treated promptly for abscesses and other extracranial complications as indicated. The operative findings were recorded systematically. Postoperative course was also monitored and patients were initiated on follow-up.

RESULTS :

Out of the total 54 cases suffering from complications of otitis media, 33 cases were male and 21 cases were female which showed a male : female ratio of 1.5:1. Age distribution of the patients ranges from 4 - 70 years. It is seen that 18 patients belong to the age group of 4 - 15 years, 29 between 16 - 40 years, 5 between 41 - 60 and 2 patients were above 60 years of age. The various symptoms with which the patients presented were noted. Ear discharge, hearing loss, and ear ache were the common complaints encountered. On otoscopy, 35 patients (64.8%) had a perforation in pars tensa, 15 patients (27.7%) had perforation in pars flaccida while cholesteatoma was seen in 24 (44.4%) and polyp in 5 cases (9.25%).



Fig1:Types of Extracranial Complications.

Fig 1. shows the incidence of various extra-cranial complications in the study group. 24 patients (44.8%) had mastoiditis alone as a complication. Subperiosteal abscess was seen in 16 patients (29.6%) and post-auricular fistula in 8 (14.8%), Facial nerve weakness and Labyrinthitis observed in 3 cases (5.5%) each. Of the various sub-periosteal abscesses encountered, most common type was found to be the sub-periosteal post auricular mastoid abscess in 10 cases, 2 cases of Bezold's abscess with 1 case each of Parieto-occipital, Zygomatic, and Luc's and Citelli's abscess.

	Frequency	Percentage
Cholesteatoma	35	64.18
Mastoiditis	54	100
Abscess	16	29.62
Sinus / Fistula	8	14.81
Facial Dehiscence	2	3.7

Table 1: Findings of CT Mastoid in patients with Extracranial Complications

On CT scan, all the cases had evidence of mastoiditis, with 35 cases (64.18%) showing soft tissue density suggestive of cholesteatoma. Dehiscence of the Facial canal was seen on CT in 2 cases.

Of the 16 cases with abscess, there was predominance of staphylococcal growth, followed by growth of Pseudomonas sp; Klebsiella sp. while 8 patients showed sterile culture.



Fig. 2: Surgical Treatment Distribution for patients with Extracranial Complication:

Of the Twenty-four patients with Mastoiditis alone, 8 patients (14.81%) underwent Cortical mastoidectomy, 14 patients (25.92%) underwent Modified radical mastoidectomy while 2 patients (5.55%) had Radical mastoidectomy. Rest of the 30 patients had Radical Mastoidectomy (55.55%). Abscess drainage was done in all 16 cases (29.6%) of subperiosteal abscess. Facial nerve decompression was done in 3 patients (5.55%) with facial palsy (Fig.2).

When the surgical management was done, sclerotic mastoid was seen in 25 patients (46.2%). 25 ears (46.2%) had cholesteatoma, granulation tissue in 13 ears (24%), cholesteatoma with granulation tissue in 10 patients (18.5%) while polypoidal mucosa in 8 patients (14.8%). Erosion of semicircular canal was seen in 3 patients (5.5%) while facial canal dehiscence was seen intra-operatively in 3 patients (5.5%).

Post-operative complications

Amongst all the operated cases, 6 patients were found to have closure / stenosis of the meatoplasty, 8 patients had problems relating to cavity like discharging cavity and dizziness during the follow-up period.

DISCUSSION :

Otitis media (OM) is one of the most common medical problems of childhood. The advent of antibiotics has softened the blow of complications; however complications still occur, especially in our part of the globe with poor socioeconomic conditions and lack of health awareness. The patients who were admitted and managed for the complications of otitis media were 1.41% of all the patients of otitis media. In a study by Faden et al^[2]. less than 0.5% of Acute Otitis Media cases are associated with serious complications. In a recent study, which included 91 patients with complications of CSOM, 52 had extracranial complications^[5].

An increase in the reported complications of CSOM can be attributed to the rise of antibiotic resistant rates and the



increase of cases with immunodeficiency (diabetes mellitus, AIDS, use of steroid etc)^[6].

Foul smelling discharge (89%) and hearing loss (55.5%) were the most common presenting symptoms, which is similar to the findings of Semple, Mahadevan and Berkowitz^[7].

It was found that nearly half the number of patients with ear discharge, 40.74% had discharge for 1 - 5 years while 33.33% had discharge for 6 - 10 year duration.

According to Bluestone et al^[8], acute mastoiditis is the most commonly found acute intratemporal complication of OM. In our study, mastoiditis alone as a complication was the most common presentation, seen in 44.4% of the patients, however, associated mastoiditis was noted in all the patients.

The blockage of the aditus by cholesteatoma in the mastoid antrum and the remainder mastoid air cells may lead to subperiosteal abscess. Development of subperiosteal abscess with or without fistula provides reduction in pus pressure within the mastoid air cells, which in turn reduces the chance of infection spreading intracranially^[9]. In most of the studies, mastoid abscess was found as the most common extracranial complication^[4,9]. In our study, post-auricular mastoid abscess was the second most common complication accounting for 62.5% of the extracranial abscesses.

Ludman^[10] described the silent and progressive erosion of bone by cholesteatoma thus exposing the facial nerve, labyrinth and dura giving rise to various complications. Labyrinthitis with vertigo, sensorineural hearing loss and positive fistula test was a common finding^[11]. Osma et al^[4]. reported 5 cases of labyrinthitis among 39 extracranial complications. In our study, facial nerve palsy and labyrinthitis was found in 5.5% of patients each with similar presentation.

Odetoyinbo^[12] described discharging sinuses in postauricular region with abundant granulation tissue appearing in the external auditory canal as masses or polyps. Similar finding have been observed in our study too.

Paparella et al^[13] opined that CT scan imaging is unable to distinguish the soft tissue of cholesteatoma from that of granulation tissue, oedematous mucosa, polypoidal mucosa, pus or cholesterol granuloma. In our study, mastoiditis was found in all the involved ears while cholesteatoma was found in 64.18% of the patients. Patients with different abscess, mastoid fistula, fallopian canal dehiscence were also noted on CT evaluation.

In our study, the patients with cholesteatoma were complicated with Labyrinthitis in 5.5%. Gersdorff MC et al[14], noted the most common location for labyrinthine fistula to be the lateral semicircular canal which is in concordance with our study.

Kangsanarak et al^[3] found facial palsy as the most common complication in 0.26%. We found the incidence of facial palsy to be 5.5%.

Varhainen^[15], in a series of 349 patients, operated 93% of the patients by the canal wall down technique with successful results. This is similar to our study where, nearly two-third of the patients was treated by a radical mastoidectomy while the remaining one third of the patients had modified radical mastoidectomy and cortical mastoidectomy as a treatment for their presentation.

Facial decompression is indicated only in cases of total facial paralysis and suspicion of nerve compression^[16]. In the present study, the patients of facial nerve paralysis had undergone fallopian canal decompression during the mastoid surgery.

Cholesteatoma is a major surgical finding in a complicative CSOM^[3,4]. The most common operative finding was the presence of cholesteatoma in 64.81% of the patients. Granulation was noted in 42.5% of the patients while a sclerotic mastoid was noted in 46.2% of the patients. Similar findings were noted by Kangsanarak et al³. Fallopian canal dehiscence, erosion of sinus plate or semicircular canals were found in a minority of the patients.

CONCLUSION :

The complications of CSOM still continue to be a problem in the developing world. Their presentations are subtle and require a high degree of suspicion to diagnose. Early surgical treatment is necessary to establish the drainage of the mastoid air system and to prevent the sequelae of otitis media. Mastoiditis and postauricular abscess are the most common extracranial complications of CSOM.

REFERENCES :

- Glasscock & Shambaugh. Surgery of the Ear. 4th ed. WB Saunders Company 1990.
- Faden H, Duffy L and Boeve M. Otitis media: back to basics. Pediatr Infect Dis J. 1998, 17 (12): 1105-12.
- Kangsanarak J, Fooanant S, Ruckphaopunt K, Navacharoen N, Teotrakul S. Extracranial and intracranial complications of suppurative otitis media. Report of 102 cases. J Laryngol Otol. 1993; 107:999-1004.
- Osma U, Cureoglu S, Hosuglu S. The complications of chronic otitis media: report of 93 cases. J Laryngol Otol. 2000; 114:97-100.
- 5. Mustafa A, Heta A, Kastrati B, Dreshaj S. Complications of chronic otitis media with cholesteatoma during a 10-year period in Kosovo. Eur Arch Otorhinolaryngol. 2008; 265: 1477-82.
- Luntz M, Brodsky A, Nusem S, Kronenberg J, Keren G, Migirov L, Cohen D, Zohar S, Shapira A, Ophir D, Fishman G, Rosen G, Kisilevsky V, Magamse I,

Zaaroura S, Joachims HZ, Goldenberg D. Acute mastoiditis-the antiboitic era: a multicenter study. Int J Pediatr Otorhinolaryngol 2001; 57: 1-9.

- Semple C W, Mahadevan M, Berkowitz R G. Extensive acquired cholesteatoma in children : when the penny drops. Annals of Otology Rhinology Laryngology; 114(7):539-542.
- Bluestone CD. Clinical course, complications and sequelae of acute otitis media. Pediatr Infect Dis J. 2000, 19 (5Suppl): S37-46.
- 9. Dubey SP, Larawin V. complications of chronic suppurative otitis media and their management. Laryngoscope. 2007; 117:264-7.
- Ludman H. Complication of suppurative otitis media. In Booth JB, ed. Scott –Brown's Otolaryngology-Otology. Vol. 3 Butterworth Heineman Oxford 1997.

- 11. Dawes, J.D.K. and Watson , R.T.: Labyrinthine fistula. Journal of laryngology and otology. 978,92,83-98.
- Odetoyinbo ,O.: The changing pattern of mastoid abscess. Journal of laryngology and otology 1985, 99, 1081-1084,.
- 13. Paperella M,2003, Year Book of Otorhinology Head and Neck Surgery.
- 14. Gersdorf M.C. ,Nouwen J , Dcet M,Bosch P. Labyrinthine fistula after cholesteotomus chronic otitis media. American journal of Otology. 2000 jan :21 (1) :32 -35.
- Varhainan , E: Factors associated with recurrence of cholesteotoma , J. of Laryng, Otol. 1995, 109: 590-592.
- Bluestone CD, Klein JO. Otitis media in infants and children. 3rd ed. Philadelphia(PH): WB Saunders Company, 2001.





ALKEM LABORATORIES LTD

ACE DIVISION

Makers of :-

CLAVAM 625/375

PAN-40

MOVACE-SP

XONE

BORN TO RULE



Bacterial aetiology of chronic suppurative otitis media : an institutional workup in central India

Vishal Tyagi, Vijayshree Deotale, Dipika Garg, Monika Malgonde.

ABSTRACT:

Otitis media occupies a major percentage of diagnosis of childhood illness. In this article we try to find out the common pathogens involved in chronic suppurative otitis media in Central India. Pseudomonas aeruginosa (43.02%) and Staphylococcus aureus (23.10%) were the predominant isolates in all the three years. Other isolates were Klebsiella species (5.17%), Proteus mirabilis (5.57%), and Pseudomonas sp. (4.38%). K.pneumonia, Escherichia coli (4.38%), Candida and Aspergillus species accounted for all the fungal isolates. Their antibiotic sensitivity was also studied in order to start adequate treatment so as to reverse the disease process and prevent long term sequelae.

Keywords : Otitis Media, Bacteriology.

INTRODUCTION:

Otitis media is a condition frequently encountered during childhood and may lead to hearing loss, permanent ear damage and sometimes other serious consequences such as extension of the infection to the intracranial space. Pseudomonas aeruginosa, Hemophillus influenza, Streptococcus pneumonia and Staphylococcus aureus are the principal etiological agents of acute otitis media, which is a common condition in early childhood ^[1,2]. Chronic suppurative otitis media (CSOM) on the other hand is common in all age groups. CSOM can be insidious, persistent often destructive with irreversible sequelae and may in many cases lead to development of even cholesteatoma. Various gram negative bacteria, anaerobes and Staphylococcus aureus have been implicated as causative organism for CSOM ^[3].

Vishal Tyagi(

B12, SBKS Medical College, Sumandeep University, Pipariya, Waghodiya, Vadodara, Gujarat

Vijayshree Deotale Department of Microbiology, MGIMS, Wardha

Dipika Garg, Monika Malgonde. Department of Otolaryngology and Head-Neck Surgery, MGIMS, Wardha

Email: drvishaltyagi@rediffmail.com **a** + 919727922535 This present study is a retrospective analysis of last three years under taken to find the bacteria commonly associated with CSOM in patients attending our rural hospital and to study their antibiotic resistance pattern.

MATERIALS AND METHODS:

A total of 527 ear swabs were collected prior to antibiotic therapy and after cleaning the ear canal with a sterile swab soaked in sterile saline. The swabs were processed within half an hour of collection by standard techniques in the department of Microbiology. Antibiotic susceptibility of bacterial isolates was performed on Muller Hinton agar by Kirby Bauer's disc diffusion technique.

RESULTS:

The patients included belonged to both the sexes and their age ranged between 1 to 89 years. Of the 527 ear swabs cultured 251 (47.61 %) showed growth of organisms and of these, 231 (92.03%) showed bacterial and 19 (7.56%) fungal isolates (Table-1). All isolates were grown in pure culture. Maximum isolation was seen in the age group 11-20 years (15.75 %) followed by d" 10 years (9.5%). Sexwise, 157 (62.54%) isolates were from males and 94 (37.45%) from females.

Organism	1st year	2nd year	3rd year	Total
Psuedo.	41 (37.96)	39(36.11)	28(25.92)	108(43.02)
Aeruginosa				
OXSSA	02(3.44)	20(34.48)	36(62.06)	58(23.10)
Klebsiella species	-	07(58.33)	05(41.66)	12(47.80)
Proteus mirabilis	01(7.14)	09(64.28)	04(28.57)	14(5.57)
Ps.sp.	02(18.18)	05(45.45)	04(28.57)	11(4.38)
E. coli	-	06(54.54)	05(45.45)	11(4.38)
Klebsiella	02(18.18)	07(63.63)	02(18.18)	11(4.38)
pneumonia				
Group D	01(33.33)	01(33.33)	01(33.33)	03(1.19)
streptococcus				
Klebsiella oxytoca	-	01(50)	01(50)	02(0.79)
Coagulase	-	01(50)	01(50)	02(0.79)
negative				
Staphylococcus				
FUNGI				
1)Candida	02(66.66)	01(33.33)	-	03(1.19)
albicans	03(50)	03(50)	-	06(2.39)
2)Candida sp.	01(14.28)	03(42.85)	03(42.85)	07(2.78)
3)Aspergillus niger	01(50)	-	01(50)	02(0.79)
4)Aspergilllus				
fumigatus	-	01	-	01(0.39)
5)Aspergillus				
flavus.				
TOTAL:	57(23.10)	108(44.22)	95 (32.66)	251

Table-1 shows year wise isolation of various bacterial and fungal isolates.

Isolation of gram negative bacilli was common (77.40%), with Pseudomonas aeruginosa (43.02%) and Staphylococcus



aureus (23.10%) being the predominant isolates. Other isolates were Klebsiella species (5.17%), Proteus mirabilis (5.57%), and Pseudomonas sp. (4.38%). K.pneumonia, Escherichia coli (4.38 each). Candida and Aspergillus species accounted for all the fungal isolates.

	Penicillin	Ampiciln	СНО	Ciprofloxacin	Gentamicin	Ceftazidime	Amikacin
Stahylococcs Aureus(n=41)	32 (78.04)	29(70.73)	6 (14.63)	8(19.51)	13 (31.70)		
Pseudomonas aeruginosa (n=108)		6 (5.55)	65(60.18)	13 (12.03)	28 (25.92)	8 (7.40)	11 (10.18)

Table 2 shows the resistance of the isolates to various antibiotics.

Resistance of Pseudomonas aeruginosa seemed to be increasing over the years to various antibiotics, except Ceftazidime. It was maximum to Chloramphenicol in all the three years. Though 19.1% of the Staphylococcus aureus were MethicIlin resistance, none of them were found to be resistant to Vancomycin. Even among the Staphylococcus aureus isolates, resistance to various antibiotics was found to be increasing over the years and maximum resistance was seen against beta lactams (ampicillin 1st and 2nd and penicillin 3rd).

DISCUSSION:

Chronic suppurative otitis media, a destructive and persistent disease of multiple etiologies needs to be diagnosed as early as possible to institute accurate effective therapy and prevent irreversible complications. The indiscriminate and half hearted use of antibiotics together with poor follow up of patients not only leads to persistence of infection but also development of resistance also. Infection of the middle ear mucosa subsequently results in ear discharge. Untreated cases of CSOM can result in a broad range of complications. Treatment hence needs to be instituted early and effectively to avoid such complications. Anaerobic culture was not done in our laboratory as samples were not received in anaerobic transport media.

The principal isolate (46.95%) in the present study, as has been reported in other studies $(17.7\% \text{ to } 41.6\%)^{[2,4,5]}$. However, it must be remembered that Pseudomonas aeruginosa is a common inhabitant of auditory canal and unless the middle ear is properly cleaned before collection of the specimen from the middle ear (this was done in our case), the pathogenic role cannot be established, as *Pseudomonas aeruginosa* was the most prevalent microorganism^[6,7]. Antibiotics resistant profile was done against seven antibiotics.

Among the gram positive bacteria S.aureus was the predominant isolate (17.82%) in our study. This finding is similar to that reported by other workers and its isolation rate has been between $(6.6 \text{ to } 42.5\%)^{[8,9]}$. Streptococcus

pneumonia is usually isolated from cases of acute otitis media, especially children; however various studies have reported its isolation from cases of CSOM (1.43 to $5.46\%)^{[10,11]}$. In our study it was isolated from three cases (1.30%) of CSOM and all of them were adults.

The increase in resistance to various antibiotics, over the years, emphasizes the need to treat patients as per the antibiotic susceptibility and it is desirable that these samples should be transported maintaining anaerobic chain so as to enable the laboratory to look for anaerobes also. In view of the polymicrobial etiology of CSOM, prompt appropriate antimicrobial therapy can effectively reverse the disease process thereby preventing long term sequelae^[11].

REFERENCES:

- 1. Deshmukh CT. Acute otitis media in children-treatment options. J Postgrad Med 1998; 44:81-84.
- Mathur M, De A. Acute otitis media in childrenchanging bacteriological pattern and increased antibiotic resistance. Indian Med Gazette 2001; CXXXV: 62-64.
- 3. Brook I. Role of anaerobic bacteria in otitis media: microbiology, pathogenesis and implications on therapy. Am J Otolaryngology 1987; 8(2): 109-117.
- National Committee for Clinical Laboratory Standards (NCCLS). Performance standards for antimicrobial susceptibility testing; 8th Informational supplement.
- Gulati SK: Investigative profile in patients of chronic suppurative otitis media. Indian Jr of Otology, 1997; vol. 3, No.2
- Yeo SG, Park DC, Hong SM, Cha CI, Kim MG. Bacteriology of chronic suppurative otitis media-a multicentre study. Acta Otolaryngol 2007; 127:1062– 67.
- Acuin J.Chronic suppurative otitis media. Clinical Evidence 2003. http://www.clinical evidence.com/ ceweb/conditions/ent/0507.
- Gulati J, Tandon PL, Waryan Singh and Bais AS: Study of bacterial flora in chronic suppurative otitis media. Indian Jr of Otology, 1997; vol. 3, No.2
- Mishra Anupam, Shukla Girish, Nag Devika Mishra, Subhash Chandra: Bacteriological study of chronic suppurative otitis media. Vol.5, No.2 (June 99), 87-91.
- Nilekar SL, Shegokar VR : Bacteriological evaluation of chronic suppurative otiis media in rural population of Ambajogai. Indian Medical Gazette (Feb 1996); 51-53.
- Saini S, Gupta N, Aparna, Seema, Sachdeva OP : Bacteriological study of paediatric and adult chronic suppurative otitis media. Indian J Pathol Microbiol. 2005 Jul;48(3): 413-6.



Result of FESS in Chronic Rhinosinusitis

ABSTRACT :

Aim : To Evaluate results of functional endoscopic sinus surgery (FESS) in cases of rhinosinusitis with or without polyps and anatomical variations

Materials and methods : 91 patients suffering from chronic rhinosinusitis (CRS) and refractory to conservative treatment at least for three months were selected for Evaluating results of FESS. Decision to perform FESS was done after correlating the clinical and radiological findings.

Observation and result : Satisfactory result with 87% recovery from troublesome symptoms were obtained. Total recovery acheived in 61% and partial recovery in 26%. After 6 months, the recovery from symptoms when FESS was combined with septoplasty with or without inferior turbinectomy or FESS with ethmoidal polypectomy were noted in 84% and 72% respectively. Full recovery in patients with antrochoanal polyp when polypectomy was combined with MMA. Similarly, all patients with concha bullosa and prominent agger nasi cells showed full recovery following excision or frontal recess clearance.

Discussion: Recovery or Persistence of Symptoms of symptoms with or without complete eradication of pathology following surgery were termed as Recovered or Not Recovered respectively. No major complications was encountered though minor complications were noted in few cases which recovered fully following treatment. Disease Recurrence was found in patients with ethmoidal polypi and they responded well to steroidal nasal spray.

Conclusion : Result of FESS in chronic rhinosinusitis was satisfactory unless associated with respiratory tract allergies.

Key words : FESS, MME, DNE, concha bullosa, agger nasi.

