

OTOLARYNGOLOGY

HEAD & NECK SURGERY

AUGUST 2012

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Medical Ethics in Multicultural Britain

Shabih Zaidi

Formal teaching of medical ethics in Britain is relatively new. The Universities are actively engaged in identifying the relevant teaching material as indeed the appropriate tools. One essential component of the GMC's vision of Tomorrow's Doctor has now begun to materialise.

From ancient times medical knowledge and technology has been transferred from generation to generation through years of apprenticeship. Long term close contact between the master and the pupil almost imperceptibly enables the young to imbibe the information from the old. It also involved learning the etiquette of dealing with the patients. Such mannerism revolved around the basic attitudes like greeting the patient, respect and empathy etc. These attributes are expected of any Good Samaritan. The life was peaceful and the profession did not face any formidable challenges. The doctor knew it best. The paternalistic approach worked well. It was a time of mutual trust. However, with the explosion of the knowledge and advancement of technology, the physician is now exposed to an ever growing myriad of ethical dilemmas; particularly so in a multicultural society.

The patients coming from different cultural backgrounds expect to be dealt within conformity with their norms and practices. There are many examples of the impact of diverse culture on bioethics. For instance, an English man likes to know every thing about the problem, plan of treatment, risks and complications, alternate therapies etc. He alone must take an informed decision in all matters of his illness. A South East Asian patient, on the other hand often reverts to the family patriarch

Each culture has its own values. For instance there is a great diversity amongst the Malaysians. Those of the Indian stock would leave all decisions to the patriarch, the Chinese take all decisions at the masculine level, and most ethnic Malays would leave all matters to the home maker. Surrogate consent is often the standard practice in most Asian communities. The Philippines tend to be very polite, soft spoken and independent decision makers.

The Afro-Caribbean communities on the other hand are very different compared to the British Asians. They are a self assured, strong willed and quite independent people. They almost always take matters in their own hands. The Polish and many Eastern Europeans, who now constitute a formidable portion of the immigrants, have very different values; not only deep rooted in Christian ethics, but also strongly embedded in their rich cultural heritage.

When it comes to the question of confidentiality, we are taught not to reveal the patient's findings to anyone; not even to the spouse. And yet more often than not when an Asian elderly, who may have a serious illness, walks into the clinic, the situation is typical of that culture. He is often preceded by a close relative, insisting on being informed first, pleading not to break the bad news to the patient to prevent a crisis. Perhaps many consequentialists may like this approach.

Suffice it to say that there are lots of challenges that one may face in day to day's work, and there are no strict guidelines currently available to deal with multiethnic patient population. The standard guidelines published by the GMC and other authorities from time to time are invaluable in providing the essential information and advice in most matters, but are they tailor made to suit all cultures and all patients coming from different backgrounds? Probably not.

The answer lies in laying more emphasis upon formal teaching of medical ethics in the medical school. Theoretical knowledge of normative principles through didactic lecture may be supplemented with real or simulated scenarios of multicultural ethical dilemmas in the skill labs. In the clinical years it could be a lot easier, particularly in most city hospitals, which have a fair share of multiethnic patient population. Clinical workshops, symposia and seminars could be other forms of tools of learning at both preclinical and clinical levels.

It has been rightly pointed out by some workers that 'to contribute usefully to contemporary debates, ethicists need to better address the multiethnic, multifaith character of contemporary social settings. They need to recognise the existence of a plurality of 'communities of interpretation' and 'local moral worlds'.

The first generation immigrants have all but settled into retirement and form a fair share of day to day visitors to the GP surgery. The new generation though thoroughly British, still maintain their ties with the former home country, through marriages, social visits, or religious activities.

It has been recently pointed out that 'for many of those who trace their origins from other than a European lineage it is clear and distressing at times, that the NHS has found it difficult to adapt to the needs of minority groups'. Rapid advances in knowledge and the lack of awareness of the religious, and cultural values as well as their specific ways of life or rituals of death, are posing different kinds of challenges.

Regrettably many answers may not be found in the most popular text book on medical ethics called the 'Principles of Biomedical Ethics' written by Beauchamp and Childress or by following the philosophy of the books or the standards of Good Clinical Practice only. They are undoubtedly invaluable in laying the foundation, but the building must be built through practical experiences. Such an exposure infact should be given to the medical student quite early in his life. Infact decision making in many matters of life and death may require at least the basic working knowledge, if not more, of the faiths and beliefs, rituals and practices of the community that a doctor attends to.

Since the British medical care was essentially designed to cater to the needs of a homogenous population, it should not be surprising to note, that some of the themes considered as norms may not be suitable in many a patient with a different background, 'Central to discussions concerning ethics, and medical ethics in particular, there must lay an understanding and an appreciation of the beliefs, perspectives, and conceptual frameworks used by our patients'.

Garter and Sheikh have published a paper highlighting the principles and practices observed by the Muslims, who in fact form a sizeable component of the United Kingdom. 'The 1991 Census revealed that almost six percent of the UK population classified themselves as belonging to a minority ethnic group. The latest edition of book called 'The life in the UK' mandatory for nay one applying for naturalisation quotes the figure at 9.2%. The Daily Guardian published a news item on 8April 2008, quoting the former home secretary Jacqui Smith on her visit to Islamabad that the Whitehall believed that the Muslim population in Britain now stands at 3.3 % or 2 million mark.

Garter and Sheikh point out that 'A minimum level of cultural awareness is a necessary prerequisite for the delivery of care that is culturally sensitive'. They have highlighted some of the fundamental issues such as genetic manipulation, assisted conception, adoption, prenatal screening, abortion, end of life issues, organ donations, and many other ethical questions, in the light of relevant religious beliefs and scriptures.

It appears that in the debate on these issues, the concept of 'identity' is of crucial importance. The burning issues are 'Authenticity' and Integrity'. What authenticity entails is a responsibility to live our lives in accordance with the values that constitute our unique cultural perspective. People also need to retain their integrity as a group. They must uphold the shared values that unite them. In a colourful society of today's Britain, an Asian, an African and a European can all maintain their authenticity without compromising the integrity as a member of the British nation.

It is obvious that in a multicultural and multifaith society; religion, customs, norms and values determine both the genuineness and the authenticity of one's perspective.

Influence of Size of Tympanic Membrane Perforation on Outcome of Myringoplasty

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ABSTRACT: **OBJECTIVE:** The objective of this study was to determine the influence of size of central tympanic membrane perforation on outcome of myringoplasty. **STUDY DESIGN:** Descriptive-Interventional Study. **SETTINGS:** ENT Department PNS SHIFA Karachi. **DURATION OF STUDY:** The study was completed in seventeen months from 22nd August 2009 to 22nd Jan 2010. **SAMPLE SIZE:** The study consists of 60 cases. **SAMPLING TECHNIQUE:** Non-Probability Convenience Sampling. **METHOD:** After obtaining informed consent sixty patients undergoing myringoplasty at PNS SHIFA Karachi during the study period fitting the inclusion criteria were selected. Patients were examined and the size of tympanic membrane perforation was recorded. Perforation up to two quadrants was labeled as small perforation, three quadrants as large perforation and four quadrants labeled as subtotal perforation. The patients were managed by myringoplasty using Endaural incision with underlay technique to place the graft harvested from Temporalis fascia under General Anesthesia. All surgeries were performed by second author (senior consultant surgeon). After undergoing myringoplasty patients were followed in ENT OPD on 2nd week to check the status of ear after removal of BIPP and eight weekly interval to check complete healing of graft for final result. **RESULT:** After 8wks 100% (n=20) patients with small perforation, 85 % (n=17) with large perforation and 60 % (n=12) with subtotal perforation had perfect healing and graft was intact. **CONCLUSION:** Smaller perforations have a greater chance of healing after surgery. **Key Words:** Tympanic membrane, Small perforation(involving up to two quadrants), Large perforation(up to three quadrants) , Subtotal perforation(all the four quadrants), Myringoplasty, Outcome, Underlay, Overlay, Graft, Temporalis fascia.

INTRODUCTION: Tympanic membrane perforation (TMP) is a condition as old as the human species. The tympanic membrane, is a stiff (but flexible) and translucent structure. The eardrum moves synchronously in response to change in air pressures, which constitute sound waves and are transmitted through the ossicular chain to the cochlea. In the cochlea, vibratory mechanical energy changes to electrochemical energy and streams via the eighth cranial nerve to the brain. (TMPs) can result from disease (infection), trauma, or medical procedures. Perforation can be temporary or persistent. Effect varies with size, location on the drum surface, associated Pathology. Perforation symptoms may include audible whistling sounds during sneezing and nose blowing, decreased hearing, and a tendency to infection during colds and when water enters the ear canal. Medical therapy for perforations is directed at controlling otorrhea. Avoid eardrops containing gentamycin, neomycin sulfate, or tobramycin in the presence of tympanic membrane perforation. Avoiding contamination of the middle ear space with water via the tympanic membrane perforation (TMP) is important in minimizing otorrhea from a perforation. Most acute perforation of the tympanic membrane heal spontaneously¹ while rest require surgical intervention for closure. A relatively smaller perforation and a senior surgeon are found to be significant prognostic factors positively influencing the success rate of myringoplasty². Subtotal tympanic perforations are difficult to repair³ patient with smaller

perforation and Shorter duration of disease have better anatomical and functional outcome⁴. Hearing loss is more marked at lower frequencies as compared to higher frequencies, irrespective of size and location of perforation of pars tensa⁵. A myringoplasty is an operation to repair a hole (perforation) in the eardrum. In Pakistan navy sailors and army soldiers, traumatic tympanic membrane perforation is probably more common than general population due to barotraumas during diving, sports and boxing competitions, blast injuries during training activities and terrorist suicidal attacks in a city like Karachi. A number of such cases have been referred to ENT OPD of PNS Shifa Karachi. A need was felt to find out the influence of size of perforation on out come of myringoplasty so that patients should be counselled accordingly regarding the nature of disease, disability, and success rate of myringoplasty as compare to the size of perforation. Moreover it will also help for legal purposes in labelling the disability of patient. But apart from traumatic perforation my study also includes other causes of perforation.

MATERIAL AND METHODS: **STUDY DESIGN:** Descriptive Interventional Study. **SETTING:** This study was conducted at Ear Nose and Throat(ENT) department, PNS Shifa Karachi. It is an eight hundred-bedded teaching hospital equipped with all types of diagnostic and therapeutic facilities. Before start, the ethical review committee of the hospital approved the study. **DURATION OF STUDY:** The study was completed in seventeen months from 22nd August

2009 to 22nd Jan 2010.