A. C. Sarma

Department of ENT, Pondicherry Institute of Medical Sciences, Kanagachetticulum Pondicherry - 14 Email : Sharma_ac@yahoo.com

+ 918056568354

.

INTRODUCTION:

Functional Endoscopic Sinus Surgery (FESS) revolutionized the treatment of sinonasal inflammatory disease. It reestablished the ventilation and mucociliary clearance of the diseased paranasal sinuses with the help of limited dissection of the pathology and/or correcting the anatomical abnormalities responsible for the disease. Most infection of the paranasal sinuses are rhinogenic in origin. Obstruction of major drainage pathways of the paranasal sinuses is located in the osteomeatal complex where the frontal, ethmoidal and maxillary sinuses drain. Usually spread of infection occurs from the ethmoidal sinuses to the major paranasal sinuses. The anterior ethmoids are prone to more infection as the mucosa, clefts and fissures are very close to one another and any inflammation of that area due to various factors will result in oedema causing the mucosal surfaces coming in contact resulting in defective drainage, stasis, further oedema and blockage of the osteomeatal complex. What was previously thought to be the irreversible mucosal changes of the sinuses are now made reversible by establishing the aeration and drainage of the sinuses by opening up the ostea of the paranasal sinuses by FESS. Anterior end of the middle turbinate is prone to oedema and hypertrophy as it bears the brunt of air current and there by exposure to pollutants. The third factor responsible for different sinus pathologies is the anatomical factor mentioned under Messerklinger paradox namely the variations of the middle turbinate, conchabullosa, enlarged bulla, laterally bent uncinate process. These anatomical variations are responsible for obstruction in the osteomeatal complex leading to infection and mucosal changes of the paranasal sinuses. Success rate after FESS is as high as 87.5%^[1]. Levine^[2] reported success rate of 80.1% in his cases. Previous traditional sinus surgery success rates were reported between 44% to 83%.

MATERIALS AND METHODS :

This study was done in the department of ENT, Manipal College of Medical Sciences, Pokhara, Nepal between 1st February, 2006 and 8th October, 2009. There were 91 patients in whom Funtional Endoscopic Sinus Surgery (FESS) was done for chronic infective pathologies involving the nose and paranasal sinuses who did not respond to conservative treatment for three months or more. Detailed history was obtained and routine investigations performed. DNE, Nasal swab for culture and sensitivity and x-ray of the paranasal sinuses (water's view) were carried out. Depending on the site of lesion conservative treatment was initiated. Non-



respondent to conservative treatment were subjected to DNE again. CT scan was done to note the nature of the pathology , disease site with its extent and all the anatomical variations. Selection for FESS depended on (1) long duration of symptoms with recurrence (2) previous medical or surgical treatment without relief (3) radiological or endoscopic evidence of sinonasal disease or/and anatomical obstruction of osteomeatal complex. Post operative complications if any were noted and treated. The cases were followed up at one week, one month , three months and therafter every six months.

For the purpose of study, these patients suffering from chronic rhinosinusitis undergoing FESS were analysed from two points of view.

- A. According to the pathology involved
 - 1. Nasal polyps without DNS, ITH and Concha bullosa
 - Ethmoidal
 - Antrochoanal
 - 2. Nasa polyps with
 - DNS
 - DNS and ITH
 - Concha bullosa
- B. According to the surgeries done
 - 1. FESS alone
 - 2. FESS with septoplasty with or without inferiorturbinectomy
 - 3. FESS with turbinectomy alone
 - 4. FESS with concha bullosa excision

RESULTS :

The male to Female ratio was 1:1.2. The youngest and oldest patient was 8 years and 76 years respectively (Table 1).

DECADE	NO.OF PATIENTS
First	1
Second	28
Third	24
Fourth	15
Fifth	8
Sixth	7
Seventh	6
Eighth	2



Symptoms associated with the patients undergoing FESS were noted. Nasal obstruction (Bilateral in 20 and unilateral in 71) was the commonest symptom. Other common symptoms are shown in the table below (Table 2).

Symptoms	No. of cases
1.Nasal obstruction	91
Unilateral	71
Bilateral	20
2.Nasal discharge	44
3.Headache	33
4. Sneezing	18
5. Post nasal drip	8
6. Epistaxis	7
7. Anosmia	4

Table 2 – Symptoms in cases undergoing FESS

A. According to the pathology involved

Table 3 shows the associated pathological findings amongst the 91 cases with chronic rhinosinusitis undergoing FESS following failed conservative management.

Clinical findings	No.of cases
DNS	24
DNS with HIT	9
Polyps	51
Ethmoidal	31
Bilateral	25
Unilateral	6
Antrochoanal	20
Unilateral	19
Bilateral	1
Concha bullosa	5
Right	1
Left	2
Bilateral	2
Oedematous uncinate	8
Pus/Mucopus	70
Prominent agger nasi cells	2

Table 3 – DNE findings undergoing FESS

B. According to the surgeries done

Functional endoscopic sinus surgery was done alone or in combination with correction of other nasal pathologies when present. There were four revision surgery cases in this series where FESS was done in the past with recurrence. All cases underwent surgery under GA. Table 4 enumerates the various



surgical procedure alone or in combination as demanded by the pathology in the nasal cavity and paranasal sinuses. Ethmoidal bulla was exposed in all the cases except in one case of concha bullosa. There were 58 patients where sinonasal pathology was not associated with deviated nasal septum and inferior turbinates hypertrophy. In this group, surgeries done were uncinectomy with middle meatal antrostomy (MMA), anterior ethmoidectomy and posterior ethmoidectomy, clearance of the frontal recess by excision of the aggernasi cells (either alone or in combination). Five patients had concha bullosa, one case required simple excision, three cases underwent uncinectomy with exposure of healthy bulla ethmoidele, and one case required uncinectomy and anterior ethmoidectomy. None of these patients needed intervention of the frontal sinus and the sphenoid sinus.

EXTENT OF FESS	No.OF CASES
Un + MMA	10
Un + MMA + AE	28
Un + MMA + TE	13
Un +MMA+TE+FRC	2
CB excision alone	1
CB excision + Un + exp BE	3
CB excision + Un + AE	1
Sep + Un + MMA + AE	18
Sep + Un + MMA + TE	6
Sep + IT + Un + AE	7
Sep + IT + Un + TE	2

Table 4 - Extent of FESS done in chronic rhinosinusitis

Un= uncinate process MMA= middle meatal antrostomy AE= anterior ethmoidectomy TE= total ethmoidectomy FRC= frontal recess clearance CB= concha bullosa BE=bulla ethmoidele Sep= Septum IT= inferior turbinate

On discharge all patients were advised oral antibiotic for two weeks, normal saline nasal douching, steroid nasal spray and low dose oral steroid. They were advised to continue nasal douching, steroid spray for four weeks and low dose oral steroid for 2 weeks post operatively. All the patients were followed up after one week. 86 cases came for follow up upto 1 month (94%), 78 (85%) cases came upto first six months. All the cases were evaluated for complications and success or failures. Nasal endoscopy was done after one week and repeated at one month. Majority had a clear nasal cavity and no further treatment was required. Synechia when seen was released and a piece of x-ray plate was kept between the raw surfaces for 7 days. Small polyps if found were removed under local anaesthesia in the endoscopy room. Crusts when seen were removed and the patient was advised to continue nasal douching for such time till necessary. The residual disease of hypertrophied mucosa and nasal polypi in majority of the

patients resolved well with conservative treatment. The reason being wider exposure of the infundibular area to the medical treatment in the form of local steroid nasal spray. After one week, as expected, some amount of nasal obstruction with nasal pain were present almost in all the patients. After one month complete relief of symptoms were noticed in 60 patients (66%). By the end of six months, 68 out of a total 91 patients (74.7%) who turned up for check up, 87% showed recovery (Full recovery in 61% and partial recovery in 26%). Out of 33 patients where FESS was combined with septoplasty or septo turbinectomy, total relief of symptoms was found in 20 cases where as partial recovery was found in 2 cases. There was no improvement in 4 cases and no pathological cause were attributed even after repeated examination. 7 patients failed to turn up for check up after 3 months. All the patients who underwent surgery for antrochoanal polyp, concha bullosa and prominent agger nasi cells, turned up for follow up upto 6 months. Those who underwent FESS for antrochoanal polyp showed Complete recovery without recurrence. Out of 31 cases of ethmoidal polypi, 18 patients showed complete recovery in 6 months. In 7 patients, there was recurrence but responded to local steroid nasal spray. 6 patients were lost for follow up.

Post operative synechia was a problem in the post polypectomy group. Table 5 has shown the list of complications in this series. Those with periorbital oedema and congestion were managed conservatively.

Complications	No.of cases
Periorbital oedema	4
Periorbital congestion	3
Synechia	14
Post polypectomy	10
Post Septo + turbinectomy	4

Table 5 – Post operative complications

DISCUSSION :

Any assessment of the results of surgery is complicated by the lack of criteria that can be applied to provide a truly objective measurement of post operative "success"^[3]. In many indications, such as headache, facial pressure, post nasal discharge, or frequent or protracted cold with obstucted nasal breathing, the assessor is almost totally dependent on the patient's subjective evaluation^[4]. Several of our patients who were free of symptoms for at least six months after surgical procedure failed to show a complete disease free situation in DNE. In this group of patients we decided not to perform



revision surgery. The reasons for taking this decision were that the patients were symptomless and a revision surgery may not cure the condition or may worsen it (since the causative factor may be such that the second surgery will not probably remove it). Polypoid rhinosinopathy called NARES (Non Allergic Rhinosinusitis with Eosinophia Syndrome) characterized by massive eosinophilic infiltration is one such condition which is an idiopathic generalized disease of the entire mucous membrane of the upper and possibly also of the lower airway^[5]. Following failure with FESS, Stammberger and Hawke^[5] tried all sorts of other radical procedures without success. It has also been noticed that many preoperative steroid dependent cases reduce or discontinue steroid regime with significant improvement in quality of life.

On the other hand, some patients whose mucous membranes appear to be perfectly normal post operatively and ostia are all patent; still complained of variety of persistent problems for which no anatomic basis could be found. In these patients unrealistic expectations may conflict with reality^{[1,2,4-} ^{11]}. So we warned our patients that surgical procedure might not protect them from future colds or sinusitis might not ever develop again. From the above two situations we come to the conclusion that it is difficult to give percentage of objective post operative improvement and to develop meaningful statistics. Percentage of improvement varies in the same patient if analyzed on the basis of subjective and objective improvement. So it was rational to ask the patient to tell a percentage of subjective improvement of the presenting complaint and overall symptoms. Then it was attempted to correlate these subjective improvements with endoscopic as well as radiological findings (wherever felt necessary) and then expressed as a percentage^[2,4].

Excellent results of FESS in chronic rhinosinusitis were reported by many workers (Stammberger and Posawetz, 1990, Wigand, 1990, Lund, Holmstrom Scadding, 1991, Stammberger, 1991)^[7,8,3,12]. Wigand's subjective assessment of 220 cases of ethmoidectomy primarily for polyposis showed success rate of 85%, reduction in facial pain and headache in 93.4%^[12]. Venkatachalam^[13] reported complete recovery in 70% and partial recovery in 18.5% patients. Chowdhury et al^[14] showed success rate of 87.5% in ethmoidal polypi. They had recurrence rate of polypoidal changes of mucosa or polyps in 37.4% cases during 3 to 6 months of post operative period. They commented that this was an inherent property of the mucosa to become hypertrophied and polypoidal. Inspite of these changes 18.7% did not show any recurrence of symptoms and were treated conservatively where as remaining 18.7% required revision surgery with improvement in 12.5% cases. Levine^[2] reported a success rate of 80.1%. He commented that the failure in the rest might be due to abnormally thick mucus and poorly functioning cilia. Mathews et al^[10] in their series of 155 patients had a success rate of 90%, out of which

50% showed complete recovery. Complete recovery in the series of Rice et al¹³ was 83% and partial recovery was seen in 7% with a follow up period of 6 months. Majority of workers had complete success or minimal failure in the patients with antrochoanal polyp^[15,16,17,6,9,11,12] Mackay and Lund (1994) reported 650 cases undergoing FESS and followed up for six months. Majority of patients belonged to rhinosinusitis (51%) and nasal polyposis (48%). 87% cases were improved or cured, 11% unchanged and 2% worse. There was improvement or cure of nasal obstruction in 92% cases and cure or improvement of nasal discharge in 86% of cases. Stammberger^[18] in his follow up of 500 cases for 8 months to 10 years showed good or very good result in 85% cases, satisfied in 6% cases, moderate success in 4% cases, no improvement in 4% cases and asthma after one year in 1% cases. There was no deterioration in any of his patients. Impressive and persistent improvement was seen 60% case of intrinsic bronchial asthma. 20% of such cases showed transient subjective improvement and 10% showed no improvement.

CONCLUSION :

Post operative results of patients with chronic rhinosinusitis undergoing FESS are difficult to assess. Subjective improvement of symptoms expressed in percentage and complemented by nasal endoscopy and optional radiological assessment is the best way to assess these cases. Recovery is not satisfactory in those patients who have generalized allergic upper or lower respiratory mucosal disease. Complications are usually minor and can be treated successfully with complete recovery.

REFERENCES :

- Rice D.H. Endoscopic Sinus Surgery Results in 2 years follow up. Otolaryngology and Head & Neck Surgery. 1989,101:476-479
- Levine H.L. Functional Endoscopic Sinus Surgery. Evaluation, Surgery and Follow up of 250 patients. Laryngoscope 1990,100: 79-84
- Stammberger and Posawetz W. Functional Endoscopic Sinus Surgery : Concept, indications and results of the Messerklinger technique. Europian Archieves of Otorhinolaryngology. 1990, 240: 63-76
- Kennedy, D.W. Prognostic factors, outcomes, and staging in ethmoid sinus surgery. Laryngoscope. 1992, suppl. 57: 1-18
- 5. Mackay I.S., Lund V.J. Scott-Brown's Otolaryngology, Sixth edition, 1997, Vol 4, Rhinology, 4/12/22-24
- Kamer R. E.N.T., Cairo University, Egypt. Archieves Otolaryngology and Head and Neck Surgery, 1990, July, 116 (7):841-843
- 7. Lund, V.J. Surgery of the ethmoids past, present and



future. Journal of the Royal College of Medicine. 1990, 83, 377-379

- Lund V.J., Holmstram, M. and Scadding, G. K. Functional Endoscopic Sinus Surgery in the Management of Chronic Rhinosinusitis. An objective assessment. Journal of Laryngology and Otology. 1991, 105,832-835
- 9. Maldonado M. et al. The antrochoanal Polyp. Rhinology. 2004Dec; 42 (4):178-82
- Mathews B.L., Smith L.E., Jones R., Miller C. Endoscopic Sinus Surgery – Outcome in 155 cases. Otolaryngology Head and Neck Surgery. 1999, 104: 244-246
- Schaefer S.D., Manning S., Lammy G.C. Endoscopic Paranasal Sinus Surgery – Indications and Considerations. Laryngoscope. 99, 1-5
- 12. Wigand M.E. (1990) Endoscopic Surgery of the Paranasal Sinuses and Anterior Skull Base. Stuttgart : Gearg Thieme Verlag
- 13. Venkatachalam V.P. and Bhat A. (2000) Functional Endo-

scopic Sinus Surgery – A Newer Surgical Concept in the Management of Chronic Sinusitis. Indian Journal of Otolaryngology and Head and Neck Surgery, Vol 52, No 1, 13-16

- Chowdhury N. et al. Functional Endoscopic Sinus Surgery Results in 69 patients. Indian Journal of Otolaryngology and Head and Neck Srgery. 2000, Dec – Mar, 52 (1): 5-8
- Atighechi et al. Antrochonal Polyp A comparative study of endoscopic endonasal plus mini culdwell Luc technique. 2009, 266(8); 1245-1248
- French G.L. et al. Endoscopic polypectomy with middle meatal antrostomy for antrochoanal polyp treatment. Santa Casa de Porto Alegre, Braz J otorhinolaryngol. 2007Sep-Oct; 73 (5): 689-692
- 17. Josephson S. () Role of endoscopic sinus surgery in nasal polyposis. OCNA. 1989, 22: 831-839
- Stammberger, H. () Functional Endoscopic Sinus Surgery. Book published by Mosby. 1991, 45-46, 283

With Best Compliments from :

ZUVENTUS HEALTHCARE LTD.



Electronystagmographic Changes in Cases of Hypertension

M. P. Puttewar, P. S. Nagpure, N. Baisakhiya, H. B. Nongrum

ABSTRACT :

An objective is to study the Electronystagmographic changes in diagnosed cases of hypertension with and without vertigo. In patients with vertigo 11.1% had an abnormal pendular tracking and 7.6% had spontaneous gaze nystagmus suggesting involvement of a central vestibular apparatus. A high incidence of unilateral canal weakness seen in 44.4% and a positive positional test in 7.5% suggested that the peripheral vestibular apparatus is affected significantly. In hypertensive patients without vertigo, abnormal pendular tracking was seen in slightly higher percentage (30.8%) and 7.6% had spontaneous gaze nystagmus. Unilateral canal weakness was seen in 23.1%. Thus in patients with hypertension the peripheral and central vestibular apparatus are equally affected.

Keywords: Electronystagmography, hypertension.

INTRODUCTION :

Hypertension in adults is the most frequent cerebrovascular disorder and is a major health hazard leading to death. Vertigo is a frequent complaint of patients suffering from hypertension. There has been conflicting reports on the relationship between hypertension and audiovestibular loss. Various pathological processes accompanying hypertension such as chronic anoxia,

M. P. Puttewar, P. S. Nagpure, Department of Otolaryngology and Head & Neck Surgery, MGIMS, Wardha, Maharashtra -442102

N. Baisakhiya

Dept. of Department of ENT, Maharishi Markandeshwar Institute Of Medical Sciences and Resarch, Mullana

H. B. Nongrum()) Department of Otolaryngology and Head & Neck Surgery, Nazareth Hospital, Shillong 793003 Email: henry.nongrum@gmail.com

a + 919436309304

acute infarction, or hemorrhage may be involved in triggering a disturbance in circulation to the inner ear impairing the supply of obligate nutrients to the peripheral vestibular end organ and/or central connections causing vertigo. It is reported in the literature that most of the hypertensive patients have vertiginous symptoms due to atherosclerosis involving the blood vessels supplying the vestibular part of the labyrinth^[4] There are opinions that vertebrobasilar insufficiency is the cause of vertiginous attacks in hypertensives^[1]. There are also opinions suggestive of significant involvement of the peripheral and central vestibular apparatus in hypertensive with vertigo demonstrating canal paresis and spontaneous nystagmus with failure of fixation^[2]. This study is done to assess the electronystagmographic changes in hypertensive patients.

MATERIALS AND METHODS :

The study was conducted in the Department of Otolaryngology and Head-Neck Surgery, Mahatma Gandhi Institute of Medical Sciences, Wardha. Electronystagmography (ENG) was performed in 40 hypertensive patients, 27 patients presented with vertigo and 13 without vertigo. 10 candidates were taken as normal control. The various changes in the ENG tracing with pendular tracking, saccades, nystagmus with eyes closed and eyes open, right and left gaze nystagmus, positional nystagmus and caloric stimulus were noted. The parameters studied in bithermal caloric stimulation were Maximum slow phase velocity and total duration of nystagmus. The 95% limit of normal variation is 29% for directional preponderance and 25% for canal paresis^[1]. The patients were divided into three groups according to the criteria set by The Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure^[3]:

1. Group 1

Mild hypertension (diastolic BP = 90 - 104 mmHg.).

2. Group 2

Moderate hypertension (diastolic BP = 105 - 14 mmHg.).

3. Group 3

Severe hypertension (diastolic BP e" 115mmHg.).

The data was collected and analyzed using EPI6 and Microsoft Excel. The statistical parameter used for analysis were, the mean, sum, standard deviation and variance. The P value was decided after comparing the calculated value of the mean and the variance.



RESULTS :

Forty cases of hypertension, 27 patients presented with vertigo and 13 without vertigo were studied for vestibular changes with ENG. 10 normal candidates were taken as controls for standardization of the parameters on ENG. Patients were divided into 3 groups: mild, moderate, and severe hypertension. There were 22 (55%), 13 (32.5%), and 5 (12.5%) patients belonging to group 1,2 and 3 respective, who complained of recurrent vertigo of mild to moderate intensity.

Sr. no.	Pame	eters	HTN with Vertigo (n=27)	HTN without Vertigo (n=13)	Total (n=40)
1	Pendular Tracin	g	3 (11.1%)	4(30.8%)	7 (17.5%)
2	Saccades		Nil	Nil	Nil
	Spontaneous nystagmus	Eyes closed	1 (3.7%)	1(7.6%)	2 (5%)
		Central gaze	Nil	Nil	Nil
3		Rt. Gaze	1 (3.7%)	1(7.6%)	2 (2.5%)
		Lt. Gaze	Nil	Nil	Nil
4	Dix Hallpike tes	t	3 (11.1%)	Nil	3 (7.5%)
	CP (%)		9 (33.4%)	3(23.1%)	12 (30%)
_	Onlaria tant	DP (%)	2 (7.4%)	1(7.6%)	3 (7.5%)
5	Caloric test	CP + DP	3 (11.1%)	Nil	3 (7.5%)
		Normal	13 (48.1%)	9 (69.3%)	22(55%)

Table no. 1: Table showing ENG findings in Hypertensive patients (n=40).