SAMPLE SIZE: The study was conducted on 60 cases.

SAMPLE SELECTION:

INCLUSION CRITERIA:

1. Patients with ages between 15 and 55 yrs of both genders.
2. Patients with six months duration of disease with dry perforation in last two months.
3. Patients to be operated by same senior consultant surgeon.

EXCLUSION CRITERIA:

1. Patients with perforation of pars flaccida.
2. Patients with cholesteatoma.

SAMPLING TECHNIQUE: Non-Probability Convenience Sampling. Perforations were classified as small (up to two quadrants), large (up to three quadrants) and subtotal (up to four quadrants).

Data Collection Procedure: After detailed history, otoscopy and examination under microscope, 60 patients of central tympanic membrane perforation undergoing myringoplasty, fulfilling the inclusion criteria were selected. The size of tympanic membrane perforation was recorded. Consent was taken from all the patients by explaining them the therapeutic intervention and its possible outcomes. Permission from concerned authorities and hospital ethical committee was taken. Hospital registration numbers of all patients included in the study were recorded. Patients were examined and routine investigations i.e. Blood CP, urine RE and PTA were done for every patient. The patients were managed by myringoplasty using end aural incision with underlay technique to place the graft harvested from Temporalis fascia under General Anesthesia in all cases. All patients were given the following medication post operatively for five days: 1. Tablet Co Amoxicillin 625 mg thrice daily. 2. Tablet Mefgesic 500 mg thrice daily. External dressing and stitches were removed on fifth day. After undergoing myringoplasty patients were followed in ENT OPD on second and eight weekly intervals to check for the outcome. All this information were collected with help of a specially designed Proform.

DATA ANALYSIS: Data analysis was computer based using SPSS version 10. Mean and standard deviation were calculated for quantitative data like age. Frequency and percentage were calculated for qualitative data (size of perforation). Chi square test was applied to test the significance of my results. P value of less than 0.05 was taken as significant. Results expressed with the help of tables. Final result was based on condition of graft at eight weeks of surgery.

RESULTS: The study involved 60 patients with tympanic membrane perforation which included 5 female that is 8.3% and 55 male that is 91.7%. Out of 60 patients 20 patients (33.3%) had small perforation, eighteen were male and 2 female patients. Twenty patients (33.3%) had subtotal perforation, nineteen were male and 1 female patient. While 20 (33.3%) had large perforations 18 were male and 2 were female. Collectively in all these groups, the age of the patients ranged between 15 to 55 years. Mean age was 28.6 years with standard deviation 10.958. The

patients belonging to every class were included in the study but most were serving army personnel and their families. All these patients underwent myringoplasty with underlay technique using temporalis fascia by senior consultant surgeon. At the postoperative 2ND week 19 patients (95% within type of perforation) out of 20 patients with small perforation showed intact tympanic membrane graft without any residual perforation or discharge only in one patient (5%) there was discharge. sixteen patients (80% within type of perforation) out of 20 patients with large perforation showed intact tympanic membrane graft. In 3 patients (15%) graft was not intact and in one patient (5%) there was discharge. fourteen patients (70%) out of 20 patients with subtotal perforation showed intact graft. Whereas in 4 patients (20%) graft was absent and in two patients (10%) there was discharge. At 8th week 20 (100% within type of perforation) out of 20 patients with small perforation showed perfect healing. One patient with small perforation having discharge at second week healed at eight week. seventeen (85%) out of 20 patients with large perforation showed perfect healing. Whereas in three patients (15%) perforation was not healed. One patient with large perforation having discharge at

		Condition of graft at 8th week		
		Healed	Non healed	Total
Small	count	20	0	20
	% within perforation type	100	0	100
	% with graft condition at 8th week	40.8	0	33.3
Large	count	17	3	20
	% within perforation type	85	15	100
	% with graft condition at 8th week	34.7	27.3	33.3
Subtotal	count	12	8	20
	% within perforation type	60	40	100
	% with graft condition at 8th week	24.5	72.7	33.3
Total	count	49	11	60
	% within perforation type	81.7	18.3	100
	% with graft condition at 8th week	100	100	100

Table 1: Type of perforation condition of graft at 8th week Crosstabulation

	value	df	Asymp sig (2-sided)
Pearson Chi-Square	10.909	2	.004

Table 2: STATISTICAL SIGNIFICANCE My result is statistically significant as calculated p value is 0.004 i.e. less than 0.05.

	N	Minimum	Maximum	Mean	Std.Deviation
AGE OF PATIENT	60	16.00	55.00	28.91	10.95

Table 3: Descriptive Statistics of Age of Patient.

	Frequency	Percent	Valid percent	Cumulative percent
Male	55	91.7	91.7	91.7
Female	5	8.3	8.3	100
Total	60	100	100	

Table 3: Percentage Gender of Patient.

second week healed at eight weeks. Twelve patients (60%) out of twenty patients with subtotal perforation showed perfect healing and 8 patients (40%) showed failure of graft with residual perforation. So in total out of sixty patients 49 patients (81.7%) had perfect healing with intact graft with no residual perforation and in 11 patients (18.3%) graft was not healed and there was residual perforation. Our study was statistically significant. Chi square test was applied and calculated p value was less than 0.05. Small perforation has 100% success rate and large perforation has 85% success rate. Whereas subtotal perforation has 60% success rate. So with increase in size of perforation the success rate of myringoplasty has decreased. Smaller perforation healed better than those with greater perforation. So the hypothesis is proved in our study that smaller perforation has greater chance of healing after surgery.

PATIENT OUTCOME: Out of 60 selected cases of small, large and subtotal tympanic membrane perforation, 81.7% (49 patients) had intact graft and good healing after successful myringoplasty at the end of 8 weeks. Whereas in 18.3% (11 patients) graft was not intact and this procedure failed to heal perforation. Such patients were counseled regarding the disease and procedure and were advised regular follow up and revision myringoplasty.

DISCUSSION: Tympanic membrane perforation results from chronic suppurative otitis media and trauma. Myringoplasty is a commonly practiced procedure by otologist. The aim of surgery is to improve hearing, enable patients to participate in water sports and to decrease recurrent attacks of ear discharge. The rate of successful repair of tympanic membrane perforation is about 90-95%. But if the patient had a previous tympanoplasty that was unsuccessful, the success rate of revision surgery is somewhat reduced. Closure of perforation is dependent on multiple factors and size of perforation is one such factor. Our study was aimed to assess the size of perforation on the success rate of myringoplasty in terms of closure of tympanic membrane. There is still controversy whether size influences success rates, e.g. there are studies that show difference in success of myringoplasty^{6,7,8,9} and studies that reveal no difference in success rates with respect to perforation size^{10,11}. Lee et al in their study demonstrated success rate 74.1% in small perforation and 56.0% in large perforation. Whereas in our study 100% of small perforation and 85% of large perforation and 60% of subtotal perforation were closed. The possible reason for disparity is that Lee et al study was retrospective and over lay technique was used. Although the sample size was large but confounding factors like discharge, operation type, status of the opposite ear, middle ear risk index, myringosclerosis and systemic disease were not mentioned. Adkins et al¹² in his study showed success rate of 85% in large perforation and 65% in total and subtotal perforation. These figures are comparable to result of our study. Success rate similar to our study are also reproduced in other study of 345 patients. Predictors of successful myringoplasty are multiple and among these include smoking, ear discharge, mastoid pneumatization, status of eustachian tube,

experience of surgeon, type of graft and approach used. A review of the literature shows us that the experience of the surgeon on myringoplasty Operations have not been stressed thoroughly. While significantly better results were obtained by experienced staff members or senior surgeons,^{3,14} technical skill and attention to detail varies among clinicians in a manner that is not strictly related to the level of training and experience¹⁵. Therefore in our study all the surgeries were performed by senior consultant surgeon to keep this factor constant. Whenever the ear was dry for more than 1 month, the success rate tended to increase although statistically insignificant but close to the level of significance. Dryness of the ear may be an important prognostic factor in the timing of myringoplasty of patients having chronically draining ears. A wet ear at surgery was a poor prognostic factor for Lau and Tos,¹⁶ reported that mucosal status is one of the most important predictors of a favorable anatomic and functional outcome. In contrast, Sade et al¹⁷ suggest that this factor does not influence the surgical result. The different conclusions reported in the literature on prognostic factors may be explained by the use of different surgical techniques by the authors. This parameter may become significant when investigated in larger series. For this reason in my study all the surgeries were performed on patients with six months duration of disease with dry perforation for last two months. Age is usually considered a major prognostic factor, and some authors suggest not performing myringoplasty before the patient is 8 or 12 years of age^{18,19}. On the assumption that in younger patients recurrent otitis media is more frequent, the eustachian tube function is not yet mature, and the tympanic perforation allows middle ear ventilation. Moreover, in this population the surgical approach can be more difficult. The good results obtained with our young patients demonstrates, as according to other authors^{20,21} that myringoplasty can be carried out even in younger patients, if at least over 3 years of age. But to avoid this disparity the age limit of patients in our study was in safe range of 15 to 55 years. The transcanal approach is appropriate for small posterior perforations where the entire margin can be seen through the canal. Endaural and postaural are two other approaches for myringoplasty. As from literature and different studies review temporalis fascia graft endaural incision and underlay technique have maximum and better healing rate than other grafts, incision, and techniques there for all these known factors were kept constant in my study. The site of perforation seems to influence the outcome, as better results are described for posterior and inferior perforations than for anterior or subtotal perforations. 22 site of perforation was not considered in our study. Smoking is another important factor which influences the success rate of myringoplasty. In a series of 132 patients by Cantrell²³ the success rates were 43.7% and 95.5% in smokers and non smokers respectively. In another study with 74 patients, graft take rates were 40% for the smoking group and 79.8% for the non-smokers²⁴. These findings were suggestive that cigarette smoking may be hypothesized to be a novel but important prognostic factor in myringoplasty. But

in my study this important confounding factor was not considered and it was not constant as surgeries were performed on both smoker and non smoker. The status of the opposite ear was not investigated thoroughly in my study. As many studies revealed that the status of the opposite ear was a prognostic factor; in other words, graft-healing rates were poorer in individuals whose opposite ears were atelectatic or perforated because of chronic otitis media. This finding might indicate a eustachian tube dysfunction as well as a severe and prolonged middle ear infection, leading to bilaterality. This opinion was also shared by other authors^{25,26} whereas Koch et al did not agree with this finding in their series of pediatric age group. In order to study the effect of one factor out of all, it was necessary to keep rest of the confounding factors constant. In this regard all the factors were kept constant. But three important confounding factors i.e. smoking, the status of opposite ear and site of perforation were not considered. In our study the selection criteria for the patients were already tuff as most of the confounding factors were kept constant but these factors could not be kept constant as it would have been difficult to fulfill no of cases in patients with nonsmoking history and normal opposite ear in said duration of study period. Our results have differed minerly from other studies because most of the authors in literature have studied multiple factor together and in contrast to our prospective study most of the studies are retrospective.