ENG findings was divided into 2 groups. One of the group are those presenting with vertigo and the other without vertigo. The ENG tracings (table no. 1) in 2 (5%) cases (1 case in each of the groups) showed spontaneous gaze nystagmus with eyes opened, suggestive of a central type of lesion. In 2 (5%) (1 case in each of the groups) cases tracings showed spontaneous nystagmus with eyes closed suggestive of a peripheral type of a lesion. 7 (17.5%) cases (3 cases in the vertiginous and 4 in the non-vertiginous group) had abnormal pendular tracking. 3 (7.5%) patients showed positive Dix Hallpike on ENG. Abnormal caloric response was seen in 14 (51.9%) amongst those presenting with vertigo, 12 (44.4%) had unilateral weakness and 5 (18.5%) had directional preponderance. Amongst those without vertigo 4 (30.7%) cases had abnormal caloric response, 3 (23.1%) had unilateral weakness and 1 (7.6%) had directional preponderance. Maximum slow phase velocity and total duration of nystagmus following caloric stimulation was compared with that of normal individuals. . The mean value of the total duration of nystagmus for all irrigations amongst the hypertensive was found to be higher than those in normal individuals but the difference was statistically insignificant (p>0.05) (Table 2).

There is an increased in the mean value of Maximum slow phase velocity with all irrigations compared to normal individuals. Statistical an increased value for LwC, LcC and RcC was found to be significant (p<0.5) and insignificant for RwC (P>0.5) (Table 3).

	Normal		Hypert	ʻp' value	
	Mean	SD	Mean	SD	
RwC	91.5	21.35	103.5	53.23	>0.05
RcC	131	26.854	132.5	25.30	>0.05
LwC	102	25.298	118.25	43.25	>0.05
LcC	145	35.04	146.63	39.79	>0.05

RwC - right warm,	RcC - right cold,	LwC - left warm	LcC - left cold

Table no. 2 : Table showing the statistical analysis of total duration of nystagmus (in seconds) (n=40).

The values of canal paresis and directional preponderance were calculated on the basis of MSV for the hypertensive patient and the normal control (Table 4 & 5).

	Nor	Normal		Hypertensive	
	Mean	SD	Mean	SD	
RwC	6.32	0.98	10.79	61.14	>0.5
RcC	6.91	0.99	11.36	41.49	<0.5
LwC	6.60	1.53	12.41	72.38	<0.5
LcC	10.66	2.32	16.15	50.85	<0.5

Table no. 3: Table showing the statistical analysis of the Maximum speed of slow component (n=40).

		Group I	Group II	Group III
Sr. no.	Normal (n=10	(n=22)	(n=13)	(n=5)
1	2.9	-100	-3.3	-34.5
2	22	-7.3	9.3	2.9
3	18	10.02	12.5	-0.5
4	17	-23.4	-25	-100
5	14	24.6	-54	-6.4
6	1.9	-29.6	16.7	
7	10	-27.4	-16.7	
8	12	-73.9	-14.2	
9	14	7.6	71	
10	12	-50	-29.8	
11	-	-11.9	5.2	
12	-	40.6	10.1	
13	-	20	-28.9	
14	-	-45.9		
15	-	-3.1		
16	-	3.4		
17	-	-33.3		
18	-	-8.7		
19	-	2.8		
20	-	2.6		
21	-	-28.9		
22	-	-26		
mean	12.38	26	23	29
SD	6.29	25	20	42

(-) Rt. Side weakness.

Table no. 4: Table showing unilateral weakness in normal controls and the three groups of hypertensive patients (on the basis of MSV).



(-) Lt. Directional preponderance.

Table no. 5: Table showing directional preponderance in normal controls and three groups of hypertensive patients (on the basis of MSV).

It shows an increase in the mean value amongst hypertensive patients as compared to normal controls. However, the statistical analysis of DP and CP were insignificant (p>0.05) (table no 6). There were 10 (45.5%), 5 (38.5%) and 2 (40%) patients in each group with canal paresis. Thus a total of 17 (42.5%) had unilateral weakness on caloric stimulation. Similarly, there were 3 (13.6%), 2(15.4%) and 2 (40%) patients in each group with directional preponderance.

	-	Normal (n=10)	Hypertensive (n=40)	'p' value
	Mean	10.92	25.5505	
Canal paresis	SD	6.15	25.092	p>0.05
Directional preponderance	Mean	10.92	17.49225	p>0.05
	SD	6.15	14.95	

Table no. 6: Table showing the statistical analysis of canal paresis and directional preponderance

DISUCSSION :

The effect of hypertension on hearing or equilibrium has not been recognized. It is seen that vertigo is a frequent complaint of patients suffering from hypertension. Edward (1974) noted that 57% of his patients with sudden onset vertigo were found to be hypertensive^[1]. Gupta et al. in his work found spontaneous gaze nystagmus in an overwhelming 40% of his patients with failure of fixation indicating brain stem localization. In 40% of his subjects an additional unilateral weakness was seen in differential caloric test suggesting an involvement of peripheral vestibular apparatus^[2]. In our study 5% and 17% had spontaneous gaze nystagmus and abnormal pendular tracking suggestive of central pathology. Whereas in another 5% cases spontaneous nystagmus was seen with eyes closed, Dix Hallpike test positive in 7.5% and canal paresis seen in 44.4% and 23.1% amongst the vertiginous and the non-vertiginous group suggested involvement of peripheral vestibular system. Directional preponderance was seen in about 7% cases in both the groups. But the exact localization of the lesion would be difficult because DP accompanies a wide variety of both peripheral vestibular and CNS disorder^[4]. The mean value for total duration of nystagmus, canal paresis and directional preponderance was found to be increased in patients with hypertension as compared to the normal control. Similar results were also reported by Saha et al^[5].

CONCLUSIONS :

The result shows that both the central and peripheral vestibular system equally affected in patients with hypertension. And caloric test shows the presence of a hyperactive labyrinth.

REFERENCES :

- Edwards, E. H.: The differential diagnosis of vertigo in ear, nose, throat. Vol. II. Ballantine and Groves (EDS), Butterworths, London, 1974, 631 – 644,.
- Gupta, A. K.: Thesis entitled "Effect of hypertension on vestibular system – An electronystagmographic study". Dayanand Medical College and Hospital, Ludhiana 1981.
- The Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure: The 1988 report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure, Arch Intern Med., 1988,148:1023.
- Barber, H.O. and Stockwell, C.W.: Manual of electronystagmography. The C.V. mosby and company St. Louis 1976.
- Saha, A., Mehra, Y. N., Sharma, B. K., Panda, N. K.: Audiovestibular function in essential hypertension. Indian journal of Otolaryngology and Head and Neck Surgery. 1993 Dec, 2(4): 177 – 181.



Comparative study of antimicrobial treatment with and without antral wash in chronic maxillary sinusitis

Tenzing J Bhutia, Rita Z, HP Devi, Nim N Bhutia, Sathish k, Prasantha B

ABSTRACT :

Introduction: Chronic sinusitis remains poorly understood hence treatment remains controversial. For chronic maxillary sinusitis, it is important to treat the bacterial infection, relieve the obstruction and normalize the mucociliary function.

Objective: To compare the antimicrobial treatment with and without antral wash in chronic maxillary sinusitis.

Materials and method: A total of 60 patients of chronic maxillary sinusitis were included after considering inclusion and exclusion criteria. They were clinically evaluated along with Paranasal Sinus (PNS) radiograph, Post Nasal drip culture and sensitivity and Computed Tomogram (CT Scan) PNS (Whenever required) Thirty cases each for antimicrobial treatment with antral wash and without antral wash were studied. They were followed up after two weeks, one month ant two months and the response of the treatment were evaluated and compared.

Results: The mean score of After treatment with antimicrobial following antral wash and without Antral wash group was 3.73 ± 1.7 and 6.76 ± 3.8 respectively which was statistically significant (p= 0.0002, t = 3.987)

Conclusion: combination of culture directed antimicrobial therapy with antral wash is more effective than antimicrobial therapy in the treatment of chronic maxillary sinusitis of bacterial origin.

Keywords : Chronic maxillary sinusitis, antimicrobials.

INTRODUCTION :

The term sinusitis refers to a group of disorders characterized by inflammation of the paranasal sinuses. Because the inflammation nearly always also involves the nose, it is now generally accepted that rhinosinusitis is the preferred term to describe this inflammation of the nose and paranasal sinuses^[1]. Chronic sinusitis is termed when symptoms last longer

Tenzing J Bhutia(, Rita Z, HP Devi, Nim N Bhutia, Sathish k, Prasantha B Department of Otorhinolaryngology, Regional Institute of Medical Sciences, Imphal, Manipur - 795004 Email: tenash@rediffmail.com

than 12 weeks. Chronic rhinosinusitis is estimated to affect 12.5% of the adult population^[2]. The main theory lies in obstruction at the level of the ostio-meatal complex (OMC) leading to stasis and infection of secretions within the maxillary sinus^[3]. The most frequent symptom is postnasal drainage of mucopurulent secretions; if pain, when present, is more commonly referred to mainly as a periorbital weight on the face. Sinusitis should be suspected when there is persistent cough, rhinorrhoea more than 7 - 10 days, fetid breath, facial tics or sniffing, recurrent otitis media or recurrent upper respiratory tract infections^[4]. Common bacteria found in chronic maxillary sinusitis include: Haemophilus influenza (non-typeable), Streptococcus pneumoniae, Staphylococcus aureus, Moraxella catarrhalis and Pseudomonas aeruginosa^[5]. Treatment of chronic sinusitis remains the subject of considerable controversy, since the underlying pathophysiology remains poorly understood. In the treatment of chronic maxillary sinusitis, it is important to treat the bacterial infection, relieve the obstruction of the sinus ostia and normalize the mucociliary function^[4].

We present our experience with 60 patients of chronic maxillary sinusitis of bacterial aetiliogy, treated by antimicrobial therapy with and without antral wash.

MATERIALS AND METHODS :

The study was carried out in the Department of Otorhinolaryngology and Microbiology, Regional Institute of Medical Sciences Hospital, Imphal, Manipur between September 2010 and February 2012. 60 patients of chronic maxillary sinusitis between the age group of above 15 years and 60 years, were included. Each patient was evaluated clinically, radiologically (X-ray PNS and whenever needed CT PNS), Culture and sensitivity from the post nasal drip and sinus lavage. Random selection was done and patients were divided into two arms (30 patients in each). The arms were one where antimicrobial was administered following antral wash and the other without. In both the arms broad spectrum antibiotics were initiated prior to obtaining cultuere/ sensitivity reports. The antibiotics were then changed according to the sensitivity reports. Antibiotics were given for 14 days or more depending on the severity of the sinusitis. Each patient was re-evaluated after two weeks. one month and two months.

Antral wash was performed under local anaesthesia. Return fluid was collected with aseptic technique in a sterile container and sent for bacterial culture and sensitivity. If return fluid was frank pus the antral washout was repeated after one week. If second washout showed improvement then third antral washout was advised after two weeks; whereas if the second antral washout showed no improvement as compared to the first wash out then it was recorded as failure. When the first antral wash yielded clear fluid then it was considered as allergic rhinitis. Patients were called after two weeks, one month and two months after antral wash and re-evaluated on each visit using 'The Lund and Mackay Visual Analogue Score.'

The response to the treatment were evaluated on facial pain, nasal blockage, headache, nasal discharge, olfactory disturbance. Whether the patient was cured, improved or no change in the symptoms were noted in the follow-up visits. The final evaluation was made on subjective relief and improved quality of life of the individual.

RESULTS :

The table below demonstrates the following: sex-wise distribution showing male predominance in both the arms (Table 1), radiological findings on X-ray PNS (Table 2), characteristics of the return fluid on antral wash out (Table 3), Outcome amongst patient receiving antimicrobial following antral wash (Table 4) and the mean value of the pre and post treatment Visual Analogue Scale in both the arms (Table 5)

Sex	Antral Wash n=30	Antimicrobial n =30
Male	20 (66.7%)	19 (63.3%)
Female	10 (33.3%)	11 (36.7%)
Total	30	30

Table 1. Sex wise distribution	on
--------------------------------	----

X-ray findings	AW with AB (%) (n=30)	AB (%) (n=30)
Bilateral maxillary sinus hazy	21 (70%)	16 (53.3%)
Right maxillary sinus hazy	4 (13.3%)	6 (20%)
Left maxillary sinus hazy	3 (10%)	8 (26.6%)
Right maxillary sinus opacity	1 (3.3%)	0 (0%)
Left maxillary sinus opacity	1 (3.3%)	0 (0%)

AW= antral wash, AB=antimicrobial

Table2. X-ray findings of paranasal sinuses (Water's view)

Purulent		Mucopurulent		Clear			
Right	Left	Bilateral	Right	Left	Bilateral	Right	Left
6	4	4	5	3	8	11	7
20%	13.3 %	13.3%	16.6%	10%	26.6%	36.6%	23.3%

Table3. Findings of return fluid in antral wash cases

Sl.no	Symptoms	Cured	Improve	No change
1	Facial pain	10 (55.5%)	8 (44.5%)	0
2	Nasal blockage	22 (75.8%)	7 (24.2%)	0
3	Headache	23 (88.5%)	3 (11.5%)	0
4	Nasal discharge	23 (100%)	0	0
5	Olfactory disturbance	8 (61.5%)	5 (38.5%)	0

Table 4.	Final outcome	Patients receivi	ng Antimicrobia	following	antral wash
TUDIC T.	i inui outcomic	T uticities receive	ng / unumorobiu	ronowing	unu wush

Patients Group	Before treatment	After treatment
Antimicrobial with antral wash	12.3 ± 5.0	3.73 ± 1.7
Antimicrobial	11.23 ± 4.9	6.76 ± 3.8

Table 5. Comparing the mean Visual Analogue Scale according to the Lund – Mackay score

The difference in the mean score of After treatment with antimicrobial following antral wash (3.73 ± 1.7) and Antimicrobial group (6.76 ± 3.8) was found to be statistically significant (the two-tailed P value is 0.0002, considered significant, t = 3.987 with 58 degrees of freedom with 95% confidence interval).

DISCUSSION :

Chronic maxillary sinusitis is a common, though poorly understood disease affecting many people worldwide. The causes of chronic rhinosinusitis are not straight forward and it is quite likely that bacterial infection plays an important role in addition to other factors such as environmental allergies, asthma, mucociliary disease, fungal infection, trauma or prior surgery. Incorrect diagnosis and inappropriate antibiotic choice with inadequate course often lead to its chronicity. Many times patients with chronic rhinosinusitis have often resorted to antibiotics, decongestant, mucolytics and analgesics of their choice in order to relieve themselves from their symptoms. This has led to many resistant cases that do not response to medical treatment of their chronic rhinosinusitis, which is a common problem encountered by otorhinolaryngologists. The continuing rise in antimicrobial resistance complicates the antibiotic selection process and increases the failure rate of empiric broad spectrum treatments. Culture and sensitivity results remain the gold standard for directing appropriate therapy. In order to overcome this problem and to treat patients efficiently, bacterial culture of the sinus discharge is very crucial so that we can provide culture and sensitivity directed antimicrobial treatment, which is more beneficial for patients to improve their quality of life. Combining culture directed antimicrobial with antral wash proved efficient for the treatment of chronic maxillary sinusitis over antimicrobial only treatment. No patient included in the study from this group had any complication associated with antral wash, allergy or adverse effect to the antimicrobials prescribed. We found patients in the age group between 21 and 30 years (mean age is 29.43 years) were mostly affected followed by age group between 31 and 40 year. This study is supported by Kurien M^[6] et al who found that people in the $2^{nd} - 3^{rd}$ decade of life were the most affected. Khan ZU^[7] et al also found majority of the 100 cases in their study belonged to the age group of 21 to 35 years (70%). The use of antimicrobial therapy alone without surgical drainage of collected pus may not result in clearance of infection. This is proved in the better outcome of the antimicrobial with antral wash group on their signs and symptoms as evaluated using the Lund and Mackay Visual Analogue Score. Sa SD et al^[8] studied a series of 20 cases of maxillary sinusitis; the diagnosis was confirmed in 15 cases by sinus lavage which showed positive findings. In 12 cases the causative organisms and etiology was determined. They found that without transillumination but with a good clinical assessment helped by X-ray findings the pathology of maxillary sinusitis can be confirmed, and treated so that the physiopathology is restored to normal physical conditions.

In one study done by Gupta AK et al.^[9] on 25 Patients of chronic Maxillary Sinusitis proved Radiologically and confirmed sinoscopically. After antral Catheterization for 2–3 weeks and repeated antral Irrigation with normal Saline solution done on every alternate day. The patients were followed up for 2 months and it was observed that in 92% cases there was complete recovery while remaining 8% cases (Basal Cyst/Mucosal thickening) had partial recovery. The study is limited in its approach with limited number of patients included in the study. Multiple studies in various centres including large numbers of patients will facilitate in quantifying the superiority of antral wash with antimicrobial therapy to antimicrobial therapy alone.

CONCLUSION:

Chronic maxillary sinusitis is one of the most common problems encountered by otorhinolaryngologists. The true pathogenic mechanism and agents involved in the disease

process is unclear and one of the current hypothesis being infection, especially of bacterial and fungal. The study revealed that antimicrobial with antral wash is a better therapeutic option than antimicrobial alone. The use of antimicrobial therapy alone without surgical drainage of collected pus may not result in clearance of infection. The chronically inflamed sinus membranes with diminished vascularity may be a poor means to carry an adequate antibiotic level to the infected tissue, even though the blood level may be therapeutic. Furthermore, the reduction in the pH and oxygen tension within the inflamed sinus may interfere with the activity of the antimicrobial agents, which can result in bacterial survival in spite of high antibiotic concentration. Therefore, it can be concluded that the combination of culture directed antimicrobial therapy with antral wash is more effective than antimicrobial therapy in the treatment of chronic maxillary sinusitis of bacterial aetiology.

REFERENCES:

- Benninger AS. Rhinosinusitis. In: Gleeson M, editor. Scott-Brown's Otorhinolaryngology, head and neck surgery. 7th ed. London. Edward Arnold; 2008. p. 1438 – 48.
- 2. Bell J. Diagnosis and management of infectious sinusitis. Pharma Note 2008 Sept; 12(23): 1 6.
- Stammberger H. Endoscopic endonasal surgery concept in treatment of recurring rhinosinusitis. Part I. Anatomic and patho-physiologic considerations. Otolaryngol Head Neck Surg 1986; 94: 143 – 47.
- Weckx LM, Pontes PA. Sinusitis: Medical management. In: Stamm AC, editor. Microendoscopic surgery of the paranasal sinuses and the skull base. New York. Springer-Verlag; 2000. 127 – 34
- Scadding G. Medical management of chronic rhinosinusitis. In: Gleeson M, editor. Scott-Brown's Otorhinolaryngology, head and neck surgery. 7th ed. London. Edward Arnold; 2008, 1469 – 77
- Kurien M, Raman R, Job A. Roentgen examination of maxillary sinus, Antral puncture and Irrigation – A comparative study. Sing Med J 1989; 30: 565 – 7.
- Khan ZU, Malik KZ. Chronic maxillary sinusitis, an uncommon aetiological factor of headache. Pak Armed Forces Med J 2006 Jun; 56(2): 138 – 42.
- Sa SD. Evaluation of antrum lavage in maxillary sinusitis. Indian J Otolaryngol Head Neck Surg 1968 Jun; 20(3): 115 – 8.
- Gupta AK. Role of antral catheterization in cases of chronic maxillary sinusitis. Indian J Otolaryngol Head and Neck Surg 1993 Mar; 45 (1): 33-4.



Seasonal Variation To Epistaxis - A Clinical Study

Deepanava Jyoti Das, Swagata Khanna, Prathipati Kiran Kumar

ABSTRACT :

Epistaxis is one of the commonest ENT emergencies requiring hospital admission. Several studies have found an existence of seasonal variation to epistaxis. The incidence of epistaxis is more during cold and dry seasons. Our study aims to ascertain whether a relationship of seasonal variation and epistaxis exists and if so what the probable contributing factors are. A study was conducted in the department of ENT, Gauhati Medical College and Hospital for a period of two years. Those patients who presented with epistaxis severe enough requiring admission above the age of 12 years were included in our study. Patients with traumatic epistaxis, bleeding diasthesis, bleeding nasal or nasopharyngeal mass were excluded from the study. The study showed a significant increase in the incidence of epistaxis was in the winter months due to adverse effect of dry weather on nasal mucosa, supplemented by infection.

Key words: Epistaxis, seasonal variation.

INTRODUCTION:

Epistaxis is one of the commonest ENT emergencies requiring hospital admission. Although predominantly a benign condition regardless of its aetiology, epistaxis can be severe requiring aggressive management. Various factors are responsible for nose bleed. Several studies have found an existence of seasonal variation to epistaxis. The incidence of epistaxis is more during cold and dry season, greatest in winter

Deepanava Jyoti Das, Swagata Khanna (, Prathipati Kiran Kumar

Department of ENT, Gauhati Medical College & Hospital, Guwahati, India Email: swagatakhanna@sify.com

a + 919864094140

months^[1]. Various research support that there is a correlation between the frequency of epistaxis and one of the meteorological factors like temperature, humidity, atmospheric pressure etc. This study was done to observe the frequency of admission amongst patient with epistaxis in our hospital and its correlation to the seasonal variation.

MATERIALS AND METHODS :

The study was conducted in the department of ENT and Head and Neck surgery, Gauhati Medical College and Hospital; from 1st July 2010 to 30th Jun 2012. Those patients who presented with epistaxis severe enough requiring admission above the age of 12 years were included in our study. Patients with traumatic epistaxis, bleeding diasthesis, bleeding nasal or nasopharyngeal mass were excluded from the study. A total of 272 patients over the period of 2 years were included in our study. Frequency per month were recorded and divided into seasons^[2]:

Winter (November - February) Spring (March - April) Summer/Monsoon (May-August)

Autumn (September - October)

All the patients were subjected to detailed history to evaluate probable correlation like association with an upper respiratory tract infection, hypertension, and use of warming methods in winters and chronic alcohol abuse. Data obtained were statistically analysed using SPSS 10.0 to observe the frequency of admission and its variation to temperature (seasonal variation).