CONCLUSION: Size of perforation is directly proportional to the success rate of myringoplasty however there is a need for randomized controlled trial keeping all the confounding factors constant. So the exact effect of size of tympanic membrane perforation on success rate of myringoplasty can be ruled out. Our recommendations are that other factors should also be study independently with constant confounding factors.

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ADVANCED TECHINQUES IN ENDOSCOPIC MANAGEMENT OF SINONASAL DISORDERS

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Clinico-Pathological Profile of Sinonasal Masses: Study of 90 Cases.

Fazal I Wahid, Habib Ur Rehman, Qaiser Khan, Iftikhar Ahmad

ABSTRACT: OBJECTIVE: To determine the clinicopathological profile of sinonasal masses studied at a tertiary care hospital. **MATERIAL AND METHODS:** This descriptive study was conducted at the department of ENT, Head and Neck Surgery, Postgraduate Medical Institute Lady Reading Hospital Peshawar from Sept. 2008 to Aug. 2010, with total duration of 02 years. After admitting the patients a detailed history was taken and thorough examination of ear, nose, throat and neck was carried out. Necessary investigations were performed. After taking an informed consent all the patients were subjected to proper surgical treatment and specimens were examined by histopathologist. All these patients were followed for minimum of six months duration on monthly basis. **RESULTS:** This study included 90 cases constituting 49 male and 41 female, with male: female ratio of 1.2:1. The age of the patients ranged from 08-65 years with mean age of 33.13 + S.D18.67 years. The complaints of these patients were left side nasal obstruction (43.33%), Epistaxis (34.44%) and headache (27.77%). Incisional biopsy of sinonasal masses was taken in 31 cases (34.44%) while among the surgical procedure antrochoanal polypectomy was the commonest (31.11%). Histopathological diagnosis was obtained and simple inflammatory polyp was the commonest finding (63.3%) followed by angiofibroma (11.11%). **CONCLUSION:** It is concluded that sinonasal masses mainly present with nasal obstruction, nasal discharge and benign masses predominate. Benign sinonasal masses are best treated with surgical excision. **Key Words:** Sinonasal masses, polyps, Benign nasal masses, Malignant nasal masses.

INTRODUCTION: Sinonasal masses are rare, comprising less than 3% of all aerodigestive tract masses. These masses are divided into benign and malignant masses.¹ Malignant masses of sinonasal tract in the population accounts 0.2 to 0.8% of all tumors. Among the common benign sinonasal masses include inflammatory polyps, inverted papilloma and angiofibroma while the common malignant masses constitute squamous cell carcinoma.^{1, 2} Sinonasal polyps are common affecting 4% population. Exact cause of polyps is unknown; however it is thought that they have association with allergy, asthma, infection, cystic fibrosis and aspirin sensitivity. The etiological factor of sinonasal tumors include nickel and chrome refining processes, wood dust, shows tanning process, thorium dioxide, isopropyl oils, welding material and radium watch dial paint.^{2, 3} Sinonasal malignancies most commonly arise in the maxillary sinus (60%) followed by nasal cavity (20-30%), the ethmoid sinus (10-15%) and the sphenoid and frontal sinus (1%).¹ Sinonasal masses present with nasal obstruction, anosmia, rhinorrhoea, post nasal drip, facial discomfort and sometime with orbital, otological and nasopharyngeal symptoms.^{1, 4} The diagnosis of sinonasal masses can be established by clinical features accompanied with radiological and histopathological investigations.⁵ The treatment of sinonasal masses depends upon the nature of the mass. Nasal polyps are known to shrink with medical therapy constituting steroid nasal spray. Endoscopic sinus surgery is treatment of choice for inflammatory nasal polyps.^{2, 6} Inverted papilloma and angiofibroma are treated with complete excision of the lesions. Malignant sinonasal masses are treated by surgical removal and accompanied by chemoradiotherapy depends upon the

nature and stage of the disease.^{6, 7} The aim of this study is to evaluate the clinicopathological profile of sinonasal masses seen during study period in our part of the world.

MATERIAL AND METHODS: This descriptive study was conducted at the department of Ear, Nose, Throat (ENT), Head and Neck Surgery, Postgraduate Medical Institute Lady Reading Hospital Peshawar from Sept. 2008 to Aug. 2010, with total duration of 02 years. It included 90 cases with sinonasal masses. Inclusion criteria: 1. The patients of any age and either sex with sinonasal masses. 2. The patients with postnasal masses were also included in this study. Exclusion criteria: 1. Patients who were previously diagnosed as cases of sinonasal masses. 2. Those patients who refuse treatment of sinonasal masses. 3. The patients with squamous cell carcinoma and basal cell carcinoma involving nasal skin were also excluded. After

S.No	Symptoms	No. of Cases	Percentage
1	Nasal Discharge	57	63.33%
2	Left side nasal obstruction	39	43.33%
3	Right side nasal obstruction	33	36.66%
4	Epistaxis	31	34.44%
5	Headache	25	27.77%
6	Bilateral Nasal obstruction	18	20.00%
7	Sneezing	15	16.66%
8	Fullness of Cheek	11	12.22%
9	Proptosis	05	05.55%
Signs			
1	Mass in nasal Cavity	87	96.66%
2	Anosmia	23	25.55%
3	Visual impairment	08	08.88%
4	Retracted Tympanic Membrane	17	18.88%
5	Hyponasal Voice	10	11.11%

Table 1: Clinical Features (n=90)

Department of ENT, Head and Neck Surgery, Postgraduate Medical Institute, Lady Reading Hospital, Peshawar-Pakistan.

S. No	Surgical Procedure	No. of Cases	Percentage
1	Incisional Biopsy of sinonasal masses	31	34.44%
2	Antrochoanal Polypectomy	28	31.11%
3	Unilateral Nasal Polypectomy	17	18.88%
4	Right Lateral Rhinotomy	10	11.11%
5	Left Lateral Rhinotomy	08	08.88%
6	Bilateral Nasal Polypectomy	07	07.77%
7	Transpalatal Excision of Sinonasal Masses	06	06.66%
8	Cald well Luc Operation	05	05.55%
9	Medial Maxillectomy	04	04.44%
10	Lynch -Howarth Operation	02	02.22%
11	Total Maxillectomy	02	02.22%

Table 2: Surgical procedures performed in this study (n=90).

admitting the patients a detailed history was taken and thorough examination of ear, nose, throat and neck was carried out. Mucosal lining of upper aerodigestive tract was examined and systemic examination done. Routine investigations were performed in all cases. Plain X-Ray, Computed tomography and MRI of sinonasal region were done where indicated. An informed consent was taken explaining diagnostic as well as therapeutic procedures for sinonasal masses and its associated risks, benefits and complications. Incisional biopsy of the sinonasal mass was taken under local or general anesthesia except those patients having suspicion of angiofibroma. After getting the diagnosis of sinonasal mass the patient was subjected to proper surgical treatment and some of the patients were also treated with chemoradiotherapy post operatively. The specimen was examined by histopathologist to confirm the diagnosis. The study was approved by the hospital ethical committee. All these patients were followed for minimum of six months duration on monthly basis. The data was collected on a preformed proforma. The statistical analysis was performed using the statistical program for social sciences (SPSS version 11). The frequencies and percentages were presented for qualitative variables and Mean + SD were presented for quantitative variables.

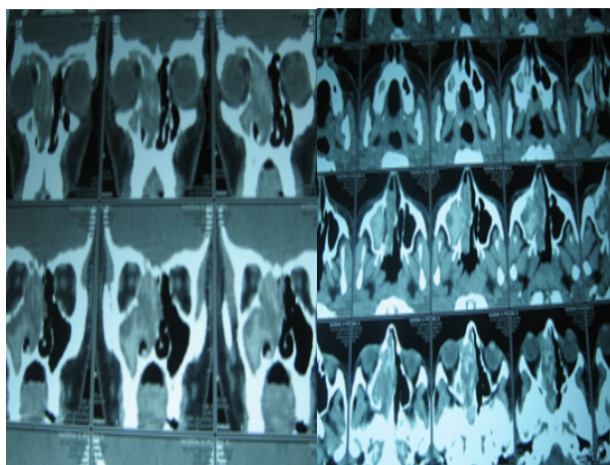


Figure 1: CT scan of nose, nasopharynx, paranasal sinuses and skull base axial and coronal views showing heterogeneous mass involving right nasal cavity, right maxillary and ethmoid sinuses.

Nature of masses	Percentage	S.No	Disease	No. of Cases	%
Benign Masses(83)	92.22%	1	Simple Inflammatory polyp	57	63.33%
			Angiofibroma	10	11.11%
		4	Fungal polypsis	9	10.00%
		5	Inverted Papilloma	5	5.55%
		6	Frontoethmoidal Mucocoele	2	2.22%
Malignant Masses(07)	07.77%	1	Squamous Cell Carcinoma	3	3.33%
		2	Lymphoma	2	2.22%
		3	Haemangiopericytoma	1	1.11%
		4	Malignant Melanoma	1	1.11%

Table 3: Histopathological diagnosis of Sinonasal Masses (n=90)

RESULTS: This study with total duration of two years included 90 cases constituting 49 male and 41 female, with male: female ratio of 1.2:1. The age of the patients ranged from 08-65 years with mean age of 33.13 + S.D18.67 years. Majority of the patients 51 cases (56.66%) were in age group 20-40 years followed by 29 cases (32.22%) in age group 10-20 years and 10 cases (11.11%) were in age range of 40-65 years. The presenting complaints of these patients were mainly left side nasal obstruction (43.33%), Epistaxis (34.44%) and headache (27.77%) (Table No.1). Routine investigations were performed in all cases (100%), CT scan was done in 62 cases (68.88%) (Figure No.1) and MRI was carried out in 15 cases (16.66%) to determine the extent of the disease. Among these patients 11 cases (12.22%) were initially treated with topical nasal steroids but when not improved nasal polypectomy was performed. Incisional biopsy of sinonasal masses was taken in 31 cases (34.44%) while among the surgical procedures (Figures No.1& 2) antrochoanal polypectomy was the commonest (31.11%) (Table No.2). Histopathological diagnosis was obtained and simple inflammatory polyp was the commonest finding (63.3%) followed by angiofibroma (11.11%) (Table No.3). The complications were recurrence of polyps in 5%, rhinotomy wound dehiscence 1% and palatal fistula 3%.