RESULTS :

In this period a total of 272 patients were admitted, 173 males and 99 females. January showed highest numbers of admission while September recorded the least numbers of admissions (Table 1). Using SPSS 10, Pearson' coefficient was applied to compute the relationship between the two variables (epistaxis and temperature) and found to be statistically significant at p value .01. Admissions in winter months were nearly double in relation to any other seasons (Table 2). Amongst the associated etiological factors, hypertension was found in 88(32.32%), 75(27.57%) with Upper Respiratory Tract Infection (URTI) of which 44(58.66%) occurred in the winter months and 11(14.66%) in the month of July . Chronic alcohol abuse seen in 20(7.35%) of case (Seen only in males). Evidently, an increase in the number of hypertensive



and URTI patients lead to an increase in the number of epistaxis patients. 85% of patients admitted in the month of December and January gave history of using heating methods, either indoor (room heaters) or Outdoor (firewood's)

Months	2010	2011	2012	Total
January		21	20	41
February		15	17	32
March		11	8	19
April		9	8	17
Мау		9	10	19
June		7	10	17
July	11	15		26
August	5	9		14
September	9	2		11
October	4	10		14
November	15	12		27
December	18	17		35

Table 1: Monthly distribution of patients presenting with epitasis

Seasons	Total in both years	Average per month	
Winter	135	16.875	
Spring	36	9	
Summer/Monsoon	76	9.5	
Autumn	25	6.25	

Table 2: Admission of epistaxis patients according to season

Seasons	Total pts	URTI	HTN	Chronic	Combination	Association
				alcohol abuse	of factors	in %
January	41	12	13	6	4	66
February	32	8	12	2	2	63
March	19	4	6	1	1	53
April	17	3	5	1	-	53
May	19	3	8	-	1	48
June	17	4	5	1	-	59
July	26	11	7	-	-	69
August	14	3	6	-	1	57
September	11	2	5	1	-	73
October	14	2	5	-	-	50
November	27	12	7	2	3	67
December	35	12	9	6	4	66

URTI - Upper respiratory tract infection, HTN - Hypertension

Table 3: Table of probable associates

DISCUSSION :

Epistaxis remains a common ENT emergency. Current evidence varies on whether a seasonal variation exists with epistaxis. This study on epistaxis admissions in our hospital is aimed to ascertain if indeed any relationship exist between epistaxis and any particular season and we could derive a significant association (p value .01) between epistaxis and temperature variation. Two layers of the mucus blanket have been identified in the nasal mucosa. Enveloping the shaft of the cilium is thinner less viscid layer. Above this is the more viscid layer of mucus in to which distal tips of ciliary shaft penetrate when fully extended. Insoluble particulate matter is apparently are caught in the superficial layer and removed with the beating of cilia. Soluble material reaches the preciliary fluid and is evacuated along with it. Collectively the two layers are termed the blanket of mucus. Moisture appears to be of critical importance because dehydration will deplete the mucous blanket which protects the cilia. Drying of the cilia may be particularly destructive and nasal function grossly impaired. Temperature depress the frequency of ciliary motion and about temperature of 7°C -10°C, function almost ceases. Upper respiratory tract infection damages the epithelium. Hypertension was found to be the most common associate in our study. Probable explanation may be that in winter the temperature and humidity is low leading to decrease ciliary activity and mucous production. This increases the chances of crust formation and excoriation with formation of friable granulation tissue that bleeds easily on nose pricking or any trivial trauma. An atherosclerotic vessel which lie under delicate mucosa is unable to retract and clot easily when gets injured. Also the muscular tunica media layers of vessels are replaced by fibrous layer. Hypertension has been reported as the most common cause after trauma in other national and international studies^[3,4] However, Shaheen OH^[5] has reported that it is not the hypertension that causes epistaxis, rather it is the atherosclerosis that results in decreased vascular response to haemostasis and these patients tend to bleed heavy and longer. Epistaxis, in these cases settles down when hypertension is controlled^[6]. Hanif M et al has reported it as the commonest cause of epistaxis (48%) Frequency of epistaxis was seen to rise during the cold season may be due to the fact that in this period of the year the air is relatively dry, so drying of nasal mucosa making it fragile and hyperaemic leading to crusting and nasal bleeding as suggested by Randell DA and Freeman SB^[7]. A study in East Kent UK and also in Glasgow^[1] also found similar results. Also been proposed a change from a cold environment outside to a warm heated environment due to use of indoor heating methods leads to greater drying effect of nasal mucosa hence increase chances of epistaxis. In our study we also found an important association with upper respiratory infection. This could be probably explained as; during infection there is inflammation that increases vascularity and greater friability of the vessels. Also some bacteria in the nasal cavity produce streptokinase and

staphylokinase. Crust and cracks of the nasal mucosa in winter season also favours this. Repeated forceful nose clearing also aids in precipitating epistaxis. Consistent seasonal variation in viral infection with influenza A which peaks in December - January ^[8]. In our study also about 32.59% (44/135) of patients presenting with epistaxis in winter months had upper respiratory tract infection. Influenza B isolates was positively associated with rainfall. RSV trends were associated with higher environmental temperature, higher maximal day to day temperature variation ^[8]. The above environmental criteria are fulfilled by the summer /monsoon in Assam and could be the probable explanation of higher incidence of upper respiratory tract infection and consequently epistaxis in July. In our study the greater numbers of alcoholics were admitted in the month of December and January, Presence of festive season and with the notion to "keep oneself warm" attributes to increase alcohol intake in this period. Epistaxis patients are more likely to consume alcohol than matched control patients and are more likely to have consumed alcohol within 24 hours of hospital admission. The use of alcohol by these patients is associated with a prolongation of bleeding time despite normal platelet count and coagulation activity^[9]. Alcohol do also effect coagulation profile and platelet count in long term.

CONCLUSION :

From our study we can conclude that the frequency of epistaxis was seen to be higher in winter months due to adverse effect of cold and dry weather on nasal mucosa, supplemented by infection, and hypertension contributing to it. Further studies are required with greater study period to confirm this seasonal variation as this can inform workforce planning for epistaxis management.

REFERENCES :

- Nunez DA, McClymont LG, Evans RA: Epistaxis: a study of the relationship with weather. Clin. Oto. 1990; 15/1: 49-51
- 2. Historical weather for Delhi, India. Weather underground. Retrieved November 27, 2008.
- Chaiyasate S, Roongrotwattanasiri K, Fooanan S, Sumitsawany. Epistaxis in Chiang Mai University Hospital. J Med Assoc Thai 2005; 88(9):1282
- Ali S, Mumtaz S, Saeed M. Epistaxis: Etiology and management. Ann King Edward Med Coll 2003; 9(4):272-4.
- Shaheen OH. Epistaxis in Scott Brown's Otolaryngology. 5thedn, vol 4, I.S. Mackay and T.R.Bull (Eds), ButterworthsLondon 1987: 272-282.
- Ahmed M, Amjed M, Hameed A. Control of Epistaxis in aTeaching Hospital. Ann King Edward Med Coll 1997;3(4):88-9
- Randal DA, Freeman FB. Management of anterior and posterior epistaxis. Am Fam Physician. 1991 Jun; 43(6): 2007-14.
- F. T. Chew, S. doraisingham, A. E. Ling, G. Kumarasinghe and B. W. Lee. Seasonal trends of viral respiratory tract infections in the tropics. Epidemiology and Infection. 1998. 121: 121-128





Endoscopic Thyroid Gland surgery- A gasless Technique

Aakanksha Rathor, Sachender Pal Singh, Kripamoy Nath

ABSTRACT :

A case report on a 56 year old male, who had gasless endoscopic thyroid gland surgery for colloid goiter of the right lobe of the thyroid gland through anterior chest wall approach. No complication occurred; the postoperative cosmetic outcome was excellent. The result of the operation indicated that gasless technique is feasible and safe as it avoids the complications associated with CO2 retention. Hence, it is suggested that the video-assisted thyroid surgery without carbon dioxide neck insufflations could be an alternative for conventional thyroid gland surgery. Every patient is not a candidate for the axillary gasless technique. Hence, patient selection is one of the major criteria for the successful outcome of this approach.

Key words: thyroidectomy, endoscopic, gasless, transaxillary approach.

INTRODUCTION :

The conventional thyroidectomy performed by the Kocher's cervicotomy, as opposed to endoscopic thyroid surgery, leaves a tale- tell unaesthetic scar on the anterior neck, of appreciable size of about 3-5 inch. These may later become hypertrophic or develop into a keloid, cosmetically inevitable. A large number of minimally invasive procedures for surgery of the thyroid gland have been proposed within a short duration of two decades and practiced and published with the foremost objective of scar less surgery. These methods can be classified in terms of the ways by which they create a working space (gas insufflations or gasless) or introduce trocars (cervical, anterior chest wall, breast or axillary approaches). The minimally invasive video-assisted thyroidectomy (MIVAT)

Aakanksha Rathor, Sachender Pal Singh, Kripamoy Nath ()

Department of ENT and Head-Neck Surgery, Silchar Medical College and Hospital, Silchar, Assam Email: krips_nat@yahoo.co.in

pioneered in Italy by Miccoli and his team is phantasmagorically popular^[1]. we describe the first case report and also a modified technique of video-assisted thyroid surgery performed at department of otorhinolaryngology, silchar medical college and hospital where a large volume of open thyroid surgeries are done routinely^[2]. This method gained much popularity owing to its advantages viz; superior cosmetic appearance^[3], less postoperative pain, and earlier return to regular activities. But every intervention has its own fallacies namely it is not suitable for huge goiters^[4].longer operating time requires special equipment and skills. However, in the past the maximum operable size was considered to be about 3cm in its greatest dimension of the nodule but as the technologies are taking turns even more than 5cm are now considered suitable for the procedure^[5,6]. The techniques are the gasless chest approach of Kim et al.^[7], the gas insufflation-axillary approach of Ikeda et al.^[8], and the gasless axillary approach of Chung et al..

Laparoscopic surgery was introduced early in the field of endocrine surgery^[1]. Dr Gagner, in 1995, pioneers in the endoscopic surgical procedure for treating thyroid and parathyroid glands^[3].

However, not all endocrine surgeons are comfortable performing endoscopic surgery.

The endoscopic thyroid surgery has basic requirements of a proper working space in need for adequate visualization of anatomical structures and, adequate instrumentation. Many different techniques have been developed and applied to endoscopic and video-assisted thyroidectomy. Our team exploited the anterior chest wall approach using a modified flap-lifting method introduced by Kim et al^[7].

The purpose of this case was to estimate the feasibility and safety of the endoscopic thyroid surgery through the anterior chest wall without gas insufflations using a flap-lifting system.

Case Report

A 56 year old man presented in the department of the otorhinolaryngology, silchar medical college and hospital with swelling in the midline of neck for the last 1 year. There was no tenderness, dysphagia or dyspnoea.



Figure 1: Preoperative photograph of the patient

Grossly there was a smooth, firm, non tender, swelling, about 3x2 cm in size in its greatest dimensions, in the right lobe of thyroid. Fine Needle Aspiration cytology (FNAC) was suggestive of colloid nodule. Sonogram of the neck suggested right lobe mid pole nodule measuring 2.5x2.1 cm. Thyroid functions and other routine haematological investigations were within normal limit.

Operative details

The patient was prepared for the endoscopic thyroid surgery under general anesthesia placed in a supine position with extension of the neck with a shoulder roll. The head was then rotated towards the lesion to flex the strap muscles

A 3-cm curvilinear skin incision was made in a midclavicular line on the anterior chest wall, taking into consideration the wearing pattern of the patient and about 5cm in the midline. These areas were then dissected sharply and gently underneath the platysma muscle, advancing upwardly and medially from the incision to the thyroid area and across the medial border of the sternocleidomastoid muscle. Careful handling was required for dissection over the sternocleidomastoid muscle since resistance was expected in this area. A 5-mm trocar was inserted lateral to the skin incision. The margins of the incised opening were then covered with a silastic material (usually a silastic drain) to minimize burn injury, which can cause a keloid scar.

The working space was created under direct and endoscopic view through the anterior chest wall incision by dissecting in subplatysmal plane using a 30° 4-mm endoscope inserted through the 5-mm port. We employed continuous suctioning of vaporized steam and smoke during the dissection with a suction. It was extended laterally to the lateral border of the sternocleidomastoid muscle and medially just crossing the midline colli. In the absence of CO2 or gas insufflations, monofilament sutures were used at the neck skin to lift the skin and underlying structure for adequate working space at the neck. After creating the working space, a dissection was made between the strap muscles. The thyroid gland was then exposed and dissected from the inferior pole, revealing the inferior thyroid vessels. The branches of the inferior thyroid vein were divided with Harmonic Scalpel and the thyroid gland was retracted medially with endoscopic forceps. It was easier to divide the isthmus before proceeding to the posterior and lateral aspects of the gland. The inferior thyroid artery and the middle thyroid vein were skeletonized and divided following identification of the recurrent laryngeal nerve. The superior thyroid artery and vein were identified and divided individually, and the gland was retracted medially and inferiorly. The thyroid was then separated from the trachea, taking great care to divide the ligament of Berry. The resected specimen was retrieved through the incisional opening at the anterior chest wall. After completion of hemostasis, a 5-mm closed-suction drain was inserted through the incision wound at the lower portion of the operative space. The incision wounds were closed in layer-by-layer sutures.



Figure 2: Creation of working space via anterior chest wall



Figure 3: Subplatysmal approach

The retrieved thyroid tissue was sent for histopathological examination which suggested colloid nodule.



Figure 4: Post-operative day 5.
ANNUAL JOURNAL OF OTOLARYNGOLOGY AND HEAD & NECK 30



Figure 5: Follow up after one year

DISCUSSION :

Neck surgery is one of the most interesting applications of endoscopic thyroid surgery largely due to avoidance of unattractive scars within a span of few decades new technologies have emerged in the surgical field, including endocrine surgery.

Some experts now perform endoscopic thyroid surgery for well-differentiated thyroid carcinoma and Graves' disease, in addition to benign thyroid tumors.

As the coin has two sides, despite its cosmetic advantages, endoscopic thyroid surgery has some limitations for surgeons with little experience in this practice, namely difficulty in creating an adequate working space in such a narrow area, challenge in anatomical orientation using monitor images from the endoscope and adequate surgical training is required. With regard to cosmesis, wounds are least noticeable after surgery via axillary approach, followed by breast, anterior chest wall, and cervical approaches^[9]. But above all the patient's preference is the foremost. We have taken anterior chest wall approach, because this surgery is not performed frequently .and allowed the surgeon to directly visualize the surgical anatomy, feel structures by finger-touch through the incision. Yoon et al.^[9]; the first to perform through an axillary incision, however the relatively long route to the operating working space from the skin incision (axilla) made this approach inconvenient for the surgeon and other personnel. The endoscopic procedures with gas insufflations, the videoscopic view can be obscured secondary to narrowing of the working space when suctioning steam, smoke, and blood from the operative field. Therefore, in our case, the working space was maintained by a retracting system using a gasless technique. After choosing the method of surgery, the author modified a part of the flap-lifting where we used sutures to decrease the number of instruments to be used. Even though it involves a complicated technique, results in a minimally perceptible wound on the chest wall. Other complications postoperatively include numbness, wound discomfort, and mild pain with neck movement or swallowing but no late complications were observed. The cosmetic advantages is self- evident in our patient

The operation time of this procedure is typically longer than a conventional open thyroidectomy. Among the endoscopic approaches the axillary approach has a longest operation time^[3,10]. Our method provides a consistent working space without collapse during suction, unlike the gas-insufflations method.

The bare necessity of sterilization needs no emphasis as infection in subcutaneous tissue has devastating effects.

CONCLUSION :

The gist of the matter is that, the gasless endoscopic thyroid surgery via the anterior chest wall approach is a safe and aesthetically superior procedure for the treatment of benign thyroid tumors. Endoscopic thyroid surgery is still in its evolving phase. Although there is no accepted gold standard procedure for minimally invasive thyroid surgery, the incision made during video-assisted surgery is much smaller than that used for traditional surgery. It may be recommended for novice surgeons when performing endoscopic thyroid surgery. However, precise determination of the location and characteristics of the tumor prior to surgery is essential.

REFERENCES :

- 1. Duh Q. Recent advances in minimally invasive endocrine surgery. Asian J Surg. 2003; 26:62–63.
- Miccoli P, Berti P, Conte M, Bendinelli C, Marcocci C. Minimally invasive surgery for small thyroid nodules: Preliminary report. J Endocrinol Invest 1999; 22:849-51.
- 3. Ikeda Y, Takami H, Sasaki Y, Takayama J, Niimi M, Kan S. Comparative study of thyroidectomies: Endoscopic surgery versus conventional open surgery. Surg Endosc. 2002; 16:1741–1745.
- 4. Gagner M. Endoscopic subtotal parathyroidectomy in patients with primary hyperparathyroidism. Br J Surg. 1996; 83:875.
- Seung Chng Y, Ho Choe J, Ho Kang K, et al. Endoscopic thyroidectomy for thyroid malignancies: Comparison with Conventional Open Thyroidectomy. World J Surg 2007; 31:2302-06.
- 6. Ngoc Luong T. Open and Endoscopic Thyroidectomy. Paper Lecture August 2009.
- Kim JS, Kim KH, Ahn CH, Jeon HM, Kom EG, Jeon CS. A clinical analysis of gasless endoscopic thyroidectomy. Surg Laparosc Endosc Percutan Tech. 2001; 11:268–272.
- Ikeda Y, Takami H, Sasaki Y, Takayama J, Niimi M, Kan S. Clinical benefits in endoscopic thyroidectomy by the axillary approach. J Am Coll Surg. 2003; 196:189–195.
- 9. Yeung GH. Endoscopic thyroid surgery today: a diversity of surgical strategies. Thyroid. 2002; 12:703–706.
- Yamamoto M, Sasaki A, Asahi H, Shimada Y, Saito K. Endoscopic versus conventional open thyroid lobectomy for benign thyroid nodules: a prospective study. Surg Laparosc Endosc Percutan Tech. 2002; 12:426–429.



Aggressive salivary duct carcinoma of parotid gland – a case report

Biji Rose, Girish Rai

ABSTRACT :

We report a case of 43 year old male presented to the neurologist with progressive right facial weakness and on examination revealed a right parotid swelling and was referred to otorhinolaryngologist. Right total parotidectomy was performed which revealed salivary duct carcinoma. This case is presented in view of its rarity and uncommon presentation.

Keywords: Salivary ductal carcinoma, Parotid carcinoma, Aggressive ductal carcinoma, Progressive facial nerve paresis

INTRODUCTION:

Salivary duct carcinoma (SDC) of the head and neck is a rare invasive malignancy arising in the ductal epithelium of salivary glands. SDC occurs commonly in males with male female ratio of 2:1. SDC represents 9% of salivary malignancies, most commonly arising from the parotid gland. Given the relative low occurrence, the possibility of salivary duct carcinoma in the appropriate clinical setting of the patients with parotid mass and facial palsy should be seriously considered.

Case report

We report a case of a 43 year old male presented to the neurologist with progressive right facial nerve paresis which on examination revealed a right parotid swelling and was referred to the otorhinolaryngologist for further management. On examination there was non-tender, hard swelling at the right angle of mandible of 5 x 4 cm obliterating the retromandibular groove without cervical lymphadenopathy. Ultrasonography revealed $5.0 \times 3.5 \times 3.4$ cm ill defined heterogeneous lesion in right parotid space with internal

J.Biji Rose (🖂), Girish Rai

Department of Otorhinolaryngology, Manipal Hospital 98, HAL Airport Road, Bangalore – 560017 Karnataka, India.

080 25023278, 9986646337

Email: drbijirose@gmail.com

calcification in the lower pole of right parotid gland. Fine needle aspiration cytology (FNAC) from the right parotid gland showed squamous cell carcinoma. Contrast enhanced CT showed heterogeneous irregular lesion with areas of necrosis and calcification in the posterior part of right parotid gland involving superficial and deep lobes infiltrating adjacent sternocleidomastoid muscle .Based on this right total parotidectomy was performed along with involved facial nerve branches. Post operatively there was no further deterioration of facial paresis. Grossly the Superficial lobe of parotid was 6 x 5 cm, cut section showed irregular grey white firm area measuring 2 x 2 cm extended into the resected margin. The Deep lobe had grey white nodule 4 x 2cm with calcified areas (Fig-1).



Fig 1 Gross examination total parotidectomy specimen cut section of superficial and deep lobe of parotid tumor

Histopathological examination (HPE) shows infiltrating tumor comprising of highly pleomorphic cells with large vesicular nucleus with prominent nucleoli and scanty to moderate cytoplasm. Tumor cells are seen in clusters, sheets and in singles. There are features of Comedonecrosis (aggregates of tumor cells with central necrosis) with evidence of Perineural tumor invasion and focal lymphatic tumor emboli. Areas of calcification are present and foci show chondroid areas. HPE is consistent with salivary duct carcinoma (Fig: 2).



Fig 2 Microscopic examination Comedonecrosis showing aggregates of tumor cells with central necrosis



PET CT Scan was performed showing metabolically active right cervical, mediastinal and right supraclavicular nodes suggesting metastatic disease. FDG avid right axillary and paraoesophageal nodes suggests active disease. Biopsy from the right axillary and CT guided FNAC from paraoesophageal node showed evidence of metastasic carcinoma. Currently the patient is under palliative chemotherapy

DISCUSSION :

Salivary duct carcinoma (SDC) of the head and neck is an aggressive adenocarcinoma of the salivary glands, first described by Kleinsasser et al in 1968^[1]. It is also known as cribriform salivary carcinoma of excretory ducts, or high-grade salivary duct carcinoma. SDC presents 9% of salivary malignancies, of which parotid is the most commonly involved, but submandibular, sublingual, minor salivary gland, maxillary and laryngeal tumours have been reported^[2]. Salivary duct carcinomas of the breast. However, estrogen and progesterone receptors, which are commonly present in ductal breast carcinoma, are rarely found in SDC^[2,3]. It usually affects men in the fifth and sixth decades of life.

In a review of over 100 patients by Barnes^[4] the tumor was found to be 3 times more common in men and occurred primarily in patients older than 50 years of age. Tumor location is primarily in the parotid gland over 85%, although minorities of cases are found in the submandibular and minor salivary glands of the head and neck . The tumor usually remains asymptomatic until they produce mass effect or neural invasion. The tumor usually presents at advanced T stage, and approximately 50% of patients will have lymph node metastases at presentation. SDCs are usually firm, solid, tan, white or grey, with a cystic component common. Histologically, the comedonecrosis in some carcinoma nests has been pointed out as a characteristic feature of SDC as well as cribriform growth pattern of Roman bridge architecture^[5,6] both of which come from scanty or no interlacing stroma development within the carcinoma nests. The clinical course is characterized by early distant metastasis.

Tumor size, distant metastasis, and HER-2/neu over expression are putative prognostic parameters for SDC, while expression of p53 protein, DNA aneuploidy, and proliferative activity do not correlate with outcome^[3,7]. Immunohistochemical findings are not useful, but a constant overexpression of keratin, HER/ 2 neu, CEA, and c-erd-B2 have been described. In general, salivary duct carcinoma must be distinguished from metastatic breast carcinoma, poorly differentiated squamous cell carcinoma, cystadenocarcinoma, and oncocytic carcinoma. A diagnosis of SDC for any patient has historically been associated with a poor prognosis, with a high incidence of both locoregional and distant metastases. For SDC, perineural spread (60%) and intravascular tumour emboli (31%) are common^[8]. Radical surgery followed by postoperative radiation and chemotherapy has been the mainstay of treatment, but despite this, SDC is still associated with high mortality. Postoperative radiation therapy is indicated in case of extraparotid extension, pathological resection margins, cervical lymph node metastasis, lymphatic embolus, and/or neurologic invasion. Chemotherapy is generally reserved for metastatic forms of the disease. In a review of 104 cases by Barnes,^[4] 65% of patients died of their disease, most of them within 4 years. The overall survival is slightly more than 4 years, with death due to recurrent locoregional disease or to metastasis^[9].

CONCLUSION :

Salivary Duct Carcinoma is a very rare but aggressive disease. Surgical excision followed by radiation therapy is an effective treatment for likely residual microscopic disease and for metastatic disease chemotherapy is a treatment as palliation. The possibility of salivary duct carcinoma in patients with parotid mass and facial palsy should be seriously considered.

REFERENCE :

- Kleinsasser O, Klein HJ, Hubner G. Salivary duct carcinoma:a group of salivary gland tumors analogous to mammary duct carcinoma (German). Arch Klin Exp Ohren Nasen Kehlkopfheilkd 1968; 192:100– 115.
- Epivatianos A, Dimitrakopoulos J, Trigonidis G, et al:Intraoral salivary ductcarcinoma: a clinicopathological study of four cases and review of the literature. Ann Dent (1995) 54: 36–40.
- Kapadia S, Barnes L. Expression of androgen receptor,gross cystic disease fluid protein, and CD44 in salivary duct carcinoma. Mod Pathol 1998; 11:1033–1038.
- Barnes EL Jr. Tumor pathology of the head and neck. In: 106th Semi-Annual CTTR Seminar: Tumors of the Head and Neck, Pittsburgh, PA; 1999. pp 8–12.
- Ellis GL, Auclair PL. AFIP atlas of tumor pathology tumors of the salivary glands, 4th series, Fascicle 9. Washington, DC: American Registry of Pathology; 2008.
- Brandwein-Gensler MS, Skalova A, Nagao T. Salivary duct carcinoma. In: WHO classification of tumours. Pathology and genetics of head and neck tumors.Lyon: IARC Press; 2005, 233
- Martinez-Barba E, Cortes-Guardiola JA, Minguela-Puras A, et al: Salivary duct carcinoma: clinicopathological and immunohistochemical studies. J Craniomaxillofac Surg (1993) 25: 328–334.
- Barnes L, Rao U, Krause J, et al: Salivary duct carcinoma. Part I. A clinicopathologic evaluation and DNA image analysis of 13 cases with review of the literature. Oral Surg Oral Med Oral Pathol (1994) 78: 64–73.
- Jaehne M, Roeser K, Jaekel T, et al. Clinical and immunohistologic typing of salivary duct carcinoma: A report of 50 cases. Cancer. 2005; 103:2526-2533.



Kikuchi – Fujimoto Lymphadenitis with Systemic Lupus Erythematosus: A Rare Case Report with Review of Literature

Dipesh Darji, Alpesh D. Fefar, Rajesh Vishwakarma, R. N. Gonsai, Kalpesh

ABSTRACT :

Kikuchi-Fujimoto disease (KFD) or histiocytic necrotizing lymphadenitis is a benign and self-limited disease that mainly affects young Asian women. Patient presents with localized lymphadenopathy, fever, and leukopenia in up to half of the cases. It is a rare disease with unknown etiology, although viral or autoimmune hypothesis has been suggested. Kikuchi-Fujimoto disease can occur in association with autoimmune disorder like Systemic Lupus Erythematosus. We present the case of a patient with Kikuchi-Fujimoto Disease and Systemic Lupus Erythematosus. In our case report, we describe clinical and biopsy findings of a patient with Kikuchi-Fujimoto disease and Systemic Lupus Erythematosus and review of literature.

Keywords: Kikuchi-Fujimoto Disease; Lymphadenopathy; Karyorrhexis; Systemic lupus Erythematosus.

INTRODUCTION:

Histiocytic necrotizing lymphadenitis is a benign self limiting condition described individually by Kikuchi and Fujimoto of Japan in 1972^[1,2]. Afterwards cases have been reported from all over the world. It occurs most commonly in young women characterized by cervical lymphadenopathy with fever. The

Dipesh Darji (, Rajesh Vishwakarma, Kalpesh Patel Department of ENT, Head and Neck surgery, B. J. Medical College, Ahmedabad, Gujarat.

R. N. Gonsai

Department of Pathology, B. J. Medical College, Ahmedabad, Gujarat.

Alpesh D. Fefar Department of ENT, Head and Neck surgery, P. D. U. Medical College, Rajkot.

Email: dddipeshkumar8@gmail.com **a**+919909913592

Address: F-5, Department of ENT, Head and Neck surgery, Civil hospital campus, Asarwa, Ahmedabad, Gujarat, 380016.

diagnosis of Kikuchi-Fujimoto disease is confirmed by histopathological examination which will reveal necrosis, karyorrhexis and histiocytic infiltration. The etiology of Kikuchi-Fujimoto disease is unknown but certain causative organisms have been proposed. These include Epstein-Barr virus, human T-cell leukemia virus type1, human herpes virus type 6, B19 parvovirus, cytomegalovirus, Brucella, Yersinia enterocolitica, and parainfluenza virus^[3]. An autoimmune mechanism has also been proposed because Kikuchi-Fujimoto disease is seen in conjunction with autoimmune disorders like Systemic Lupus Erythematosus and Relapsing polychondritis. One theory involves molecular mimicry, in which infectious agents that closely resemble a host peptide affect the ability of T cells to detect self from nonself ^[4]. Another theory regarding autoimmunity is that apoptotic cells are the source of the auto antigens of Systemic Lupus Erythematosus. Apoptotic cells express many of the nuclear auto antigens of Systemic Lupus Erythematosus on their surface. In patients with defective clearance of these cells (i.e., complement deficiency), these cells may become a nidus for autoimmune disease^[5].

Case report:

A 24 years female patient presented in our department with chief complains of left sided neck swelling associated with fever, weight loss, joint stiffness and skin eruptions. Patient was managed by a team comprising of an otolaryngologist, immunologist, pathologist and dermatologist. She had multiple red patchy and scaly eruptions all over the body (Fig 1). Hematological and Immunological evaluation revealed elevated Erythrocyte Sedimentation Rate, leukopenia, positive ANA and Anti-ds DNA test. Hence, Systemic Lupus Erythematosus was diagnosed. FNAC from the posterior triangle cervical lymph node was was inconclusive, therefore Excisional biopsy was done. Histological examination shows histiocytic infiltration with necrosis and karyorrhexis suggestive of Kikuchi-Fujimoto Necrotising lymphadenitis (Fig. 2). She was treated with a combination of Prednisolone and hydroxychloroquine. The patient had a marked improvement at 6 months follow up.



Fig.1 a: scaly red patches with circular



Fig.1 b: Butterfly rash. Systemic Lupus Erythematosus; skin lesion.



Fig.2 : Histopathological examination: Histiocytic infiltration with karyorrhexis.

DISCUSSION :

Kikuchi-Fujimoto disease or histiocytic necrotizing lymphadenitis was originally reported in 1972 in Japan. It occurs most commonly in young women^[7] with localized lymphadenopathy, commonly in the cervical region, may affect axillary and mesenteric lymphnodes^[8]. It is associated with fever and leukopenia in up to 50% of patients^[9]. The differential diagnosis of fever and cervical lymphadenopathy is broad and often leads to an extensive workup. The patient was tested for tuberculosis, HIV, cytomegalovirus, toxoplasmosis, and syphilis. Bone marrow examination was performed to rule out lymphoma. All of these studies were negative or normal.

Lymph node excision biopsy facilitates the diagnosis. The characteristic histology Of Kikuchi-Fujimoto disease are single or multiple areas within the lymph node that contain necrosis and histiocytic cellular infiltration. The capsule of the node may be invaded and perinodal inflammation is common^[10]. Cultures and stains for organisms were negative. Kikuchi-Fujimoto disease is known to occur in conjunction with Systemic Lupus Erythematosus (SLE)^[11]. Santana et al found 35 reported cases in which Kikuchi-Fujimoto disease and Systemic Lupus Erythematosus occurring together in the majority of the cases. SLE was diagnosed either after or during the active disease^[12]. No effective treatment has been established for Kikuchi-Fujimoto disease. It is a benign, selflimited disease that resolves in 1 to 4 months. Patients should be monitored, however, since they may subsequently develop SLE or, in unusual circumstances, develop a recurrence of Kikuchi-Fujimoto disease^[13]. If Kikuchi-Fujimoto disease is diagnosed after or at the same time as Systemic Lupus Erythematosus, corticosteroids is often used for treatment. often along with hydroxychloroguine[14-16]. After treatment with prednisone, our patient received hydroxychloroguine after SLE was detected. She responded well to therapy and is presently asymptomatic.

CONCLUSION :

Kikuchi – Fujimoto disease is a rare disease characterised by histiocytic necrotising lymphadenitis. Its management requires a team approach by a immunologist, dermatologist, histopathologist and otolaryngologist. Its association with Systemic Lupus Erythematosus is well known and is present in this case. Treatment with combination of hydroxychloroquine and corticosteroids gives promising result.

REFERENCES :

- Kikuchi M. Lymphadenitis showing focal reticulum cell hyperplasia with nuclear debris and phagocytes. Acta Hematol Jpn 1972; 35:379-80.
- Fujimoto Y, Kozima Y, Yamaguchi K. Cervical subacute necrotizing lymphadenitis. A new clinopathological entity. Naika 1972; 30:920-7.
- Menasce LP, Banerjee SS, Edmondson D, Harris M. Histiocytic necrotizing lymphadenitis (Kikuchi Fujimoto disease): continuing diagnostic difficulties. *Histopathology* 1998; 33(3):248–254.
- Marrack P, Kappler J, Kotzin BL. Autoimmune disease: why and where it occurs. Nat Med 2001; 7(8):899–905.
- 5. Botto M. Links between complement deficiency and apoptosis. *Arthritis Res* 2001; 3(4):207–210.
- 6. Dorfman RF, Berry GJ : Kikuchi's histiocytic necrotising lymphadenitis. Study of 108 cases Semin diagn patho 1988 ; 5 ;329-345.
- 7. Lopez C, Oliver M, Olavarria R, Sarabia MA, Chopite M. Kikuchi- Fujimoto necrotizing



lymphadenitis associated with cutaneous lupus erythematosus: a case report. *Am J dermatopathol* 2000; 22(4):328–333.

- 8. Kaur S, Thami GP, Kanwar AJ. Kikuchi's disease, skin and systemic lupus erythematosus. *Br J Dermatol* 2002;146(1):167–168.
- Norris AH, Krasinskas AM, Salhany KE, Gluckman SJ. Kikuchi-Fujimoto disease: a benign cause of fever and lymphadenopathy. Am J Med 1996;101(4):401–405.
- Loachim HL, Ratech H. Loachim's Lymph Node Pathology, 3rd ed. New York: Lippincott Williams & Wilkins, 2002.
- Chen HC, Lai JH, Huang GS, Gao HW, Chen CH, Kuo SY, Chang DM. Systemic lupus erythematosus with simultaneous onset of Kikuchi-Fujimoto's disease complicated with antiphospholipid antibody syndrome: a case report and review of the literature. *Rheumatol Int* 2005; 25(4):303–306.

- Santana A, Lessa B, Galrao L, Lima I, Santiago M. Kikuchi-Fujimoto's disease associated with systemic lupus erythematosus: case report and review of the literature. *Clin Rheumatol* 2005;24(1):60–63.
- Litwin MD, Kirkham B, Henderson DR, Milazzo SC. Histiocytic necrotising lymphadenitis in systemic lupus erythematosus. Ann Rheum Dis 1992;51(6):805– 807.
- 14. Vila LM, Mayor AM, Silvestrini IE. Therapeutic response and long-term follow-up in a systemic lupus erythematosus patient presenting with Kikuchi's disease. *Lupus* 2001;10(2):126–128.
- 15. Meyer O, Kahn MF, Grossin M, Ribard P, Belmatoug N, Morinet F, Fournet JC. Parvovirus B19 infection can induce histiocytic necrotizing lymphadenitis (Kikuchi's disease) associated with systemic lupus erythematosus. *Lupus* 1991;1(1):37–41.
- Tumiati B, Casoli P, Perazzoli F, Cavazza A. Necrotizing lymphadenitis in systemic lupus erythematosus. Kikuchi's disease or a Kikuchi's-like disease? J Clin Rheumatol 1999; 5:121–125.





Rare and Unusual Head and Neck Cancers - Two Case reports.

Z.Hazarika, H.B Nongrum, R Veerbadran, AJGhosh, R Chyne, H Dkhar

ABSTRACT :

We report two cases of unusual malignancies in the head and neck region. One, a case of malignant nodular hidradenoma, involving the dorsum of nose. The second case is an extensive oral cavity lesion, histopathologically consistent with verrucous carcinoma. Both patients underwent surgical excision and reconstruction. These cases are presented because of its rarity of occurrence and unusually extensive disease.

Keywords : Hidradenoma, verrucous carcinoma.

INTRODUCTION:

Head and neck cancers include a whole gamut of tumors from commonly encountered squamous cell cancers to rare cancers like Malignant Hidradenomas. In this article we present two cases of unusual and rare cancers of the Head and Neck.

Case Report 1

A 70 year old man presented with a large fungating (9x5cm) mass in the dorsum of nose of two years duration. The lesion

Z. Hazarika(🖂), AJ Ghosh

Department of Otolaryngology & Head-Neck Surgery, Bethany Hospital, Shillong.

R Chyne Department of Pathology, Bethany Hospital, Shillong.

H.B Nongrum Department of Otolaryngology and Head & Neck Surgery, Nazareth Hospital, Shillong

H Dkhar Department of Pathology, Nazareth Hospital, Shillong

R Veerbadran Plastic & Reconstructive Surgeon. Vee Care Hospital, Chennai.

Email: zhazarika@gmail.com **2**9436706613 Address: Bethany Hospital, Shillong 793003 involved the skin of the dorsum of nose extending to both ala and the bridge of the nose (Fig 1). On Nasal endoscopy, there was direct tumour extension into the nasal cavity on both sides with minimal involvement of the septal mucosa on the right side. Computed Tomography examination did not reveal any involvement of the sinuses or orbits. Neck was free both clinically and radiologically. Pre operative biopsy showed squamous cell carcinoma. Patient underwent wide excision of the tumour with resection of the involved part of nasal septum. Reconstruction of the defect was done using the midline forehead flap with split skin lining of the raw area in the undersurface of the flap (Fig 2). Forehead defect was closed primarily. Histopathologic examination revealed a tumor in the dermis. The tumor cells were arranged in lobules and separated by delicate fibrous collagenous tissue. The lobules were lined by cuboidal or columnar cells with few cystic spaces, brisk mitotic figures with surface ulceration, the features are consistent with a Hidradenoma or Hidradenocarcinoma. Patient was on follow up for six months and was disease free.





Fig 1: Ulceroproliferative growth over the dorsum of nose.

Fig 2: Post Operative appearance after 6 months

Case Report 2

A 44 years old female presented to our Outpatient Department with an oral lesion of 2 years duration. On inspection, a large proliferative lesion involving the whole of the lower lip and part of the upper lip including the angle of mouth was seen (Fig 3). The growth involved the buccal mucosa from the Right retromolar trigone to left sided buccal mucosa up to the premolars. Bilateral gingivo-buccal and Gingivo-labial sulcuses, the right upper alveolus and the hard palate was also involved. Computed tomography showed involvement of the muscles of the infratemporal fossa and



erosion of the posterior wall of the maxillary sinus. Mandible was normal with no evidence of erosion. The neck was free both clinically and radiologically. Biopsy of the lesion showed presence of verrucuous vulgaris. Patient underwent wide excision of the whole lower lip and part of upper lip with the involved buccal mucosa along with Right posterior segmental mandibulectomy with marginal mandibulectomy of the horizontal ramus, right infrastructure maxillectomy and infratemporal fossa clearance. Right Supraomohyoid Neck dissection was performed in view of the T4 tumor stage. Free radial forearm flap reconstruction was attempted but the flap failed and was salvaged with Pectoralis major musculocutaneous flap. Histopathological examination confirmed presence of Verrucuous carcinoma. The neck was pathologically NO. Patient is doing well after regular 6 months follow up (Fig 4)



Fig 3: Ulceroproliferative (Verrucous) lesion in the Oral Cavity



Fig 4. Post operative appearance after 6 months

DISCUSSION :

Malignant Nodular Hidradenoma or Hidradenocarcinoma is a rare cancer of the eccrine sweat glands^[1]. It usually occurs as a slow growing, painless papule or nodule on the head, neck or extremities. The tumor undergoes sudden progression in size which becomes red and ulcerated if left untreated for a prolonged preriod^[2]. Common age of presentation is between 50 to 70 years of age^[2,3]. Histopathologically, these tumors show a biphasic cell population and ductal structures. Indicators of malignancy include larger size, poor circumscription, solid sheet like growth pattern, tumoral necrosis and angiolymphatic invasion^[4]. Malignant Nodular Hidradenomas displays aggressive behaviour. Local recurrence and distant metastasis have been reported as 50% and 70% respectively^[2,5] and survival vary from 15 to 45 months^[1]. Metastasis to bone and lungs have been reported^[2]. Early surgery with wide excision gives the best chance of survival. Benefit of neck dissection is uncertain^[3]. Radiotherapy/chemotherapy has not been shown to increase survival^[1].

Oral Verrucous Carcinoma(OVC) or Ackermann's tumor was first described by Lauren V Ackermann in 1948^[6]. Oral cavity is the most common site for this tumor though it can occur in other sites like the larynx, pyriform sinus, nose and para nasal sinuses^[7,8]. It is a variant of oral squamous cell carcinoma and is characterized by its slow growth and low incidence of regional or distant metastasis^[9]. Studies have shown strong association of oral Verrucous carcinoma with tobacco and alcohol use^[12]. Recent studies have shown association between HPV and OVA by detecting HPV DNA types 6, 11,16 & 18^[10,11]. There is significant association of leukoplakia with OVC and untreated leukoplakia can lead to OVC^[10,12]. Surgical excision with adequate margins gives the best chance for cure of OVC. The 5 year disease free survival for surgical treatment is about 77%^[12]. There is no clear data regarding role of neck dissection in OVC. In a study of 101 patients of oral Verrucous carcinoma by Walvekar et al, 52 patients underwent neck dissection, of whom none had metastatic lymphadenopathy^[12].

CONCLUSION :

Verrucuous carcinoma of the oral cavity though not infrequent, needs to be diagnosed and treated early. Neglected lesions can lead to extensive involvement with significant morbidity after treatment. Patients should be closely followed up due to the high probability of recurrence and any recurrent disease should be promptly excised. Early diagnosis and wide excision of Malignant Nodular Hidradenoma gives the best chance of survival. Both the cases demanded a meticulous microscopic studies by the pathologist to assist the surgeon in deciding the definitive line of management.