Figure 2: Per-operative picture of the patient showing lateral rhinotomy incision on right side.



Figure 3: Per-operative picture of the patient showing total maxillectomy performed on left side for squamous cell carcinoma of left maxillary sinus.

DISCUSSION: A no of diseases may affect the sinonasal tract due to several specialized tissues and their aberration in this tract. Sinonasal masses constitute benign and malignant, and benign one are more common than malignant masses.⁸ In our study benign masses were the commonest finding (92.22%) while malignant masses were 7.77% which is also reported by others.^{5, 9} Sinonasal masses were more in males in our study probably due to their more outdoor activity in our society, which is at variance to some other studies having female predominance.¹⁰ In this study sinonasal masses were observed commonly in 2nd and 3rd decade (56.66%) and 11.11% were found in 4th and 5th decade of life which were mostly malignant that simulates with the reports of others.^{3, 5, 11} The patients with sinonasal masses had symptoms of left nasal obstruction (43.33%), right nasal obstruction (36.66%) and nasal discharge in 63.33% and signs were mass in nasal cavity 96.66% and anosmia in 25.55% which is also reported by Bhandary and colleagues.² The diagnosis of sinonasal masses can be established in majority cases by clinical features accompanied by radiological investigation.¹² In our study CT scan was done in 62 cases (68.88%) and MRI was carried out in 15 cases (16.66%) and thus extent of the masses were obtained prior to surgical intervention which is in accordance with other studies.^{8, 11} In our study 11 cases (12.22%) with nasal polyps were treated with topical nasal steroid having response in 72.22% while 27.27% of patients had no response probably due to advance stage of the disease and they were treated surgically, simulating the literatures.¹³ In this study incisional biopsy from nasal masses was taken in 31 patients (34.44%), antrochoanal polypectomy in 28 cases (31.11%), nasal polypectomy in 24 patients (26.66%) while lateral rhinotomy was performed in 18 patients (20%) and maxillectomies were performed in 6 cases (6.66%) for malignant masses of maxillary sinus who are comparable with other national and international studies.^{4, 7, 14} We performed histopathology study

of all specimens to get final diagnosis and inflammatory nasal polyps were on top i.e. 57 cases (63.33%) followed by angiofibroma 11.11% and fungal polyposis 10.0% and similar results are also reported by Bakari and colleagues.^{1, 12} Other rare findings in our study were inverted papilloma 5 cases (5.55%), squamous cell carcinoma 3.3%, frontoethmoidal mucocoele 2% and 1 case (1.11%) each of hemangiopericytoma and malignant melanoma that is in keeping with other studies.^{9, 15} These patients were followed for six months and we encountered recurrence of polyps in 5%, rhinotomy wound dehiscence 1% and palatal fistula 3% which is in variance from other studies.¹⁶

CONCLUSION: It is concluded that sinonasal masses mainly present with nasal obstruction, nasal discharge and benign sinonasal masses predominate. A high index of suspicion of sinonasal masses should be kept in mind in patients where sinonasal symptoms are not relieved with medication. Benign sinonasal masses are best treated with surgery.

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Determinants of Variable Hearing Loss in Patients with Chronic Suppurative Otitis Media

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ABSTRACT: **OBJECTIVE:** To determine the impact of ear discharge, duration size and site of tympanic membrane perforation on hearing loss. **STUDY DESIGN:** Cross-Sectional prospective study. **PLACE AND DURATION OF STUDY:** Baqai Medical College & Abbasi Shaheed Hospiatl, Department of Ear Nose and Throat and Head and Neck Surgery from December 2010 to November 2011. **PATIENTS AND METHODS:** Sixty six patients of chronic suppurative otitis media (CSOM) aged between 09 to 60 years of age were included in the study. After history and examination, pure tone audiometry was done .Statistical analysis of the collected data is done using SPSS 16 program. **RESULTS:** Patients with 107 perforated tympanic membrane, 40 males and 26 females were included in the study. Bilateral tympanic membrane perforation were seen in 41 patients, right sided perforation in 10 and left sided in 15 patients respectively. Out of total 107 perforations, 58 were large central[54.2%]and 49 were small[45.8%]. 100 perforations[93.5%] were anteriorly located and 07 [6.5%] were posterior. The size of the perforation was not a determinant of hearing loss though the site of the perforation was associated with significant degree of hearing loss. Hearing loss increased with the chronicity of the disease. **CONCLUSION:** The location of perforation on the tympanic membrane and the duration of ear discharge have significant effect on the magnitude of hearing loss while the size of perforation does not affect the hearing level significantly. **Key Words:** Chronic suppurative otitis media (CSOM), tympanic membrane perforation, hearing loss.

INTRODUCTION: Chronic suppurative otitis media (CSOM) has been an important middle ear disease which is known since prehistoric period¹. Contributing factors includes poor and overcrowded living conditions, poor personal and oral hygiene and poor nutrition in developing countries¹. Tubotympanic type of chronic suppurative otitis media is characterized by a perforation of pars tensa; while marginal & attic perforation are pathognomonic of atticointral variety. Tympanic membrane not only performs the conduction of sound waves across the middle ear but also serves a protection function to the middle ear cleft and shields the round window from direct sound waves which is referred to as "round window baffle"². This shield is necessary to create a phase differential so that the sound wave doesn't impact on the oval and round window simultaneously. This would dampen the flow of sound energy being transmitted in a unilateral direction from the oval window through the perilymph. It has been found that the effect of the enhanced ratio of the surface area of the tympanic membrane to that of the oval window increase the sound pressure by about 27 decibels where as the lever action of ossicles contributes only about 3 decibels^{3,4}. A perforation on the tympanic membrane reduces the surface area of the membrane resultantly affecting the impedance transformer mechanism. Perforations of the tympanic membrane cause a conductive loss that can range from negligible to 50 dB. It has been established that the larger the perforation, the greater the decibel loss in sound perception. A total absence of the tympanic membrane would lead to a loss in the transformer action of the middle ear⁵. Similarly the location of the perforations also have significant impact on the magnitude of hearing loss⁶, posterior quadrant

perforations are believed to be worse than the anterior ones because of the direct exposure of the round window to sound waves(absence of baffle). Perforations at or near the site of tympanic membrane attachment to manubrium have more severe effects than those of comparable size at different sites. This study is carried out to find out the effect of site and size of tympanic membrane perforation and duration of ear discharge on hearing loss in chronic suppurative otitis media (CSOM).

METHODOLOGY: This is a cross-sectional study conducted at out patient's clinic at the Ear Nose and Throat department of Baqai Medical College, from December 2010 to November 2011. Sixty six patients aged between 9 to 60 years with tympanic membrane perforations were included in this study. The patient's age at presentation, sex, duration of ear discharge and previous history of ear disease were documented. Clinical examination was carried out by single consultant to avoid variations using WelchAllyn otoscope. For the purpose of the study tympanic membrane as is always divided into four quadrants; anterosuperior (AS), posterosuperior (PS), anteroinferior (AI) and posteroinferior (PI) respectively. Size of tympanic membrane perforation is classified as small (perforation involving single quadrant) and large (perforation involving more than three quadrants). Hearing levels were assessed with calibrated audiometer at frequencies 250 KH, 500 KH, 1000 KH, 2000 KH, 4000 KH and 8000 KH respectively in acoustically treated sound proof room by an experienced audiologist. Air and bone conduction thresholds were documented. Mean hearing loss was calculated through the pure tone average taken at 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz. Hearing loss was

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classified according to WHO classification⁸ (Levene's Test). Data were analyzed using SPSS 16 program for statistical evaluation. Cases with active discharge, traumatic perforation, post-ventilation tube insertion perforation, poor response to audiometry and with mixed hearing loss were excluded from the study. RESULTS: Out of 107 ears in 66 patients, age ranged between 9 to 60 years (mean 29.18 years) were studied. There were 40% males and 26% females. Bilateral tympanic membrane perforation was seen in 41 patients, right sided perforation in 10 patients and left sided in 15 patients respectively. Large perforation involving more than one quadrants was the most common 58 in number [54.2%]. Perforations involving single quadrant of tympanic membrane were 49 [45.8%]. 100 perforations [93.5%] were anteriorly located and 07 [6.5%] were posterior located. The data collected was computed in SPSS 16. Independent samples test was applied. Levene's test for the equality of variances was applied while t-test was applied for equality of means. Pearson's correlation test for two tail significance was applied. Hearing status of all 107 perforated tympanic membranes was recorded. Patients with large perforation involving four quadrants showed average air bone gap of about 38.17dB. whereas patients with smaller perforation involving single quadrant showed an average air bone gap of about 27.16dB. Apparently this difference seemed obvious but when statistically tested, the difference was found to be insignificant $p\text{-Value} > 0.05$. the average air bone gap of the ear having anterior perforations was 31.89dB while those having posterior perforations had average air bone gap of about 50.86dB keeping in view that they were without cholesteatoma. Hence significant relation is found between site of perforation and the intensity of deafness. On the basis of statistical tests using SPSS (Levene's Test) 16 programs, we found strong relation between duration of ear discharge and degree of hearing loss. The relation between duration of ear discharge and degree of hearing loss was statistically significant with $P\text{-Value} < 0.05$.

DISCUSSION: Chronic suppurative otitis media (CSOM) is recurrent, purulent discharge from the middle ear with perforated tympanic membrane and is defined as chronic otorrhea (i.e., lasting $>6\text{-}12$ wk) through a perforated tympanic membrane^{7,8}. 417 temporal bones from South Dakota Indian burials and 15 prehistoric Iranian temporal bones have shown radiological changes in the mastoid caused by previous infection^{9,10}. The risk of developing CSOM increases with a history of multiple episodes of acute otitis media, living in crowded conditions, day care facility attendance and being a member of a large family¹¹. After taking history and doing complete ENT examination, an audiogram should be performed to assess the hearing. Conductive hearing loss is expected, but mixed hearing loss may indicate more extensive disease and should alert the treating physician of impending complications or pseudo neural deafness. It has been found that the effect of the enhanced ratio of the surface area of the tympanic membrane to that of the oval window increases the sound pressure by about 27 decibels (dB) whereas the lever action of

ossicles contributes about 3 decibels (dB)^{12,13}. A perforation on the tympanic membrane reduces the surface area of the membrane available for sound pressure transmission and allows sound waves to pass directly into the middle ear. As a result, the pressure gradient between the 'inner' and 'outer' surfaces of the membrane virtually becomes insignificant. It has been established that the larger the perforation on the tympanic membrane, the greater the decibel loss in sound perception. This fact was not reflected in our study where the large sized perforations were associated with no significantly increased loss in hearing as compared to small sized perforation and hence size of the perforation was found to have no statistically significant effect on hearing loss. Although a total absence of the tympanic membrane would lead to a loss in the transformer action of the middle ear¹³. The location of the perforation is believed by most schools of thought to have a significant effect on the magnitude of hearing loss¹⁴. For instance, posterior quadrant perforations are believed to be worse than the anterior ones because of the direct exposure of the round window to sound waves. However, some workers believe that there is no significant effect associated

SITE

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid ANT	100	93.5	93.5	93.5
POST	7	6.5	6.5	100.0
Total	107	100.0	100.0	

SIZE

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid SMALL	49	45.8	45.8	45.8
LARGE	58	54.2	54.2	100.0
Total	107	100.0	100.0	

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
AB GAP Equal variances assumed	3.523	.063	-3.700	105	.000	-18.967	5.126	-29.130	-8.804
AB GAP Equal variances not assumed			-7.826	12.361	.000	-18.967	2.424	-24.231	-13.704

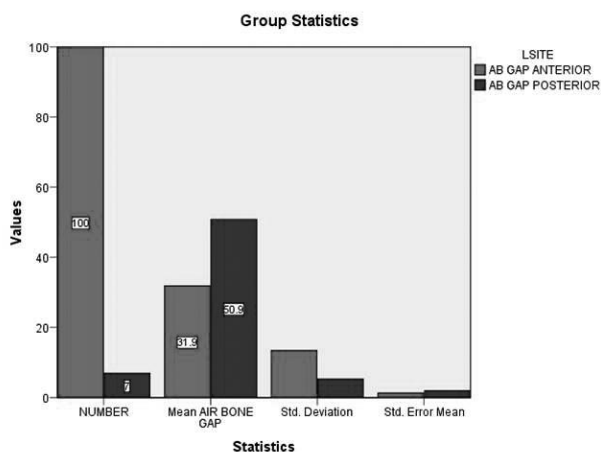
Correlations

		AB GAP	DURATION
AB GAP	Pearson Correlation	1	.281**
	Sig. (2-tailed)		.003
	N	107	107
DURATION	Pearson Correlation	.281**	1
	Sig. (2-tailed)	.003	
	N	107	107

** . Correlation is significant at the 0.01 level (2-tailed).

AIR BONE GAP ACCORDING TO SITE OF PERFORATION

SITE	NUMBER	Mean	Std.Deviation	Std. Error Mean
AB GAP ANTERIOR	100	31.89	13.437	1.344
POSTERIOR	7	50.86	5.336	2.017



with location of the perforation¹⁵. Mehta RP et al did not observe significant differences in the hearing loss in anterior versus posterior quadrant perforations¹⁶. In some studies, it was observed that the location of the perforations correlate positively with magnitude of hearing loss in ears with chronic "complicated" TM perforations resulting in a mixed hearing loss. The posterosuperior segment was most outstanding in this regard. It is proven that marginal and posterosuperior perforations are more prone, although not exclusively; to such disease like cholesteatoma^{17,18}. This is in accordance with our study which yields the same observation that the posteriorly based perforations or marginal perforations were associated with statistically significant hearing loss and the hearing loss in anteriorly based perforations was not statistically significant. Another goal of our study was to determine the effect of duration of ear discharge on hearing loss and it was found that duration of discharge was in linear relation with hearing loss. The more chronic the disease the more is the hearing loss. This observation was also noted in other international studies which determined that air conduction hearing levels deteriorates with the passage of time¹⁹. **CONCLUSION:** The location of perforation on the tympanic membrane has significant effect on hearing loss. Posteriorly placed perforations have greater

degree of loss as compared to anteriorly based perforations. By and large, size of the perforation does not affect the magnitude of hearing loss significantly. Duration of ear discharge also has significant effect on the degree of hearing loss and is directly proportional to it.

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Radiographic Evaluation of Enlarged Adenoids in Children with Chronic Adenoiditis

Baharudin Abdullah , Shahid Hassan, Dinsuhaimi Sidek

ABSTRACT: **OBJECTIVE:** To evaluate the use of soft tissue neck x-ray in the assessment of enlarged adenoids in children with chronic adenoiditis. **SETTING:** Tertiary referral centre of Malaysia. **DESIGN:** Prospective study. **SUBJECTS AND METHODS:** We performed a soft tissue neck x-ray (lateral view) for adenoids in children with chronic adenoiditis admitted for adenoidectomy under general anaesthesia. Only those children whose parents/guardian agreed for imaging were included. The enlarged adenoids were graded from 1+ to 4+ where 1+ is the normal adenoids with normal nasopharyngeal airway and 4+ is massive enlargement of adenoids with totally occluded nasopharyngeal airway. **RESULTS:** Fifty children were accrued from June 1999 to September 2001. The ages of the children were from 3-12 years old. All of them had adenoidectomy successfully without any complications. The soft tissue neck x-ray showed 8 % of the patients have 1+, 38 % have 2+, 42% have 3+ and 12% have 4+ adenoids enlargement. **CONCLUSIONS:** Lateral soft tissue neck x-ray is a good method to demonstrate adenoids enlargement in children with chronic adenoiditis and convenient for the busy otorhinolaryngologists. It may help to determine that the symptoms are due to adenoids enlargement and exclude other causes. **KEY WORDS:** Radiography, Adenoids, Children, Neck X-ray.

INTRODUCTION: The use of neck x-ray to assess the adenoid and airway size was first described in 1925 by Grandy¹. Over the years the use of radiography in the assessment of children with adenoidal problems is still controversial. The majority of surgeons still base their decision for adenoidectomy when patients presented with snoring, mouth breathing, speech problems and mirror examination of the nasopharynx all of which are suggestive but unreliable guides to adenoid enlargement². Clinical nasal examination of children with chronic adenoiditis is notoriously unreliable. However, determining the size of the adenoids is sometimes needed. Routine ENT examination provides little information about the size of the adenoids. In some children, examination of the nasopharynx with a postnasal mirror may be performed to assess the adenoids. Direct palpation of the adenoids is difficult, and patient's cooperation is an important problem. On the other hand, direct visualization by nasopharyngeal endoscopy is an invasive method. Unfortunately, in many children it is very difficult to assess the adenoids by these methods. Therefore, it has been a common practice in our centre to assess the adenoid enlargement with a soft tissue neck x-ray (lateral view). The adenoid is a collection of lymphoid tissue also called nasopharyngeal tonsil and is found in the mucous membrane overlying the basisphenoid^{3,4}. It has an oblong, rectangular shape, extending from the roof of the nasopharynx. The anterior edge of this block of tissue is vertical and in the same plane as the posterior nasal aperture. The posterior edge gradually merges into the posterior pharyngeal

adenoids appear to grow more rapidly from 3-5 years of age than does the nasopharynx with a consequence decrease in the size of the palatal airway during this period. Subsequently, the adenoids remain relatively constant in size whilst the nasopharynx increases and thus the airway progressively enlarges^{3,4}. Thus we found children in this age range to be frequently associated with chronic adenoiditis. We have chosen the children from 3 to 12 years old for this study to reflect the problem in this age group. We aimed to evaluate the use of soft tissue neck x-ray in the assessment of enlarged adenoids in children with chronic adenoiditis.

SUBJECTS AND METHODS: The study population consisted of children diagnosed with chronic adenoiditis admitted for adenoidectomy under general anaesthesia. The age selected was between 3 to 12 years old whose parents agreed for a radiograph to be taken. Informed consent was taken from the parents. The soft tissue neck x-ray (lateral view for adenoids) was taken on the day of admission. All of the patients were evaluated by an otorhinolaryngologist or a senior otorhinolaryngology medical officer. Examination of general appearance of the patient specifically for adenoid facies (opened mouth, broad upper lip, short nose, prominent upper teeth or triangular face). Anterior rhinoscopy in all cases and posterior rhinoscopy (where possible) were performed to confirm the presence of enlarged adenoids and exclude other obstructive causes such as deviated nasal septum or nasal polyp. All of the operations were performed under general anaesthesia and carried out using curettage and cold dissection method.

and oriented with the Frankfort horizontal plane. The cassette of the film was centred 1 inch below the level of the external auditory meatus. The tube cassette distance was 180 cm. The central ray was directed perpendicularly to the midpoint of the film. The film was taken during inhalational phase of quiet nasal breathing to ensure filling the passages with air. The exposures were made with 70 kV. We documented the size of the adenoids according to the system used and described by Cohen et al⁵. Radiologically determined adenoids size: 1+ : normal sized adenoids for a child of that age along with a normal nasopharyngeal airway. 2+ : moderate enlargement of the adenoids with moderate narrowing of the airway. 3+ : marked enlargement of the adenoids with an airway nearly occluded. 4+ : massive enlargement of the adenoids along with total airway occlusion.

All the data were entered into SPSS statistical programme Version 11.0.1 for Mac OS X (SPSS Inc, Chicago, USA).

RESULTS: We accrued fifty children who were diagnosed with chronic adenoiditis from June 1999 to September 2001. All of the children underwent adenoidectomy successfully. Twenty five of the children also underwent myringotomy and ventilation tube insertion for a concomitant otitis media with effusion. All of them were discharged the next postoperative day without any complications. All of the patients ranging from the age of three to twelve years (mean SD, 7.5 2.32). Although, the study was cross sectional in nature the children in our study managed to show the peak age of chronic adenoiditis around six to eight years old (Figure 1) which corresponds to the natural pathophysiological behaviour of adenoids hyperplasia to peak at the age of seven years old 3,4.