REFERENCES :

- Souvatzidis P. Malignant Nodular Hidradenoma of the skin: report of 7 cases.J Eur Acad Dermatol Venereol. 2008 May;22(5):549-54.
- Ashley I, Smith-Reed M, Chernys A. Sweat gland carcinoma: case report and review of the literature. Dermatol Surg. 1997;23:129-133.
- 3. Waxtein L, Vega E, Cortes R, et al. Malignant nodu-



lar hidradenoma: giant hidradenocarcinoma: a report of malignant transformation from nodular hidradenoma. Int J Dermatol. 1998;37:225-228.

- Wong TY, Suster S, Nogita T. Clear cell eccrine carcinomas of the skin: a clinicopathologic study of nine patients. Cancer. 1994;73:1631-1643.
- Mehregan A, Hashimoto O, Rahbar H. Eccrine adenocarcinoma: a clinicopathologic study of 35 cases. Arch Dermatol. 1983;119:104-114.
- Ackerman L. Verrucous carcinoma of the oral cavity. Surgery 1948; 23:670–8.
- Spiro RH. Verrucous carcinoma, then and now. Am J Surg 1998;176(5):393–7.
- Ferlito A, Recher G. Ackerman's tumor (verrucous carcinoma) of the larynx: a clinicopathologic study of 77 cases. Cancer 1980;46(7):1617–30.

ReSound

- Oliveira DT, de Moraes RV, Fiamengui Filho JF, Fanton Neto J, Landman G, Kowalski LP. Oral verrucous carcinoma: a retrospective study in Sao Paulo Region, Brazil. Clin Oral Invest 2006;10(3):205–9.
- Shroyer KR, Greer RO, Fankhouser CA, McGuirt WF, Marshall R. Detection of human papillomavirus DNA in oral verrucous carcinoma by polymerase chain reaction. Mod Pathol 1993;6(6):669–72.
- Lubbe J, Kormann A, Adams V, et al. HPV-11- and HPV-16- associated oral verrucous carcinoma. Dermatology 1996;192(3):217–21.
- Walvekar RR, Chaukar DA, Deshpande MS, Pai PS, Chaturvedi P, Kakade A, Kane SV, D'Cruz AK. Verrucous carcinoma of the oral cavity: A clinical and pathological study of 101 cases Oral Oncol. 2009 Jan;45(1):47-51. Epub 2008 Jul 11.

Hearing devices like no other

Enjoy conversation in every setting. ReSound offers the most advanced digital hearing technology. A combination of exclusive features provides amazing benefits you need to hear to believe.



Hearing device that automatically focuses on what's being said.

Now that's something to talk about.



INVEST IN YOUR HEARING



Hoarseness Due to Cardiovascular Disease: A case report of Cardiovocal Syndrome.

Nabajyoti Saikia , Pankaj Neog

ABSTRACT :

Cardiovocal syndrome (or Ortner's syndrome) refers to hoarseness caused by damage to the recurrent laryngeal nerve as a result of cardiovascular causes. We report a single case of cardiovocal syndrome due to moderate mitral stenosis with pulmonary artery hypertension undergoing medical treatment and follow up. Cardiovascular disease should be considered as a differential diagnosis in a patient with hoarseness. A high index of suspicion is required to make an early diagnosis which can lead to surgical correction of the potentially life-threatening, underlying cardiovascular disease.

Keywords: cardiovocal hoarseness, Ortner's syndrome, cardiovascular disease, mitral stenosis.

CASE REPORT

A 44 years old male presented to our outpatient department (otorhinolaryngology and head & neck surgery) with complain of hoarseness for last six months. It was insidious in onset and progressive in nature, and associated with intermittent non-productive cough on swallowing and mild dyspnoea, with no history of choking, chest pain or haemoptysis. He was a known case of Rheumatic Heart Disease (RHD) with moderate Mitral Stenosis (MS) and Pulmonary Arterial Hypertension (PAH) diagnosed in 2011 and has been on medication. He then complained of dyspnoea on exertion, and palpitation for last 6years. He also gave history of fever with excruciating joint pain involving larger joints at 10 years of age but could not recall any prior episode of sore throat. There was no history of any neck or cardiothoracic surgery. He was normotensive , non diabetic with no history of chronic obstructive airway disease, tuberculosis or Cerebro-Vascular Accident. Clinically

Nabajyoti Saikia, Pankaj Neog (
) Department of Otorhinolaryngology And Head & Neck Surgery, Assam Medical College And Hospital, Dibrugarh, Assam.

Email: pankajneog789@gmail.com

he was mobile, conscious, oriented, with no stridor or respiratory distress. On physical examination his pulse rate was 92/min with an irregularly irregular rhythm, a variable volume, normal character and a normal condition of arterial wall. All peripheral pulses are bilaterally and symmetrically palpable. No radio-radial and radio-femoral delay. His Blood Pressure was 124/78mmHg on left arm supine position. His respiratory rate was 18/min and regular. His chest was normal in shape and size. The apical impulse seen in left chest below nipple. The apex beat was in the fifth intercostal space 3 cm lateral to Mid-Clavicular line and tapping in character. On Auscultation there was bilateral vesicular breath sounds. Pan-Systolic Murmur in the Left parasternal area and a Mid-Diastolic Murmur in the apex were heard. There were no significant clinical findings on central nervous system, abdominal and neck examinations. Left vocal cord palsy was seen on Indirect laryngoscopy (I/L) examination. Laborartory investigations were non-significant except for a raised Erythrocyte Sedimentation rate and Eosinophil count.



Figure- 1 Cardiomegaly, Straightening of Left Cardiac border.



Chest skiagram shows cardiomegaly with multiple valvular lesions, interstitial edema (right paracardiac area), with PAH (Figure-1).Upper Gastro-intestinal endoscopy and 70° rigid laryngoscopy confirms the I/L findings with associated Esophageal varices and Gastric erosion (Figure-2).



Figure-2 Left Vocal cord palsy with Right Compensatory mucosal edema.

Electrocardiogram shows atrial fibrillation with control ventricular rate and occassional ventricular ectopics with a right axis deviation. On Echocardiogram there were evident of RHD with moderate MS, moderate Tricuspid Regurgitation, moderate PAH and mild Aortic Regurgitation. A clinical diagnosis of left vocal cord palsy secondary to cardiomegaly with left atrial enlargement due to moderate mitral stenosis was made. Patient was treated with digoxin , verapamil and furosemide. He was also given speech therapy and presently under follow up.

DISCUSSION :

This rare syndrome was first described in 1897 by Nobert Ortner, an Austrian physician^[1]. Ortner originally described this syndrome in association with mitral stenosis, but it is now considered to be caused by a number of cardiovascular diseases. Cardiovocal syndrome remains rare but occurs at a higher prevalence (0.6-5%) in patients with mitral stenosis than in the general population^[2]. Cardiovocal syndrome usually resolves if detected early and the underlying cardiovascular etiology is corrected or treated^[3]. Unilateral vocal cord palsy causing hoarseness of the voice may result from involvement of recurrent laryngeal nerve (RLN) anywhere along its course from the brainstem to its distal margins. The left RLN is more often involved than right due to its longer course and extension into mediastinum. As these cases are uncommon, the natural history is ill defined, and management remains controversial. The incidence of mitral stenosis causing this syndrome ranges from 0.6 to $5\%^{[4]}$. The treatment of and prognosis for this syndrome depends on the possibilities of managing the underlying cause and whether the opposite normal side can compensate for this atrophy. Early rehabilitation is essential. It is not necessary to perform any additional surgical procedures on the vocal folds if the patient shows sufficient improvement during speech therapy.

CONCLUSION :

Cardiovascular disease in a patient with unilateral vocal cord palsy should be considered as a differential diagnosis and any abnormality in the cardio-vascular system should be sought for.

ACKNOWLEDGMENT :

We gratefully acknowledge Dr. Hem Chandra Kalita, Professor and Head of the Department of Cardiology (Assam Medical College and Hospital, Dibrugarh, Assam) for examining and treating our patient.

REFERENCES :

- 1. Ortner NI. Recurrenslähmung bei Mitralstenose .Wien Klin Wochenschr.1897;10:753-5.
- 2. Solanki SV, Yajnik VH. Ortner's syndrome. *Indian Heart J.* 1972 Jan; 24(1): 43-6.
- 3. Anuar, Khairullah, et-al, Hoarseness due to cardiovascular disease: two cases of cardiovocal syndrome. Philippine journal of otolaryngology-Head and neck surgery. Vol. 26, No. 2 July-December 2011.
- Loughran S, Alves C, MacGregor FB. Current aetiology of unilateral vocal fold paralysis in teaching hospital in the West of Scotland. J Laryngol Otol. 2002 Nov; 116(11): 907–10.





A Case Report on Benign Sinonasal Paraganglioma

Smrity Rupa Borah Dutta, Sachender Pal Singh, Aakanksha Rathor

ABSTRACT :

We report a case of sinonasal paraganglioma presenting with episodes of epistaxis. A 55 year old male presented with a nasal mass. It is an uncommon site of presentation and in an uncommon age group. A high grade of suspicion is required to diagnose sino nasal paraganglioma. However, CT Scan and histopathology helps in early diagnosis and treatment. Surgical excision done with cranialization of frontal sinus with fascia lata graft, followed up for 1 year without any evidence of disease recurrence.

Keywords: Sinonasal; Paraganglioma; Fascia Lata.

INTRODUCTION:

Rarely paraganglioma have been described in areas like the sinonasal tract where there is apparently no paraganglionic tissue and very few cases of definite paraganglioma arising primarily in the nose or paranasal sinuses have been reported, presenting with nasal obstruction, profuse epistaxis and facial swelling. Complete excision of the paraganglioma is normally curative. We report a case of nasal paraganglioma and discuss the diagnosis and therapy. Malignant transformation of benign paraganglioma is rare and transformation of paragangliomas to other types of malignancies is even rarer.

CASE REPORT :

A 55 year old man presented in emergency hours in the department of otorhinlaryngology, silchar medical college &

Smrity Rupa Borah Dutta, Sachender Pal Singh(m), Aakanksha Rathor

Department of Otorhinolaryngology, Silchar Medical College & Hospital, Silchar, Assam.

Email: sachender_rocks@yahoo.co.in

hospital, silchar with history of massive bleeding from nose for last 3 days and a swelling at the root of nose for last 4 months (Fig. 1). There had been several episodes of mild intermittent nasal bleeding. There was no complaint of nasal obstruction but hyposmia was present. Anterior nasal pack was given and 1 unit of whole blood was transfused.



Fig.1: Preoperative photo of sinonasal paraganglioma.

On gross examination, a smooth, firm, non tender, nonpulsatile, diffuse swelling about 4X5 cm size in its greatest dimensions extending from root of nose over its dorsum. The overlying skin was normal. Anterior rhinoscopy revealed a mass at the roof of the nose bilaterally involving the septum with shift towards right. Nasal endoscopy suggested mass arising from the septum & roof of the nose in the 2nd pass bilaterally. Eye examination was normal. Fundoscopy was insignificant. Laboratory test was insignificant except for anaemia (Hb was 8.6gm%). Contrast Enhanced Computed Scan PNS showed an enhancing expansile soft tissue density mass involving the frontal sinus, bilateral ethmoid sinus, anterosuperior nasal cavity & extending up to subcutaneous plane causing bulging of subcutaneous plane. It was causing erosion & remodeling of anterior & posterior walls of frontal sinus, ethmoidal septae, nasal septum, right lamina papyracea and cribriform plate causing asymmetry of ethmoidal roof. It extended into the anterior cranial fossa, medial & superior aspect of right orbit. Radiological findings were suggestive of an olfactory neuroblastoma (Fig.2,3,4). A pre-operative endoscopic biopsy

was avoided as the patient was elderly with severe epistaxis so the biopsy of the mass could have been attended with profuse bleeding, the pre-operative CT scan suggested intracranial extension and last but not the least the delay in histopathological reporting was unacceptable.



Fig.2: CT findings: An enhancing expansile soft tissue density mass is noted involving the frontal sinuses, bilateral anterior ethmoid sinuses, anterosuperior nasal cavity and extending upto subcutaneous plane.



Fig.3: Precontrast coronal images showing extension of mass into orbit abutting the LPS-superior rectus complex.



Fig.4: Sagittal MR image shows extraaxial extension of lesion into anterior cranial fossa .

The tumor was approached by a bicoronal flap approach (Fig.5). Tumor, surrounding mucosa along with the posterior wall of frontal sinus was removed. The tumor was found to be restricted in extradural space with intact dura.



Figure5: Intraoperative photo after the complete removal of tumor.

Cranialization of frontal sinus was done with lattismus dorsi flap. Intraoperative blood loss was approximately 1500ml. Lumbar drainage catheter was placed in-situ for 48hours to prevent post operative raised intracranial tension. The peri and post operative period was uneventful. The soft tissue specimen of mass obtained was sent for histopathological examination which was suggestive of encapsulated tumor characterized by so-called Zellballen, nests of small to medium sized pale monomorphous cells with prominent, rounded hyperchromatic nuclei and a prominent network of endothelial cell lined vascular channels, as shown in fig 6.



Figure6: Histopathological slide (40X magnification) showing zellabalen pattern

DISCUSSION :

Paraganglionic chemoreceptor cells of neural crest origin give rise to benign, slow growing but locally invasive tumour known as paraganglioma^[1]. Almost half of these occur in the temporal bone, arising from either the cochlear promontory (i.e. typanicum) or the jugular blub (i.e. jugulare), nearly 1/ 3rd in the carotid body, nearly 1/8th in the region of the high cervical vagus and the rest at various sites of the head and neck^[2]. The most common site of occurrence being adrenal glands. In the head and neck area, common sites of occurrence are the carotid body, orbit, larynx, and the nasopharynx, but paragangliomas are rare in the nasal cavity and paranasal sinus. In the nasal cavity, the middle turbinate, lateral nasal wall and superior nasal vault are the most common sites. In paranasal sinuses, the ethmoid sinus is the most common site of occurrence^[4, 5, 6]. Nearly 10 percent of paragangliomas are malignant^[7]. In approximately 10 percent of patients, tumours are multifocal and up to 5 percent of tumours secrete catacholamines^[3]. Common symptoms include recurrent epistaxis, nasal obstruction and frontal headache. The clinical presentation depends on the localisation of the tumour. In this case, the patient presented with epistaxis, facial swelling & hyposmia. Hyposmia is probably due to mechanical obstruction by the lesion. They may also be associated with some syndromes such as multiple endocrine neoplasia type 2b (MEN

IIB), von Hippel–Lindau disease, neurofibromatosis types I^[8]. In this case, we did not have any syndromic involvement. It is estimated that about 10-50% of paraganglioma cases are familial (autosomal dominant)^[1]. The genes for the familial paraganglioma have been recently identified at the 11g23 locus^[9]. Also, 4–19% of all head and neck paragangliomas have been reported to be malignant^[10]. The presence of metastasis is the only definite criteria for malignancy as there are no reliable histopathological criteria to distinguish between benign and malignant paragangliomas^[1,11] and since the lesions are almost impossible to remove completely, postoperative radiotherapy is then mandatory^[3]. In our case, we could not demonstrate any evidence of metastasis to the regional nodes or distant organs. He has been followed up for 12 months, and no additional symptoms or signs indicating recurrence have been identified.

CONCLUSION :

Rarely, are the paragangliomas of the sinonasal region reported in the literature. Benign paraganglioma, may occasionally, both clinically and radiologically resemble malignant sinonasal tumour so a high grade of clinical suspicion is required to diagnose such a rare & curable tumor. It may be provisionally diagnosed in any patient with nasal mass associated with severe epistaxis. To conclude, histopathology is the spine for definitive diagnosis.

REFERENCES :

- 1. Pellitteri PK, Rinaldo A, Myssiorek D, Gary JC, Bradley PJ, Devaney KO et al (2004) Paragangliomas of the head and neck. Oral Oncol 40:563–575.
- 2. Zak FG, Lawson W. The paraganglionic chemoreceptorsystem. Physiology, pathology and clinical medicine. New York: Springer Verlag. 1982.
- Scott Brown's Otorhinolaryngology, Head & Neck Surgery; 7th edition 2008.
- 4. Sharma HS, Madhavan M, Othman NH, Muhamad M, Abdullah JM. Malignant paraganglioma of

frontoethmoidal region. Auris Nasus larynx 1999;26:487–93.

- Welkoborsky HJ, Gosepath J, Jacob R, Mann WJ, Amedee RG. Biologic characteristics of paragangliomas of the nasal cavity and paranasal sinuses. Am J Rhinol 2000;14:419–26.
- 6. Mevio E, bignami M, Luinetti O, Villani L. Nasal paraganglioma: a case report. Acta Oto-rhinolaryngologica Belg 2001;55:247–9.
- Conley JJ. The carotid body tumour: A review of 23 cases. Archieves of Otolaryngology. 1965;81: 187-93.
- Bijlenga P, Dulguerov P, Richter M, de Tribolet N (2004) Nasopharynx paraganglioma with extension in the clivus. Acta Neurochir (Wien) 146:1355– 1359.
- Baysal BE, Van Schothorst EM, Farr JE, Grashof P, Myssiorek D, Rubinstein WS et al (1999) Repositioning the hereditary paraganglioma critical region on chromosome band 11q23. Hum Genet 104:219–225.
- Kuhn JA, Aronoff BL (1989) Nasal and nasopharyngeal paraganglioma. J Surg Oncol 40:38– 45.
- Deb P, Sharma MC, Gaikwad S, Gupta A, Mehta VS, Sarkar C (2005) Cerebellopontine angle paraganglioma—report of a case and review of the literature. J Neuro-oncol 74:65–69.
- K. Deb, S. Agrawal, A. Pratab, T. Meyarivan, "A Fast Elitist Non-dominated Sorting Genetic Algorithms for Multiobjective Optimization: NSGA II," KanGAL report 200001, Indian Institute of Technology, Kanpur, India, 2000. (technical report style)
- J. Geralds, "Sega Ends Production of Dreamcast," vnunet.com, para. 2, Jan. 31, 2001. [Online]. Available: http://nl1.vnunet.com/news/1116995. [Accessed: Sept. 12, 2004]. (General Internet site).





An unusual case of Aural polyp with Foreign body following Penetrating injury through Oral cavity : a case report.

Nency Brahma, Rohan C. Fuladi, Rupam Borgohain

ABSTRACT :

Patients with unilateral otorrhoea and hearing loss often have external or middle ear diseases. A unique case of foreign body of the external and middle ear following oral cavity injury in a 4year 5months old boy with normal intelligence is presented. He sustained a penetrating injury in the right side of oral cavity by a wood stick following which he started having right ear discharge and developed an aural mass. Persistent tubal obstruction due to impacted foreign body and surrounding granulation tissue seems to have caused otitis media with externa. CT indicated slightly hyperdense material filling the external auditory canal and middle ear cavity. The diagnosis of foreign body remained elusive till last and could be proved after cortical mastoidectomy was done and piece of woodstick was found in the middle ear. We present this rare case so that this condition can be better recognized and understood.

Keywords: Foreign body; Otitis externa; Middle ear; Oral cavity.

INTRODUCTION:

Foreign bodies in the external auditory canal are common. Seeds, insects, parts of plastic toys are often diagnosed quickly and treated immediately. Some may cause chronic diseases such as polyp development in the external auditory canal or otitis media^[1,2]. Middle ear foreign bodies are rare and act like chronic suppurative otitis media, and require surgical intervention. Some are found only when the operation is

Nency Brahma, Rohan C. Fuladi, Rupam Borgohain(

Department of ENT and Head-Neck Surgery, Guwahati Medical College, Bhangagarh, Guwahati, Assam - 781034

Email: mailrupam70@gmail.com

undertaken^[3]. There are also a few reports of foreign bodies in the Eustachian tube. Two of these occurred after accidents, with one causing cholesteatoma as well^[4,5]. Some foreign bodyrelated diseases may be caused by medical intervention. As with otitis media, middle ear effusion, cholesteatoma, and mastoiditis can occur after cochlear implantation in children^[6,7]. The present case of foreign body in the external and middle ear associated with otitis media and external auditory canal polyp following penetrating injury of oral cavity is extremely rare.



Fig.1 a,b Pre-Operative photographs showing Normal oral cavity with no injury mark

Case presentation

A 4year 5months old boy (Fig. 1a, b) presented with right ear discharge for 6months and right ear mass for 4 months. 6 months back he had history of penetrating injury in the right side of oral cavity by a wood stick while playing for which he was treated at a local hospital. No surgical intervention was done as no foreign body was noted and the wound healed by itself within 7 days. On examining the patient, we noted a fleshy aural polyp blocking the opening of the right external auditory canal with purulent discharge. The probe could be passed around the mass. However, the medial extension could not be seen. The patient had mild conductive hearing loss of right ear. Computed tomography (CT) showed collection in mastoid air cells with slightly hyperdense material filling the external auditory canal and middle ear cavity, nonvisualization of right tympanic membrane, intact ossicles, inner ear structures and internal auditory canal (Fig. 2a,b). The patient was then taken for surgery.



Fig.2a,b showing right sided mastoiditis with otitis externa & media.

Under general anesthesia, we performed cortical mastoidecotmy by a postauricular incision. Granulation tissue was seen in the antrum & aditus. Canaloplasty was done. The fleshy mass was seen in the external ear with extension through a posterior superior perforation in pars tensa. The tract of granulation tissue removed. On attempting removal of the aural granulation, a woody foreign body was seen approximately 2.5cm in length (Fig. 3a,b). A depression was seen in the anterior wall of canal. Debridement of granulation tissue was done along with removal of the aural polyp. Mastoid cavity obliteration and posterior canal wall reconstruction was done by conchal cartilage. Followed by packing of the external auditory meatus.



Fig.3 a,b showing a foreign body in the tympanic cavity.