RADIOLOGICAL FINDINGS: All of the x-rays were seen on a fluorescent light mounted viewer by all the three authors. We graded the adenoids size accordingly. 54 % of the patients who had their adenoids removed were found to have size 3+ and 4+ adenoids enlargement with

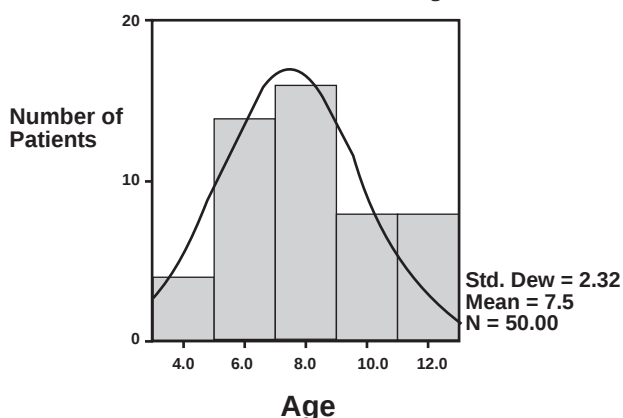


Figure 1: Histogram showing the age distribution.

Gender	No of patients (n=50)	Percentage
Male	29	58%
Female	21	42%

Table 1: Gender distribution

DISCUSSION: Various radiographical methods of adenoids size assessment have been described in the English literatures 6-13. This ranged from the very elaborate to the most simplistic in design. Out of these, there are several frequently used methods of measuring adenoidal size on radiographs:

1. The distance along a perpendicular line from the pharyngeal tubercle on the base of the skull to the adenoid convexity.
2. The ratio between the maximal thickness of the adenoids and the distance measured along a line from the posterior-superior edge of the hard palate to the spheno-occipital synchondrosis on the base of the skull-the A-N ratio.
3. Both the adenoid thickness from the pharyngeal tubercle and the distance from the anterior aspect of the adenoids to the posterior choana.
4. A comparison between the width of the soft palate 1 cm below the hard palate and the width of the airway between the palate and the adenoidal shadow.

Tezer MS et al 14 using ANR, calculated as the ratio of adenoidal depths to the nasopharyngeal depths on lateral cephalometric radiographs surmised that this is a non-invasive, inexpensive and reliable method to evaluate adenoid enlargement. They found that ANR correlated well with the clinical assessment score and the weight of adenoids removed at operation. Hence, concluded that ANR can be used to determine whether adenoidal tissue hyperplasia is clinically significant or not. Parker and Maw 1 studied the lateral cephalometric radiographs from 204 children between the ages of three and nine years with associated otitis media with effusion and concluded that radiographs are a reliable tool in the measurement of the adenoid size and may predict the outcome of the adenoidectomy.

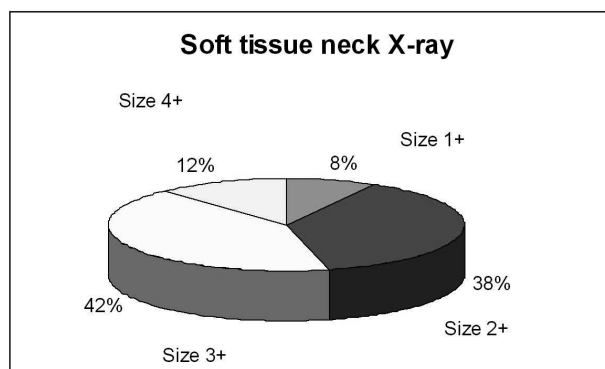


Figure 2: Soft tissue neck x-ray showing the grading of the enlarged adenoids.

and too time consuming to be adopted for routine use for the busy otorhinolaryngologists. Measurements of radiographs for day to day clinical assessment must be simple, repeatable and easy to use. Cohen et al 5 introduced an alternative method of measuring the adenoid shadow in neck radiographs. The size of the adenoids were ranked on separate graduated four point scales. One represented normal sized adenoids for a child of that age along with a normal nasopharyngeal airway. Two showed moderate enlargements of the adenoids with moderate narrowing of the airway. Three signified marked enlargement of the adenoids with an airway nearly occluded. Four represented massive enlargement of the adenoids along with total airway occlusion. In their study they showed this method was a fairly reliable indicator of adenoid size and degree of nasopharyngeal obstruction.

We used this method as it is easily measured and repeatable. Interestingly, we found a similar distribution of the size of adenoids as reported by Cohen et al 5 (Table 2).

Age	3-12 years	11 months-13 years
Male / Female	29 / 21	42 / 31
Adenoid size on neck x-ray		
1+	8 %	4 %
2+	38 %	27 %
3+	42 %	45 %
4+	12 %	14 %

Table 2: Comparison of soft tissue neck x-ray from previous study.

The result of our study showed that 54 % of the children who were admitted to our centre for adenoidectomy have an enlarged adenoids with size 3+ or more. The obstructive effect on the airway gives rise to most symptoms of snoring, mouth breathing and possibly obstructive sleep apnea. This is the stage which will benefit the most from adenoidectomy as shown by previous studies^{9,15}. 46 % of the children have enlarged adenoids of 2 + and less which contradicts the conception that adenoidectomy is indicated only when the adenoids are enlarged and that only

The decision for adenoidectomy should therefore be made on the basis of the severity and persistence of the symptoms, not on the size of the adenoid alone.

CONCLUSIONS: Lateral soft tissue neck x-ray is a good method to demonstrate adenoids enlargement in children with chronic adenoiditis and convenient for the busy otorhinolaryngologists. It may help to determine that the symptoms are due to adenoids enlargement and exclude other causes.

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Water Precautions and Ear Surgery: Evidence and Practice in Pakistan

Beenish Nisar Ahmed, Tariq Rafi

ABSTRACT: **BACKGROUND:** For otological operations, water is thought to be the most important precipitating factor for inducing infections. This would lead to post surgical healing problems. Water carrying microbes that are pathogenic source of infection for ears. Various methods are used to achieve water free ear after surgery. **OBJECTIVE:** To determine the current practice of otolaryngological consultants in Pakistan on advice given to patients regarding water precautions after ear surgery. **DESIGN:** Clinical survey. **METHOD:** Questionnaire based survey filled by 300 Otolaryngologists –Head & Neck surgeons from all over Pakistan. **RESULTS:** A total of 300 questionnaires were completely filled. Reply rate was 100 percent. In all, 50 percent of consultants allow swimming and bathing with ear plugs after tympanostomy tube placement where as 76.67 percent completely restrict patients for diving after grommet placement. In comparison after myringoplasty 66.67 percent avoid swimming and 60 percent avoid diving and 83.33 percent allow bathing with ear plugs. However after mastoidectomy 61.67 percent advice swimming with ear plugs and 84.34 percent allow bathing with ear plugs but 58 percent completely avoid diving. Regarding choice of ear plugs, 42.33 percent preferred cotton and petroleum jelly as ear plugs. **CONCLUSION:** This study reveals current national practice among Pakistani otolaryngological consultant. Further national guidelines are required.

Key Words: Earplugs; Otological surgery; Tympanostomy/Ventilation tubes; Swimming; Bathing; Diving

INTRODUCTION: In otolaryngological operations water precautions are the part of advice given after surgery to obtain safe and healthy results of post operated ear. Water plays important role in introducing infections⁵. Water carry microbes to ear rendering healing difficult⁵. Multiple methods are used to restrict water entry in ears. Postsurgical recommendations regarding water exposure continue to vary widely, even between otolaryngologists⁵. Some otolaryngologists suggest avoiding swimming altogether while others recommend using earplugs as a barrier to water exposure while swimming or bathing¹⁻⁷. In this study we determined the general practice regarding water precautions after ear surgery among Pakistani consultants on the advice given to patients regarding water precautions following three most common otological operations: myringoplasty, tympanostomy tube placement and mastoidectomy. **MATERIAL AND METHODS:** naire was mailed to all the members of PAKISTAN PMDC (Pakistani Medical and Dental Council recognized FCPS consultants) Registered FCPS Fellows in ENT (to those whom mail I.D are also registered). All Responses were treated as confidential. Out of 550 members, we received 300 replies. (reply rate 54.5%) The post operative advice regarding water precautions during swimming, bathing and diving was classified in to four groups: (a) no precautions necessary, (b) use of ear plugs, (c) avoid in case of infections, (d) avoid until healed. Only one response was allowed per question. These questions were applied to three most common ear operations- myringotomy and tympanostomy tube placement, mastoidectomy and

myringoplasty. Although not mentioned in the questionnaire we meant open ear surgery by mastoidectomy. Study was conducted in duration of 6 months from 1st July 2010-30th December 2010. **RESULTS:** We collected 300 responses from otolaryngologist practicing in Pakistan. **VENTILATION TUBES:** (Myringotomy and grommet placement) 27.6 percent of respondents indicated that they would allow their patients to swim unrestricted after insertion of grommet, while 5.6 percent restricted them in case of otorrhoea. The vast majority of remaining surgeons would advice to use ear plugs when swimming while only 16.6 percent otolaryngologist advised against swimming. this trend is reversed in case of bathing where fifty percent of respondents advice the use of ear plugs and fifty percent suggest that they can bathe without need for any protection. Majority advice patients to avoid completely for diving, 16.6 percent advice use of ear plugs while remaining 3.34 advice no restriction until ear infection occurred and 3.34 percent allow to dive without any restriction. (Table 1, 2, 3 and 10) **MYRINGOPLASTY:**

The majority of respondents advise their patients to refrain from swimming (i.e. 66.67 percent) and for diving (i.e. 60 percent) following myringoplasty until healing is complete. 17.3percent advice no restriction for swimming and 6.67 percent gave same advice for diving. 83.33percent respondents advice to use ear plugs for bathing after myringoplasty and 16.67 percent advice no restriction for bathing. 6 percent advice ear plugs for swimming and 10 percent advice no restriction for swimming until ear become infected.

In case of diving, 17.66 percent advice for the use of ear plugs and 5.67 percent advice no restriction until there is infection. 10 percent also advice not to do diving after myringoplasty. (Table 4, 5, 6 and 11)

MASTOIDECTOMY:

6.67 percent consultants advice no restriction for swimming after mastoidectomy while majority of them (i.e. 61.67 percent) advice for the use of ear plugs for swimming. 25.34 percent advice no restriction for swimming until ear infection occurred and 6.34 percent advice to avoid swimming after mastoidectomy until complete healing occurred. For bathing 84.34 percent advice the use of ear plugs after mastoidectomy and remaining advice no restriction. In case of diving 58 percent advice complete avoidance until healing complete. 27 percent of them advice the use of ear plugs for diving but 12 percent allow diving until otorrhoea occurred. 3 percent of them allow diving without any restriction. (Table 7, 8, 9 and 12)

USE OF EAR PLUGS: Majority advice cotton wool and petroleum jelly as ear plugs. others recommendation is shown in table 13.