After 12 weeks follow up his right ear was dry and well epithelised with stenosed external auditory canal. A fibrotic band could be seen at the injury site inside the oral cavity (Fig. 4). A second stage operation for release of stenotic canal has been planned on a later date.



Fig.4 injury site in the oral cavity

DISCUSSION :

The development of granulation tissue due to foreign body in the tympanic cavity following oral cavity injury is not reported in the literature. Zhou Shui-Hong et al⁸ in the year 2012 reported a case of middle ear foreign body (plastic stick) causing cholesteatoma and external auditory canal granuloma in a 55 year old man with 10 years history of left ear discharge & hearing loss. Naresh K. Panda et al^[9] presented a study of a 16 year old boy who had left otalgia with scanty ear discharge;on evaluation found to be a case of autotympanomastoidectomy in a case of cholesteatoma with foreign body. Another case report by Tono T et al.^[5] of a 76 years old male patient with adhesive-type cholesteatoma & cannon ball foreign bodies impacted in the bony eustachian tube following a burn injury of left tympanic membrane when he was struck by bomb 52 years ago.

In our case the possibility of otitis media with external auditory canal polyp was considered as more likely diagnosis rather than the possibility of foreign body. Computed tomography (CT) did not reveal any sign of foreign body in the ear; probably because it was tiny and radiolucent. The foreign body pierced the retromolar trigone of oral cavity, then entered the right external auditory meatus through the anterior canal wall and probably tip of foreign body pierced the posterosuperior part of pars tensa. Thereby creating a passage for subsequent granulation tissue to pass to the canal and through the perforation to the attic, aditus and antrum.

CONCLUSION :

We report a case of an unnoticed foreign body in a child ear following oral cavity injury that resulted in otitis media with externa. We did not recognize the condition until surgery was performed.



Acknowledgement

We are grateful to Superintendent of Gauhati Medical College, Guwahati for allowing us to publish this case report in journal.

REFERENCES :

- Chalishzar UK, Singh V. [Correlation between a foreign body in the external auditory canal and otitis media with effusion]. J Laryngol Otol.2007; 121(9):850-2.
- Sarkar S, Sadhukhan M, Roychoudhary A, Roychaudhury BK. [Otitis media with effusion in children and its correlation with foreign body in the external auditory canal]. Indian J Otolaryngol Head Neck Surg.2010;62(40):346-9.
- Lin CC, Ho KY, Wang LF, Kuo WR. [Foreign-bodyinduced otitis media. A case report]. Kaohsiung J Med Sci. 2002; 18(11):585-8.
- Ribeiro Fde A. [Foreign body in the Eustachian Tube: case presentation and technique used for removal]. Braz J Otorhinolaryngol.2008;74(1):137-42.

- Tono T, Segawa Y, Tsuboi Y, Morimitsu T. [Middle ear cholesteatoma caused by cannonball foreign bodies impacted in the bony Eustachian tube: a case report]. Nihon Jibiinkoka Gakkai Kaiho. 1996;99(5):669-74.[Article in Japanese]
- 6. Lin YS. [Management of otitis media-related diseases in children with a cochlear implant]. Acta Otolaryngol. 2009; 129(3):254-60.
- Nadol JB Jr, Eddington DK, Burges BJ. [Foreign body or hypersensitivity granuloma of the inner ear? after cochlear implantation: one possible cause of soft failure]. Otol Neurotol. 2008; 29(8):1076-84.
- Zhou Shui-Hong, Wang Qin-Ying, Wang Shen-Qing. Middle ear foreign body causing cholesteatoma and external auditory granuloma: a case report. Journal of Otology 2012 Vol 7 No. 1.
- Naresh K. Panda, Roshan Kumar Verma, Ajay Jain. [Autotymapanomastoidectomy in a Case of Cholesteatoma with Foreign Body]. Indian J Otolaryngol Head Neck Surg(July 2011) 63 (Suppl 1): S68-S70.





Atypical presentation of tuberculosis in ENT practices -three case reports

Soumik Saha, Soma Mandal, Arvind kr Verma, Souvik Roychoudhury, Anjan Kr Das, Ranjan paul

ABSTRACT :

Tuberculosis (TB) is a chronic granulomatous disease affecting various systems of the body. Pulmonary involvement is commonest while 20% cases encompass extra pulmonary sites. The resurgence of TB worldwide and its association with AIDS, multiple drug resistance, potholes in disease control programmes make the otolaryngologists encounter rare presentation of this disease especially in endemic countries like India. Herein, we report three cases of tuberculosis with presentations even rare in our country. Our cases were unique as they did not have any primary pulmonary or lymph node TB.

Keywords: Tuberculosis, palate, zygoma, parotid.

CASE REPORTS :

Case -1

A 55 years old male, chronic smoker, non hypertensive or diabetic, presented with an ulcerative, edematous, cicatrizing lesion involving the mucosa of hard and soft palate and uvula [fig-1] of three months duration. It was nodular to start with and gradually increased in size. The ulcer was dirty white in colour, slightly tender, irregular, undermined edges and did not bleed to touch. There was no associated systemic complaints, palpable lymph nodes, skin lesion. Indirect laryngoscopy was normal. Chest skiagram was normal and HIV screen was nonreactive. Incisional biopsy and

Soumik Saha(), Soma Mandal, Arvind kr Verma, Souvik Roychoudhury, Ranjan paul .

Department of ENT and Head-Neck Sugery, Calcutta national medical college, Kolkatta, West Bengal.

Anjan Kr Das

Department of Pathology, Calcutta national medical college, Kolkatta, West Bengal.

Email: soumikcnmc84@gmail.com

histopathological examination showed evidence of a chronic granulomatous inflammation consistent with TB. Sputum culture for acid fast bacilli(AFB) was negative. He was started on Antitubercular therapy (ATT) (CATEGORY I) for six months and recovered well.



fig-1: Showing ulcerative,edematous , cicatrising lesion involving hard, soft palate and uvula

Case -2

A 40 year female presented with a painless, gradually progressive, diffuse swelling, over the left zygoma[fig-2] for five months. The swelling had ill defined margin, a healed scar over the swelling (result of previous surgery) without any sinus or fistula. It was hard on palpation, skin was mobile. There was no involvement of surrounding bones, Orbit or any palpable cervical lymph nodes, and no history of any systemic illnesses. HIV screen and sputum for AFB was negative. X-Ray of the paranasal sinuses(Occipito mental view) supported by Computed tomogram (PNS) showed osteolytic lesion in the left zygoma [fig-3]. Histopathological





Fig-2 : Showing diffuse swelling involving the left zygoma

Fig-3 : Radiology showing osteolytic lesion in zygoma



examination of the lesion was consistent with TB. She was started on ATT (CATEGORY-I) for eighteen months and had significant recovery.

Case -3

A two year old female child presented with a soft, diffuse, fluctuant, painful swelling in the left parotid region[fig-4] of four months duration. There were no other neurological or systemic complaints. Her immunization was completed for her age. Parenteral antibiotics was administered for seven days. Fluctuation resolved and the swelling became firm on palpation but the size remained same. USG (parotid region) revealed diffusely enlarged (3.8x1.8 cm) left parotid gland with heterogeneous echogenicity and multiple tiny calcifications[fig-5]. FNAC showed chronic granulomatous inflammation consistent with TB. Sputum for AFB an HIV screen were negative.



Fig-4 : Showing swelling of left parotid region



Fig-5 : Ultrasonography left parotid gland

DISCUSSION :

Tuberculosis is a chronic granulomatous disease affecting various systems of the body^[1, 2, 3]. Pulmonary tuberculosis is the most common form of the disease^[4,5,6]. However, tuberculosis can also occur in the lymph nodes, meninges, kidneys, bone, skin and in the oral cavity^[2,3]. The reported

incidence of clinical oral involvement, ranges from 0.05 to 1.44 percent^[1,2,5]. Katz performed autopsies in 141 patients who died of TB and found oral lesions in 19.9 percent cases, which shows significant proportion of clinically missed cases^[2,3]. TB infection in the oral cavity is acquired through infected sputum, coughed out by patient with open pulmonary TB or by haematogenous spread^[1,2,5]. Breach in the oral mucosa forms an important predisposing factor so that chronic smokers and tobacco chewers are at higher risk for oral involvement^[3,4]. Tongue is the commonest site followed by floor of mouth, gingiva, hard and soft palate, anterior pillars and uvula^[1,2,3,5]. Palatal TB affects hard palate more than soft palate and is usually secondary to primary pulmonary TB, but cases secondary to lupus vulgaris of pinna by Sinha has been reported^[1,2]. Our first case shows primary TB affecting hard and soft palate and uvula without pulmonary TB. This can easily be confused with neoplasm due to its appearence and absence of pulmonary involvement. Cervical lymphadenopathy is the most common manifestation of tuberculosis in head and neck region^[1,2]. Involvement of paranasal sinuses is rare^[3,4]. Penfold and Revington reported one case of tuberculosis of the zygoma in review of a series of 23 patients with tuberculosis of the head and neck^[3]. Similarly, Pillai et al (1995) described a case of orbital tuberculosis with the involvement of the zygoma due to hematogenous spread from the site of a primary complex^[3,4]. Abhijit A Rahut reported 42 cases of calvarial tuberculosis in 2003^[3,4]. Sinonasal TB may be limited to sinus mucosa only presenting as pale and boggy polypoidal swelling or may show bony involvement as our second case showing primary zygomatic TB^[3,4]. However TB osteomyelitis frequently presents with fistula which is absent in our case^[2,3,4]. If a strong clinical suspicion is not made, it can be misdiagnosed as carcinoma. Here osteolytic lesion in the zygoma in radiology and subsequent incisional biopsy clinched the diagnosis. Pathogenesis of TB parotid may be explained in two ways. First, a focus of mycobacterial infection in the oral cavity liberates the mycobacterium that ascend into the salivary gland via its duct or pass to its associated lymph nodes via lymphatic drainage^[5,6]. The second pathway involves haematogenous or lymphatic spread from a distant primary lung focus^[5,7]. It most commonly presents as a localized mass, resulting from infection of lymph nodes^[6]. It may also present as an acute sialadenitis with diffuse glandular enlargement as shown in our case. In this form the involvement is in the parenchyma of the salivary gland. It may also present as a periauricular fistula or as an abscess^[7]. Parotid tuberculosis becomes a real diagnostic dilemma in the absence of clinical disease in the lung and without any systemic signs and symptoms. Less than 50% of patients with extrapulmonary tuberculosis exhibit radiologic evidence of pulmonary disease ^[5,6]. Our patient did not have chest radiographic evidence of either active or prior pulmonary tuberculosis Less than 200 cases have been reported since the first description of this condition by von Stubenrauch in 1894^[5,7]. Fine needle

aspiration cytology (FNAC) is a useful technique for the diagnosis of tuberculosis in the parotid gland having a sensitivity of 81-100% and specificity of 94-100%^[5,6]. In a meta-analysis by Lee and Liu of 49 cases of tuberculous parotitis, FNAC was helpful in only 10 cases and the diagnosis was established by parotidectomy in 34 cases^[5,6,7]. Imaging studies involve ultrasonographic examination, computerized tomography and magnetic resonance imaging. But there is no specific sign of tuberculosis in the parotid with any of these imaging techniques^[6,7]. Incisional biopsy or drainage should not be used as they may result in the development of cutaneous fistulae^[5,6,7]. So as evident from our case parotid TB may pose diagnostic challenge unless a strong clinical suspicion is made. Here also neoplasm causes confusion and may lead to unnecessary surgical intervention like superficial parotidectomy. All the cases responded dramatically to antitubercular medications and are doing well.

CONCLUSION :

Tuberculosis can have atypical presentations even in an endemic country like India and as in our three cases, the diagnosis can be extremely challenging without pulmonary involvement. However with a strong clinical suspicion and careful systematic investigations we can avoid unnecessary delay in diagnosis and surgical intervention.

REFERENCES :

- 1. Prabbu SR, Daftary DK, Dholakia HM: Tuberculous ulcer of the tongue oral Surg, 36: 384-6,1978.
- Shafer WG, Hine MK, Levy BM: A text book of Oral Pathology, 4th Ed, WB Saunders Company Philadelphia, 1993.
- 3. Glynn JR. Resurgence of tuberculosis and the impact of HIV infection. Br Med Bull. 1998;54:579-593.
- Moon WK, Han MH, Chang KH, Im JG, Kim HJ, Sung KJ, Lee HK. CT and MR Imaging of Head and Neck Tuberculosis. Radio Graphics. 1997;17(2):91-402
- 5. Lee IK, Liu JW: Tuberculous parotitis: case report and literature review. Ann Otol Rhinol Laryngol 2005, 114:547-551
- Hamdan AL, Hadi U, Shabb N: Tuberculous parotitis: a forgotten entity. Otolaryngol Head Neck Surg 2002, 126:581-582
- 7. Von Stubenrauch L: Einen Überfall von tuberculoser Parotitis. Arch Klin Chir 1894, 47:26-32.





Small incision thyroid and salivary gland surgery (SITSS)

ABSTRACT :

Most surgical procedures are becoming minimally invasive. The concept is to decrease morbidity, improve cosmetically and make if financially viable. The Head and Neck areas is studded with vital structures and planes of fascia. These planes are utilized to manoeuvre while removing tumours with small sized incisions. The author is presenting the surgical technique for doing so while removing tumours of the thyroid, parotid and submandibular gland though a small sized incision. Thirtytwo cases were operated and non had any neurological deficit or metabolic disorders following the surgery. Recovery was excellent.

Keywords: Small incision, thyroid and salivary gland surgery.

INTRODUCITON:

These are the days of miniaturization. We endeavour into bringing the reality of our dreams with the utilization of minimal incisions for thyroid and salivary gland tumour. Neck and face area is studded with vital structures and planes of fascia. There are few expandable and compressible spaces namely, the lateral neck space (great vessels and sternocledomastoid muscles), Suprasternal space (lower pole of thyroid and inferior thyroid vein), Subdiagastric space (superior pedicle of thyroid), Supradiagastric (artery and vein), Retromandibular space (content of parotid) and Paraparotid Supradiagastric (facial nerve trunk). These spaces can be used to negotiate the volume of the disease while performing surgery through a small incision. Apart from these spaces another potential space for use is air space. The small incisions can be used very effectively

Jyotirmoy phookan()) Department of ENT, Gauhati Medical College & Hospital, Guwahati, India

Email: jpphokan@hotmail.com a + 919435543972 for the organs anchored by small attachment which is already been proved by wide spread use of laparoscopic cholecystectomy/appendicectomy.

To deliver an organ surgically through a small incision, it is the basic requirement that the organ have small attachments. The principle is to play along with the space and volume to accommodate each other while negotiating the tumour. The air space is always the main accommodator for the procedure. Since the neck is studded with vital structures and nature has given us some spaces to utilize while modifying our surgical steps.

We utilized small incisions for removing the structures which are anchored by small attachment and definitive vascular supply. The use of small incision permits manoeuvre of the lesion with instrumentation alone thereby lessens the tissue handling. The overall results are less morbidity, short hospital stay, quick wound healing, well accepted by patients and also economically viable.

MATERIALS AND METHODS :

We included random cases of thyroid, submandibular gland and parotid gland tumours for the small incision surgeries. The selection of case were done irrespective of age, sex and pathology. For Thyroid tumours, we limited our surgery to tumours less and equal to 6cm in one diameter and for salivary gland tumours without nerve palsy(Fig 1,2). The incision used for all the surgeries varied between 4-5 cm in length.

Steps for Thyroidectomy:

- Sternocleidomastoid muscles was always separated to identify the middle thyroid vein for using lateral neck space and thereby cutting the lateral anchor for the thyroid gland.
- b) The surgical field is then shifted to the Suprasternal notch region, identifying the inferior thyroid vein and ligation of which enables us to use the air space by lifting the organ to visualize the recurrent laryngeal nerve and simultaneously avoid dissection of the thymothymic fat to save the inferior parathyroids while operating on a non malignant disease and to identify the parathyroids when level-VI clearance is needed. As the lateral neck space and Suprasternal







Fig 1. Thyroid swelling

Fig 2. Parotid swelling

space is free of any attachments, those spaces are used to negotiate the gland while dissecting the superior pole taking advantage of the Subdiagastric pace to ligate the superior pedicle. Therefore, half the gland can be mobilize toward the tracheal attachment (Berry's ligament area) and dissecting it completely in a hemithyroidectomy, with resection of pyramidal lobe if present.

c) The surgeon and the assistant has to be in good liaison to use the retractors (Langenback retractor, Loop retractor and Zenkers retractor) by shifting so the space get transferred from one to another.

Steps for Submandibular Gland Resection :

- a) During this procedure we start by ligating the facial artery. As this is the most important anchor to secure when we are operating through small incision and giving the surgeon enough independence to mobilise the gland. We use the Subdiagastric space for it.
- b) identify the marginal mandibular nerve on the surface of the gland and then to ligate the facial vein and artery again.
- c) The gland becomes easy to mobilize and is detached from the lingual nerve attachment.
- d) The submandibular duct is identified by gental traction on other wise free gland and is dissected after ligation.

Steps for Parotidectomy :

- a) We used posterior belly of diagastric muscle as the identification point for the facial nerve.
- b) After identifying the facial nerve we use the supra diagastric space to lift the parotid from the masseter without ligating the common facial vein.
- c) Then the surgical specimen was mobilized taking facial nerve as interface. It is noteworthy that a submandibular incision up to the ear lobule is enough to negotiate the parotid gland with its pathology provided it is not beyond the zygoma. Less than 10% of parotid tissue is found over the zygoma.
- d) We used supraparotid space to trace out the branch of facial nerve and then to come out successfully with the gland and its pathology through small incision.

RESULTS :

We had operated 25, 11 and 6 cases of thyroid, parotid and submandibular gland tumours respectively, utilizing the small incision approach.

DISCUSSION :

This is the era of miniaturization. To minimize the normal tissue trauma surgeons have planned for small or mini incisions. It is Paolo Miccoli from Italy who popularised the concept of endoscopic thyroidectomy. But this procedure is yet to receive wide acceptance because of some difficulties

- 1) Working near the Berry's ligaments
- 2) Unavailability of tactile sensation of the pathology
- 3) Clearance of disease in the neck.

So, probably small incision is comparable to it as aesthetically acceptable and gives the surgeon ample scope to access the disease in all angles.

Regarding the submandibular gland many a time we can come out even with an incision of less than 4 cm. and use it as day care procedure. There is no such data found in literature regarding small incision submandibular gland surgery.



Fig 3. Small incision for parotid surgery

In parotid surgery we feel that the incision which we use is of very good aesthetically (Fig. 3) and ,with the acceptance of extra capsular dissection of parotid tumour as standard procedure even for well circumscribed malignancy, the relevance of small incision materialises. Review of literature showed 15-25% and 20-50% temporary facial palsy after superficial and total parotidectomy. Permanent facial palsy is between 0-10%(McGurk^[1] et al ,Rehberg et al.^[2], Witt ^[3], Guntinus-Lichius et al^[4], Zernial et al ^[5]. McGurk et al^[1] reported 475 cases who had undergone surgery for pleomorphic adenoma. After extracapsular dissection (N= 380) 11% of those patients had temporary and 2% had permanent facial palsy where as in superficial parotidectomy



the figures are 32% and 1%.Regarding the freys syndrome also McGurk found the freys syndrome 38% in superficial parotidectomy and just 5% after in ECD.Hancock^[6] reported 25% and Prichard et al^[7] 40% after superficial parotidectomy, whereas after extra capsular dissection they did not observed any freys syndrome..

A number of study has shown the recurrence rate of pleomorphic adenoma is no higher with extra capsular dissection than with the superficial or total parotidectomy (Mcgurk et al ^[1], Rehberg et al^[2], Hancock et al^[3], Witt^[3]. After a mean follow up period of 12.5 yearsMcGurk et al ^[1] found a recurrence of 2% both with extra capsular dissection and and superficial parotidectomy. Hancock et al ^[6] and Smith and Komisar^[8] did not observed any recurrence after extracapsular dissection. In our series also we had temporary facial palsy in one patient only which was subsequently recovered (Fig. 4). There was no Freys syndrome. To comment on the recurrence probably we shall have to wait.



Fig. 4. Facial Nerve status following Parotid surgery with Small Incision.

Fig. 5. Thyroidectomy with a small incision



In thyroid surgery the minimal incision has brought widely to practice by Dr Paolo miccoli and his group. But with the use of endoscope. We did not found any available literature regarding small incision thyroid surgery. In our series of 25 cases we did not have any recurrent nerve palsy in any form or hypocalcaemia(Fig. 5).

Only drawback we observed is a degree of ecchymosis in the incision margin because of retractor use, which will demand more soft hand.

The drawbacks of the small incision surgeries are:

- 1) Big thyroid tumour
- 2) Extra capsular disease with muscle and visceral involvement
- 3) Big parotid tumour crossing the zygomatic arch and parotid malignancy
- 4) Disease with skin involvement

CONCLUSIONS :

- a) Small incision thyroid and salivary gland surgery (SITSS) is aesthetically very much acceptable with good disease clearance but with a demand of a good surgical skill.
- b) Because of small incision and less tissue handling we are one step ahead of not using drains turning the procedure to a day care treatment thereby minimizing the cost.

(This paper won the prestigious S.N Sharma Award, at the 25th Annual Conference of the North-Eastern Branch of Association of Otolaryngologist of India, 2012, held at guwahati.)