DISCUSSION: After ear surgery, the aim is to avoid any complication and prevent ear from infection. The main source of infection in an operated ear is from the nasopharynx or from external ear⁵. Water is the main source which carry microbes in to middle ear, although it is also demonstrated that swimming does not increase the incidence of otorrhoea⁵. Because a depth of more than 60 cm² of water is needed to overcome surface tension and makes water enter in to middle ear^{12,5}. On the other hand otorrhoea has also been demonstrated in non swimmers. Precautions need to be taken while bathing, swimming and diving³. In our study we find the general consensus that water should be prevented from entering in to the post operated ear. Different professionals have their own experiences for water precautions and different advices for care. ENT UK and BUPA have different advices regarding water precautions¹⁵. This non uniformity suggests the need for international guidelines that would be followed. After extensive literature search we found Paucity/lack of research based prospective study for the importance of water precautions. Recommendations for swimming precautions are not universal among the consultants groups that routinely see patients with tympanostomy tubes. Most primary care physicians and many otolaryngologists continue to prescribe water precautions to patients or parents of patients with tympanostomy tubes, despite published articles that have shown no reduction in the incidence of otorrhoea from the use of barrier devices or from the avoidance of swimming³⁴. A randomized, controlled trial was published in 2005 by Goldstein et al⁷ that was the first of its kind to report a statistically significant difference in otorrhoea in children who used earplugs vs. those who did not while swimming or bathing. They reported no significant difference. In 1998, Hebert et al² looked at middle ear contamination secondary to water exposure using an in vitro model of a human head. The model included an auricle, external auditory canal, tympanic membrane (with tympanostomy tube inserted), middle ear space, eustachian tube, and mastoid cavity. This

study evaluated middle ear penetration with 4 types of water exposure: showering, bathing, hair rinsing, and swimming. Another such study by Salata and Derkay⁸ in 1996 reinforced the concept that swimming is not contraindicated with inserted tympanostomy tubes. This study prospectively studied 533 patients. Many studies have evaluated the effect of water exposure after tympanostomy tube insertion. Parker et al⁴ completed a prospective, randomized trial researching the incidence of otorrhoea in 212 patients undergoing tympanostomy tube insertion. They found no statistical significance between swimmers and non swimmers. In our study, although there is lack of research based evidence but it showed a general consensus of otolaryngologists in matter of myringotomy, mastoidectomy and myringoplasty for water precautions. The use of single type of ear plugs has also been advised by our ENT consultants. More research based prospective trials should be done in this aspect to have single guide line use for water precautions after Ear surgery.

CONCLUSION: Traditionally water is source of causing and aggravating the ear infections. This survey shows different opinion and recommendations for water precautions among significant number of Pakistani otolaryngologist based upon their clinical practice. The lack of uniformity worldwide indicates need for international guide lines to address this issue. (Table 14)

DRAWBACK: Although all the responders are from the same grade (all FCPS, RTMC registered) but there is no uniformity in their duration of practice that makes different opinion based upon their experience. There is another bias regarding the expertise of surgeons as all surgeons are not doing the same surgeries with the same skill. This is another possible drawback of this article which will also impact upon the results. This is not a research based study rather a survey so this can be consider as pilot study and a larger randomized trial is needed to formulate our national guide lines.

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Role of Occipito - mental View in Chronic Headache, Is it Beneficial?

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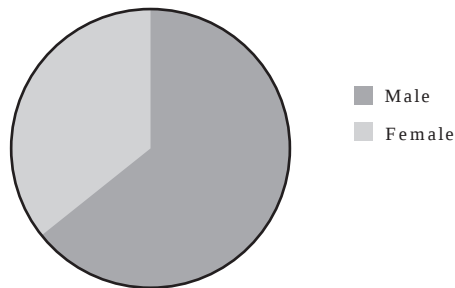
ABSTRACT: **BACKGROUND:** Chronic Headache is one of the common visiting symptoms in out patient department. Amongst various investigations advised by the concerned medical practitioner, X-Ray P.N.S, occipitomental view or water's view is the most common and routine investigation. It is the most commonest radiological investigation because of easy availability of radiographic equipment, low cost and even free service available in public sector Hospitals. **OBJECTIVE:** To determine the cause of chronic headache after viewing occipitomental view (OM) for para nasal sinuses (PNS) with history of more than one month of duration and to know that this plain radiograph is beneficial for diagnosis. **DESIGN:** Observational study. **SETTING:** Department of Radiology, Civil Hospital Karachi. **PATIENTS AND METHODS:** This study was conducted from October 2010 - December 2010 (3 month) in the Department of Radiology, Civil Hospital Karachi. All patients with symptom of headache of more than one month duration over the age of 18 years were included with conventional radiograph. Patients of less than 18 years of age were excluded from this study. **RESULTS:** Among 50 patient, 32 (64%) were males and 18 (36 %) were females. Out of 25 (50% patients who were diagnosed as sinusitis. 17 (34%) were males and 08 (16%) were females. Pansinusitis was also detected in 13 cases (26 %), 07 were males (14%) and 06 were females (12%). Maxillary sinusitis was also found as a cause of chronic headache. This may be unilateral or bilateral. 10 (20%) cases were detected as maxillary sinusitis. Amongst them 5 (10%) were male and 5 (10%) were females. 3 cases (6 %) were detected as bilateral maxillary sinusitis. 2 cases (4%). were also having mucosal thickening and edema in frontal sinuses. One of the cause of Headache is deflected nasal septum (DNS). In this study 5 (10%) patient were diagnosed as a case of DNS. **CONCLUSION:** Plain film studies of paranasal sinuses, occipitomental view is the most frequent initial / primary imaging study advised because of its comparatively low cost, frequent availability, low radiation dose and easy to perform entity. Although, CT Scan of paranasal sinus is preferred choice especially when Functional Endoscopic Sinus Surgery (FESS) is planned. **KEY WORDS:** Deviated nasal septum, Occipitomental view, Water's view, Sinusitis.

INTRODUCTION: Headache is one the most common complaint, ranked ninth in number among all patients' complaints that visited to Physician's clinic¹. There are several causes of chronic Headache. Among them tension headache and migraine are common causes of chronic headache. There are also many other causes of headache especially in our country like Insomnia, Stress, Hypertension, Hypoglycemia, Post traumatic, Trigeminal neuralgia and Sinusitis. Probably more than 10% of chronic headache are caused by variety of sinus diseases. Head pain emanating from the frontal or maxillary sinuses isolated over the sinus itself and that of an ethmoid and sphenoidal sinus posterior to and between the eyes with tendency to refer to vertex². As far as origin of pain is concerned we know that all extracranial structures covering the head are pain sensitive. The scalp, fascia and the muscles of head and neck, the orbital content, external and middle ear, mucosa of the upper respiratory tract and paranasal sinuses. Pain originating from paranasal sinuses is frequently referred by the first and second division of the fifth cranial nerve. Purely frontal headache is suggestive of frontal sinusitis³. The headache of sinusitis is usually of infective origin. A vacuum headache is due to obstruction to the drainage of sinus, as from congestion of rhinitis not necessarily purulent in nature. Pain and pressure

feeling over sinus is usual symptom of sinus diseases along with headache⁴. For viewing paranasal sinuses pathology, the role of radiology is very important. Various radiological views are advised by ENT surgeons for evaluating the cause of headache. Among all views, Occipitomental or Water's View is the most commonly advised radiological investigation. Occipitomental view, as a single plain imaging is considered adequate for the basic assessment of the maxillary antra.⁵ The advantage proposed for advising this view is the visualization of Frontal, Maxillary, Ethmoidal and Sphenoidal sinuses, its bony margin and fluid level if present. Although CT Scan of PNS provides better delineation of minute details and it is the preferred choice especially when FESS is planned. **PATIENTS AND METHOD:** This study included fifty adult patients with history of headache of more than one month duration, referred by general practitioners or hospital specialists to the Radiology Department of Civil Hospital and Dow University of Health Sciences Karachi for X-ray Occipitomental or Water's View. The X - ray occipitomental view was conducted on Toshiba 500 MAS with moving Grid machine. 10 x12 size film with radiographic cassette and high speed screen to get reduce exposure. The patient sits facing the film and the radiographic base line is tilted 45 degree. The incident beam is horizontal and is centered

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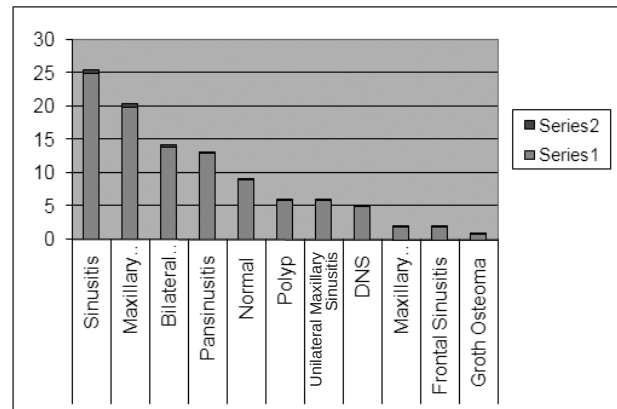
Male 64%
Female 36%



Male 32 64%
Female 18 36%

Table 1: Total No. of Patients 50.