REFERENCES :

- 1. McGurk M, Renehan A, Gleave eN ,et al(1996) Clinical significance of the tumour capsule in the treatment of parotid pleomorphic adenomas. Br J Surg83,1747-9.
- 2. Rehberg E,Schroeder HG,Kleinsasser,O(1998) Surgery in benign parotid tumours:Individually adaptedor standardized radical interventions? Laryngorhinootology,77,283-3.
- 3. Witt RL(2002) The significance of the margin in parotid surgeryfor pleomorphic adenoma.Laryngoscope,112,2141-54.
- 4. Guntinus Lichius,O,Gabrial,B,KlussmanJP(2006a)Risk of facial palsy and severe Freys syndromeafter conservative parotidectomy for benign disease:analysis of 610 poerations. Acta Otolaryngol, 126,1104-9.
- 5. Zernial O, Springer IN, Warnke P, et al (2007) Long term recurrence rate of pleomorphic adenoma and post operative facial nerve paresis(in parotid surgery), J craniomaxillofac Surg, 35, 189-92.
- 6. Hancock BD(1999) Clinically benign parotid tumours: local dissectionas an alternative to superficial parotidectomy in selected cases. Ann R Coll SurgEngl, 81, 229-301.
- 7. Pricard AJ, barton RP, Narula AA(1992) Complications of superficial parotidectomy versus extrcapsular lumpectomy in the treatment of benign parotid lesions J R Coll SurgEdinb , 37,155-8.
- 8. Smith SL,Komisar A (2007) Limited parotidectomy: The role of extra capsular dissection innparotid gland neoplasm.Laryngoscope, 117,1163-7.



Cochlear implant by Veria Technique

N. Brian Shunyu, Amit Goyal, Jayanta Medhi, Hanifa Lashkar, Nirupam Bhattacharjee, Eusibia B Khyriem, Collete W Nongsiej.

ABSTRACT :

In cochlear implant (CI) the most commonly used conventional technique is through posterior tympanotomy approach but posterior tympanotomy is not without complication especially a surgeon who is not familiar with posterior tympanotomy. Here we describe CI by Veria technique. Six patient had undergone Cochlear implantation by Veria technique at our centre. No complications were encountered so far. In this paper we highlight Veria technique which is a simple, technically easier and can be comfortable performed by an ENT surgeon who is not familiar with posterior tympanotomy approach.

INTRODUCTION:

For the first time in 1790, Alessandro Volta noted that electrical stimulation in the auditory system can create a perception of sound^[1]. It took more than 150 years to make first attempt to develop a clinical Cochlear Implant (CI) when in 1957, Djourno and Eyries implanted a recipient with a single channel device^[2]. First five wire electrode was used by Dr. William House, Dr. John Doyle and James Doyle in 1961^[3]. Since then CI has evolved a long way with tremendous improving the technology and results in terms of sound perception and discrimination. A cochlear implant is a small, complex electronic device that can help to provide a sense of sound to a person who is profoundly deaf or severely hard-of-hearing. The implant consists of an external portion that sits behind the ear and a second portion that is surgically placed

N. Brian Shunyu(), Jayanta Medhi, Hanifa Lashkar, Nirupam Bhattacharjee, Eusibia B Khyriem, Collete W Nongsiej. Department of Otorhinolaryngology and Head & Neck Surgery, NEIGRIHMS, Shillong.

Amit Goyal

Department of Otorhinolaryngology and Head & Neck Surgery, AIIMS, Jodhpur.

.

Email: drnbshunyu@yahoo.com

under the skin. An implant has the following parts. A microphone, which picks up sound from the environment, a speech processor, which selects and arranges sounds picked up by the microphone, a transmitter and receiver/stimulator, which receive signals from the speech processor and convert them into electric impulses, an electrode array, which is a group of electrodes that collects the impulses from the stimulator and sends them to different regions of the auditory nerve.

A prime candidate^[4,5,6,7] is described as having: severe to profound sensorineural hearing impairment in both ears with a functioning auditory nerve, having lived at least a short amount of time without hearing, approximately > 70 dB hearing loss (on average), good speech, language, and communication skills, or in the case of infants and young children, a family willing to work toward speech and language skills with therapy, not benefitting enough from other kinds of hearing aids, including latest models of high power hearing instruments and FM systems, no medical reason to avoid surgery, living in or desiring to live in the "hearing world", realistic expectations about results, the support of family and friends, appropriate services set up for post-cochlear implant aural rehabilitation (through a speech language pathologist, deaf educator, or auditory verbal therapist).

METHOD :

At our centre cochlear is done by Veria technique. As per the protocols of NEIGRIHMS, Shillong, prior to implantation a basic workup including hematological, chest X-ray, ECG, 2D ECHO, TORCH profile, TB immunoglobulin levels were conducted. For children, audiological workup involving free-field audiometry both unaided and aided with amplification, OAE, BERA, ASSR and speech perception and speech production skills assessment was carried out. Radiological investigation: CT scan for bony cochlea, internal auditory canal, Bill's bar, 7th and 8th nerve complex and Broca's area was done. IQ assessment was done by psychiatrist. And neuro-pediatrician's opinion to be sought in patients with syndromic etiology of deafness. In children pre-implant pneumococcal vaccination was carried out.



Veria Surgical techique:

The procedure is done under general anaesthesia. The patient's head is shaved over the post-auricular area. The extent of hair removal depends on the incision to be used—generally four fingerbreadths above and behind the ear is sufficient. Cleaning and draping is done. Local anaesthesia is infiltrated along the incision. A dummy receiver is placed over the skin and positioned approximately 1 cm posterior to the auricle. A C-shaped incision given which was extended over squamous part of temporal bone (figure-1).



Figure-1: shin incision

Several incisions have been proposed and included a large C-shaped incision, a 4-5 cm superior elliptical extension of the routine postauricular incision, a small 4-5 cm straight incision posterior and an incision posterior-superior to the auricle. The superficial layer (skin and subcutaneous tissue) is elevated first followed by the deep layer of muscle and periosteum (Wurzburg flap). Tympanomeatal flap is elevated and round window niche identified. Posterior canal wall is straightened by drill work. A suprameatal hollow is made measuring 5mmx 5mm x 5mm postero-superior to the bony canal. Through the posterio-superior portion of hollow a tunnel is drilled in the posterior canal wall by 1.6mm burr with a guard (Trifon Perforator). The tunnel can be widened to about 3mm. The distance between guard and burr is 0.6mm. Drilling is done towards the round window. Tunnel is drilled, patency is confirmed and smoothened (figure-2)



Figure-2: tunnel for electrode made in posterior-superior ear canal

The Mucosa over the promontory is incised and elevated in anteroinferior direction to round window. Cochleostomy is done in above area. Irrigation is done inside the cochlea to remove bone dust and filled with gel foam. Tympanomastoid portion of temporal bone is drilled to make the implant bed using the template. Tunnels are made above the bed and sutures passed through these tunnels and over the implant for anchoring and fixing the implant. Implant is secured in position by non-absorbable "double suture". A groove is drilled from implant site towards the suprameatal hollow where in the end a tunnel is made connecting the hollow with the drilled groove. Electrode is passed through the tunnel, then through the suprameatal hollow in the postero-superior tunnel, through the middle ear finally into the cochlea. The rest of the electrode array is placed like a loop in the suprameatal hollow and partly covered with bone dust. the mucosa is repositioned. The Cochleostomy is then covered with temporalis fascia and Tympanomeatalplap repositioned. Working of implant is confirmed with DIB (Diagnostic interface Box) - Telemetry is done. Wurzburg flap and subcutaneous tissue is closed by interrupted absorbable sutures. Skin is closed by continuous/ interrupted non absorbable sutures. Antibiotic impregnated wick kept in the external auditory canal. Tight mastoid bandage is given to the patient. Suture removal is done on 7-10 postoperative day.

RESULTS :

In our centre six patients have underwent Cochlear Implantation by Veria Technique. One adult patient developed deafness following Anti Tubercular Medication(ATT), another nine year old child after receiving medication for fever. All patients are doing well, the adult patients have gone back to his job and the three children have rejoined or started schooling and performing well in their environment. The remaining two children (around 3years of age) are undergoing rehabilitation.

Switching on and speech processor tuning is done 3-4 weeks after surgery. Mapping is done at periodic intervals till a stable map is achieved. The rehabilitation programme is started out based on baseline skills of the patient. Periodical assessments of outcome are done in terms of environmental sound, open set, closed set speech, speech discrimination and telephonic conversation. We have not encounter any facial nerve palsy nor any problem with regards to flap infection or perforation.

DISCUSSION :

There are various techniques described for Cl surgery. The most commonly used conventional technique is through posterior tympanotomy (the other described techniques are transcanal techniques i.e. Suprameatal, Veria etc. and even middle cranial fossa technique). Veria technique^[8,9,10] is one of these non-mastoidectomy techniques where a tunnel is drilled

directly through posterosuperior canal wall after raising the tympanomeatal flap and cochleostomy is drilled directly through the external ear canal. This name has been given after a place called Veria in Austria from where it originated.

The advantages of VERIA technique (over classical mastoidectomy approach) are: Less traumatic, because no mastoidectomy and no posterior tympanotomy is needed. Better approach and panoramic view of the cochlea ensures proper opening and prevents malpositioning of the electrode array. The second turn and the apex of the cochlea can be easily opened in cases of obliteration or ossification. It is suitable for very young children, where the mastoid has not yet been sufficiently developed. It is suitable for revision cases and makes cochlear implantation simple and safe even in the hands of a less experienced ear surgeon. It is safe for the facial nerve, as the drilling is precisely controlled by the special guarded perforator, due to fast healing, it permits early fitting after operation. Posterior tympanotomy is technically more demanding, so Veria technique may be suitable for a surgeon having limited experience of posterior tympanotomy techniques.

The Disadvantages of Veria Technique are: it is a blind procedure with regards to facial nerve. Need to open middle ear cavity through external auditory canal, so chances of flap problems and infections are theoretically more. Need special guide to drill the tunnel through bony external ear canal. Not suitable for contoured electrode implant devices.

CONCLUSION :

CI by Veria technique is safe, quicker, easier and even suitable for surgeon having limited exposure to posterior tympanotomy approach.

REFERENCES :

 Volta A. On the electricity excited by mere contact of conducting substances of different kinds. R Soc Philos Trans 1800;90:403-431

- Djourno A, Eyries C, Vallancien B. Del'excitation electrique du nerf cochleaire chez l'homme, par induction a distance, a l'aide d'un micro-bobinage inclus a demeure. CR Soc Biol (Paris) 1957;151:423-425
- House WF. Cochlear Implants: beginning (1957-1961). Ann Otol Rhino Laryngol 1976;85 (Suppl 27): 3-6.
- Nikolopoulos TP, Dyar D, Gibbin KP. Assessing candidate children for cochlear implantation with the Nottingham Children's Implant Profile (NChIP): the first 200 children. Int J Pediatr Otorhinolaryngol 2004 Feb; 68 (2):127-135
- Summerfield A Marshall D. Cochlear Implantation in the UK 1990-1994: Report by the MRC Institute of Hearing Research on the Evaluation of the National Cochlear Implant Programme. London:HMSO Books, 1995.
- Cullen Rd, Higgins C, Buss E, et all. Cochlear implantation in patients with substantial residual hearing. Laryngoscope 2004 Dec;114(12): 2218-2223.
- Mecklenburg D. Cochlear implants and rehabilitative practices. In: Sandlin R, ed. Handbook of Hearing Aid Amplification. Vol II. Boston: College Hill Press, 1990:179-188.
- kiratzidis T,Kim CS, Chang SO, Lim D. Veria Operation Cochlear implantation without a mastoidectomy and a posterior tympanotomy. Updates in Cochlear Implantation. Adv Otorhinolaryngol. Basel, Karger, 2000, vol 115, pp 283–285.
- Kronenberg J. Migirov L. Baumgartner W.D. The Suprameatal Approach in Cochlear Implant Surgery: Our Experience with 80 Patients ORL 2002;64:403–405
- R. Häusler Cochlear Implantation Without Mastoidectomy: The Pericanal Electrode Insertion Technique. 2002, Vol. 122, No. 7, Pages 715-719





Annual Journal of Otolaryngology And Head & Neck Surgery(AJOHNS) is the official journal of the North-Eastern Branch of the Association of Otolaryngologists of India. The journal invites reports of clinical, operative & experimental work, as well as important contributions related to ENT, Otorhinolaryngology and related sub disciplines including laryngology, rhinology, otology, neurotology, aesthetic surgery, oncology.

EDITORIAL PROCEDURE

ON-LINE submission of manuscripts to AJOHNS will result in quicker and more efficient processing. Electronic submission substantially reduces editorial processing, the time to review and re-review, and overall publication times. Please mail your manuscript to the:

Editor: Please check website (www.nebaoi.org) for the recent editors email ID.

Dr H B Nongrum (henry.nongrum@gmail.com)

Review process: Peer reviews are carried out with full confidentiality and the decision is communicated to authors within eight to twelve weeks, depending upon the response from the reviewer. If the manuscript is rejected, it will not be returned to the authors but copies will be retained for three months to answer any queries.

Duplicate submission: Manuscripts are considered with the understanding that they have not been published previously and are not under consideration by another journal. The author should alert the editor if the work includes subjects about which a previous report has been published.

Proofs, Reprints and Color Prints: The corresponding author of the accepted article shall be provided with the printers' proofs. Corrections on the proof should be restricted to printers' errors only and no substantial additions/deletions should be made. There will be no charges imposed for publishing the article

CATEGORIES OF ARTICLES

Original Articles should report original research relevant to clinical surgery. Each manuscript should be accompanied with a structured abstract divided into aims, material and methods (which should include design, setting, subjects, methods), results and conclusion in not more than 250 words. Four to five key words to facilitate indexing should be provided along with the abstract. The text should be divided in sections of introduction, methods, results and discussion. Key messages should be provided at the end of the manuscript. The length should be 2500-3500 words with not more than 6 tables and 3 figures.

Review Articles or systematic and critical assessments of literature are also published. The length should be 2000-3000 words (excluding tables, figures, and references).

Case Reports should consist of clinical cases highlighting uncommon conditions or presentations. Single case reports should provide information regarding new or unusual aspects of aetiology, diagnosis or management which adds to the existing knowledge. The text should be up to 1000 words and divided into sections - abstract (50 words), introduction, case report and discussion. Number of tables/figures should be limited to 2 and up to 10 most recent references.

Letters to the Editor commenting upon a recent article in AJOHNS are welcome within 6 months of the article's publication. At the Editorial Boards' discretion, the letter may be sent to the authors and both letter and reply may be published together. Letters may also relate to other topics of interest to paediatric surgeons, and/or useful clinical observations. Letters should be up to 500 words, contain no more than one Figure/Table and 5 most recent references. The text need not be divided into sections.

PREPARING THE MANUSCRIPT

Manuscript requirements should be in accordance with "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (International Committee of Medical Journal Editors. Uniform Requirements for Manuscripts Submitted to Biomedical Journals. Ann Intern Med 1997; 126: 36-47.).

- The manuscript shall be splitted and submitted in 2 files (a cover file with the author(s) names and addresses, and one file contains the manuscript without any author(s) information).
- Page size standard A4 size, with 2.5 cm margins.
- Language American (US) OR British English throughout.
- Double-space throughout including all sections.
- Pages should be numbered consecutively.
- Use at least 11 point font size (Times New Roman or Arial).

- - · Submit photographs in separate files.
 - Units of measure: Conventional units and the metric system is preferred for the expression of length, area, mass and volume.
 - Use non-proprietary names of drugs, devices and other products.
 - All manuscripts should be accompanied by a signed statement by all authors (See Appendix 1). It should be submitted by post with original signatures.

Manuscripts not fulfilling the technical requirements shall be returned to the authors without initiating the peer-review process.

The title page should contain

- 1. the title of the article
- 2. a short running title (max 40 characters) at the foot end of title page
- 3. initials and surname of each author
- 4. name of department(s)/institution(s) to which the work is attributed
- 5. disclaimers, if any
- 6. name, address, telephone, fax, e-mail ID of the corresponding author
- 7. source(s) of support viz. grants, equipment, drugs or all of these
- 8. declaration on competing interests

Authorship: All persons designated as authors should qualify for the authorship based on substantial contributions to i) concept and design, or acquisition of data, or analysis and interpretation of data; ii) drafting the article or revising it critically for important intellectual content; and iii) final approval of the version to be published. All persons who contributed to the work but do not satisfy all the conditions for authorship should be named in the acknowledgements. The corresponding author shall act as guarantor of the paper and he/she should take the responsibility for the integrity of the work as a whole, from its inception to published article.

Competing or Conflict of Interest: If competing interest exists, the author(s) must disclose them while submitting the manuscript. Competing interest could include financial relationships with industry, personal relationships, academic competition, intellectual passion, a fee for speaking, fee for organizing educational activities, funds for research, funds for a member of the staff or consultation fees from an organization that may in any way gain or lose financially from the results of the study, review, editorial or letter. Abstract and Key words: The second page should carry the abstract and below the abstract, authors should provide 3-5 key words for indexing; use terms from the Medical Subject Headings (MESH) list of Index Medicus.

The basic structure of the paper should include:

Introduction. The introduction must clearly state the background which resulted in the study and the questions which the authors have tried to answer. A brief review of the relevant literature may be necessary. Cite only those references that are essential to justify the proposed study.

Material and Methods. The methods section should describe the design of the study (e.g. method of randomization), how it was carried out (e.g. inclusion/exclusion criteria, ethical considerations, accurate details of materials used, exact drug dosage and form of treatment etc.) and data analysis (e.g. statistical analysis etc.). For standard procedures, appropriate references are sufficient, but if standard methods are modified these should be clearly brought out; provide complete details of any new methods or apparatus used (manufacturer's name and address in parentheses).

Results. This section should include only relevant and representative data. Major findings should be presented clearly and concisely. Text, tables, and illustrations should be used to complement each other avoiding unnecessary repetition. The tables should be cited in the text but typed on separate sheets. Negative results should also be mentioned.

Discussion. Discussion should be approximately one third of the total length of the manuscript and include a summary of the major findings, comparison with similar studies, limitations of methods and implications of these findings in future research. Conclusions should be linked to the goals of the study. Unqualified statements and conclusions not completely supported by the data should be avoided.

Key Messages. The key messages should be self explanatory, not contain any abbreviation, and should be relevant to the manuscript.

References. References should be numbered using Arabic numerals in box parentheses e.g. [1] in the order of appearance in the text, tables, and legends. The style should be in accordance with Uniform Requirements (the Vancouver style). Avoid the use of abstracts, unpublished observations and personal communications as references. References to papers accepted but not yet published should be designated as "in press".

Article in journals. List all authors when six or less. When seven or more, list only first six and add et al.

Lal R, Thichen TK, Bhatnagar V, Agarwala S, Banerjee U, Bajpai M, et al. Fungal infections as a cause of mortality and morbidity in posterior urethral valves. Indian J Otolaryngol Head Neck Surgg 1997;2:130-135.Chapter in a book.



Miyano T, Kobayashi H, Chen SC. Long term results of biliary atresia. In, Gupta DK (ed). Text Book of Neonatal Surgery, 1st edition. New Delhi, Modern Publishers, 2000;288-291.

Tables. Each table should be typed on a separate sheet of paper and numbered consecutively (Roman numerals) in the order of citation in the text. A brief but self-explanatory title for each table should be provided. Footnotes should be used for all abbreviations and symbols that are used in each table.

Figures and Illustrations. All figures and illustrations should be of good quality and sent as sharp, glossy, black-and-white photographs. Publication of colour illustrations will not be charged. Letters, numbers, and symbols in photographs should be clearly marked. Each figure should have a label pasted on its back indicating the number, author's name, and an arrow to mark the top of the figure. If photographs of human subjects are used, the identity should be appropriately concealed. Figures should be numbered consecutively (Arabic numerals) according to the order of citation. These should be of high quality, 127x173mm (5x7in) but no larger than 203x254mm (8x10in), clearly identify the condition and should add to the existing knowledge.

Legends for Illustrations. The legends for illustrations should be typed out on a separate sheet using double-spacing, with Arabic numerals corresponding to the illustrations. Symbols, arrows, numbers, or letters used to identify parts of the illustrations should be identified and explained clearly in the legend. The internal scale and method of staining in photomicrographs should be clearly mentioned.

Units of Measurement. Measurements of length, height, weight, and volume should be reported in metric units, i.e. meter(m), gram(g), or litre(L) or their decimal multiples. Millilitre or decilitre should be expressed as mL or dL and not ml/dl. Temperatures should be given in degrees Celsius. Blood pressures should be given in millimetres of mercury (mm Hg). All haematological and clinical chemistry measurements should be reported in the conventional system or in terms of the International System of Units (SI) Abbreviations and Symbols should be avoided in the title and abstract. Only standard abbreviations should be used. The full term for which an abbreviation stands should precede its first use in the text unless it is a standard unit of measurement. Year, month, day, hour, minute and second should be abbreviated as yr, mo, d, h, min, and s respectively.

COPYRIGHT

The copyright of all accepted and published manuscripts will be with AJOHNS and these cannot be reproduced or published elsewhere, in whole or part, without the written permission from the Editorial Board Chairman.

Authorship Criteria & Responsibility and Copyright Transfer Form

Manuscript no. AJOHNS/ /

Manuscript Title

I/We certify that the manuscript has neither been published nor is being considered for publication elsewhere.

I/We certify that all authors have made substantial contributions to the work reported in this manuscript and have seen and approved the submitted manuscript. If the manuscript is accepted for publication, the undersigned author(s) transfer(s), assign(s), or otherwise convey(s) all copyright ownership, including any and all rights incidental thereto, exclusively to Annual Journal of Otolaryngology and Head and Neck Surgery. Authors' names, signatures in order of appearance in the manuscript & date

- 1.
- 2.
- 3.
- 4.
- 5.