on the occipital bone, 3cm above the external occipital protuberance. This view shows the maxillary antra free of the overlap of the petrous bone, and if the mouth is kept open during the examination the sphenoidal sinus and the nasopharynx can be seen through by giving 30 degree angle cephaled. The maxillary sinuses clearly seen because now the petrous part of temporal bone can no longer overlap over maxillary sinus. The technique of exposing PNS in water's view is same but in this case the patient opens his mouth. Exposed film was sent for processing. The exposed film after processing was send to the radiologist for expert opinion and reporting with short history, age, sex and identification number. All data were entered in computer program SPSS version 15. Number and Percentages of different causes were calculated among male and female patients. RESULTS: Among 50 patients, included in this study, 32 (64%) were male and 18 (36%) were female. depicted in table 1. Cause of headache were diagnosed as sinusitis in 25(50%) cases, among them 17 (34%) were males and 08 (16%) were females. Pansinusitis was detected in 13 cases (26 %), 07 were male (14%) and 06 (12%) were females. Maxillary sinusitis was also found as a cause of chronic headache. This may be unilateral or bilateral. 10 (20%) cases were detected as maxillary sinusitis. Among them 5 (10%) were males and 5 (10%) were females. 3 cases (6%) were detected as bilateral maxillary sinusitis. Two cases (4%). patients were diagnosed as mucosal thickening and edema in frontal sinuses. One of the cause of headache is deflected nasal septum (DNS). In this study 5 (10%) patients were diagnosed as a case of DNS. As mentioned in table 2. Normal occipitomenal view for PNS was found in 9 (18) and the cause of Headache was not due to sinuses or facial bones involvement. However 6 (12%) patients had antrochonal polyp, out of which 2 (4%) cases presented with headache & fever and showed osteomyelitic changes in maxillary sinus. 1 (2%) patient was diagnosed as case of Osteoma. Although this view of plain radiograph is the most commonest investigation for headache but it does not provide minute details as



CT Scan especially when surgeon plans for FESS. DISCUSSION: There are various imaging modalities available for the study of the lesions of paranasal sinuses. CT scan is now the investigation of choice. But still many physicians recommend occipitomenal view as initial basic investigation for the study of sinuses lesion and to determine the cause of chronic headache. No doubt migraine is one of the common cause of headache but most of the patients from under developed countries presented with history of chronic headache are suffering from allergy, because of dust and pollution. All the paranasal sinuses originate as evagination from the nasal fossa; they are lined by mucosa similar that found in nasal cavity. Its epithelial lining is pseudostratified columnar epithelium⁶. MRI also helpful for reading soft tissue pathology but its shows poor result if any one wants to study the bones detail. The concept of a sinus headache is problematic from neurology, allergology, and rhinology perspectives. It may be considered the final neurological diagnosis of exclusion when criteria for other craniofacial pain syndromes are not met. The International Headache Society definition implicates the presence of acute sinusitis, but this requirement is often not met in practice or with a patient's perception of the term. Otorhinolaryngologists have a similar exasperation with this cephalgia but tend to attribute idiopathic, nonallergic rhinopathy as the cause. Allergists often see patients who claim to have a sinus headache but instead have perennial allergic rhinitis or nonallergic rhinitis. A fresh perspective is required to determine the characteristics, differential diagnosis, and veracity of the sinus headache. We recommend using the term with caution only if the clinical picture meets the criteria for acute sinusitis-induced headache⁷. Ultrasonography may come to represent, on a larger scale, as an accessible imaging alternative to the non-invasive investigations used in evaluation of fluid collections in the maxillary sinus in pediatrics⁸. Despite the most careful and meticulous attenuated technical detail, by other advance modalities, plain film examination has substantial limitation. Even if interpreted by a experienced radiologist, soft tissue disease and bone destruction, if present, will be under estimated some times. Plain film studies are still the most frequent initial study because of comparatively low cost, easy availability, low radiation dose and ease

of performance⁹. There are various views for the evaluation of paranasal sinuses on plain film such as occipitomental view, water's view, Caldwell view, Reese or oblique view, but occipitomental view 30 degree and water's view are frequently advise by the ENT doctors. In water's view radiographer makes the position of the head of patient like OM view, but also instructed him to open the mouth. By opening the mouth the sphenoidal sinus can also be visualized. The word sinusitis is a generalize term and comes out to be the most common cause of chronic headache, whether maxillary sinusitis or pansinusitis etc. Maxillary sinusitis is the most frequent entity. No doubt DNS is one of the cause of chronic headache but it is about 10% in our study. Growth and osteomyelitis are rare in our study may be because of short sample size. MRI is predominantly used for the pre and post operative assessment of nasosinus malignancy. Other condition including inflammation and benign tumor are usually demonstrated on CT scan. In our study we give attention on the quality of plain radiograph. Antrochoanal polyp (ACPS) developed as a complication of chronic inflammatory antral disease. Another review of ACPS in the pediatric population, reported that 50% of the patients in their series had allergic diatheses^{10,11}. In our study paediatric patients were not included. But the most probable cause found was allergy. Bone formation in the paranasal sinuses in the form of an osteoma is well known, entrrty. Such a growth is commonly seen in the area of the frontoethmoid sinuses; only 5% of such cases occur in the maxillary sinuses and cause chronic headache¹². In view of the advancement in the treatment strategy of sinusitis causing headache, CT Scan Nose & PNS is considered to be the preferred choice as it provides minute details & would give road map to surgeon performing FESS.

CONCLUSION: Plain film studies of paranasal

sinuses, occipitomental and water's view are the most frequent initial study for diagnosis of chronic headache because of comparatively low cost and reduced radiation dose, frequent availability and easy to perform. Advanced imaging evaluation, like CT scan Nose & PNS is the preferred choice as it gives mimte details & provides road map to surgeon performing FESS.

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Prophylactic Antibiotics in Patients with Chronic Suppurative Otitis Media Undergoing Tympanoplasty: A Comparative Study of Augmentin Versus Amoxicillin

Ali Maeed S Al-Shehri

ABSTRACT: **OBJECTIVE:** To compare the usefulness of prophylactic augmentin compared with amoxicillin in patients undergoing tympanoplasty. **METHODS:** This study was conducted in 3 hospitals namely Aseer Central Hospital, Saudi German Hospital and Al-Namas Hospital in Aseer Region. This study included 32 CSOM patients without any complications. They were randomized into 2 groups, Group A (n=16), who received intravenous 1.2 mg augmentin after the induction of the anesthesia followed by 7 days oral augmentin in a doses of 1g Bid or Group B (n=16) who received amoxicillin 500 mg thrice a day for one week. **RESULTS:** The clinical success was significantly higher among patients who received augmentin (Group A) compared with those who received amoxicillin (Group B) in preventing the postoperative infection ($p=0.033$). Among patients in Group A, 15 cases (93.7%) had successful take of graft compared with 10 cases (62.5%) in group B. **CONCLUSION:** The use of prophylactic augmentin antibiotic is more effective in preventing early post-tympanoplasty infection compared with amoxicillin. **Key Words:** Tympanoplasty, chronic suppurative otitis media, temporalis fascia grafting, prophylactic antibiotic.

INTRODUCTION: Ear surgery is clean or contaminated; 90% of otologic wounds are colonized at the time of surgery. The general principle of infection control seeks to minimize colony counts so that host defense mechanisms are not overwhelmed. Whether or not surgeons can accomplish this in ear surgery is highly debated. Otolologists who seek higher graft take rates and fewer complications often resort to prophylactic antibiotics as a "protective umbrella"¹. Chronic suppurative otitis media (CSOM) is a persistent disease, which can cause severe destruction of the middle ear and mastoid and lead to irreversible sequelae. In the present antibiotic era, the complications became rare². CSOM is a public health problem, in terms of resources utilized in treatment (i.e., topical, oral, and intravenous antibiotics, multiple office visits, and surgery) as well as its direct impact on hearing. Infections resulting from CSOM can cause chronic hearing loss, which has a negative impact on the development of speech, language, and social interaction, as well as school and workplace performance³. The prevalence rate of CSOM in the Kingdom of Saudi Arabia used to be high in the areas with less health care facilities and less public awareness. However, the improved delivery of health care has lowered the prevalence rate from 5.5% to 1.31% in the decade 1991–2000⁴. Postoperative infection after tympanoplasty is one of most common causes for failure of the graft. Govaerts et al⁵ assumed that antibiotic prophylaxis may decrease the postoperative infection rate. In addition, Matino et al⁶ suggested that using preoperative oral and topical antibiotics can decrease the incidence of postoperative infection. This study aims to compare the usefulness of two commonly used prophylactic antibiotics in ear

surgery, i.e., augmentin compared with amoxicillin in patients undergoing tympanoplasty. **PATIENTS AND METHODS:** This study comprised all chronic suppurative otitis media patients (n=32), who were admitted to the Otolaryngology Departments in three nearby hospitals, namely: Aseer Central Hospital, Saudi German Hospital and Al-Namas Hospital. The three hospitals are located in Asser region of Saudi Arabia. The researcher is a consultant surgeon for these three hospitals. All patients were diagnosed as chronic otitis media (tubo-tympanic type) without cholesteatoma. They were recruited during the period from January 2005 to December 2009. All patients had central perforations without complications. They presented with a long history of recurrent ear discharge and diminished hearing. All patients underwent full clinical examination, audiology examination and laboratory investigations. The present study comprised 32 patients (12 females and 20 males), as shown in Table (1). Their mean age was 36.6 ± 14.8 years. Patients were randomized into either Group A (n=16), who received augmentin 1.2 mg given intravenously after intubation followed by 1 gm orally twice a day for one week and Group B who received amoxicillin 500 mg orally thrice daily for one week. Tympanoplasty was done through post-auricular incision. Temporalis fascia grafting was done to all the patients. Post-operative follow-up for early complications was done for a period of 6 weeks. The patients remained under continuous follow-up for a period of one year. To minimize variability inclusion criteria were: adult CSOM patients aged between 20 and 45 years, with central perforation. All patients underwent a post-aural surgical approach. Exclusion criteria were having cholesteatoma, presence of

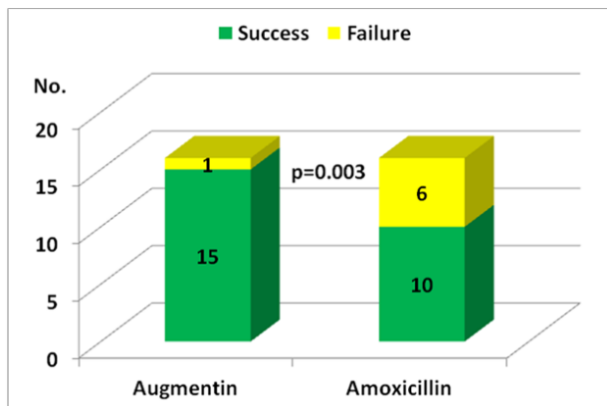


Figure 1: Outcome of tympanoplasty according to used prophylactic antibiotic.

sensitivity toward any of the applied antibiotics and presence of chronic diseases (i.e., diabetes, hypertension or chronic kidney disease). The clinical success after tympanoplasty was judged based both on graft take and improvement in hearing.

STATISTICAL ANALYSIS: The statistical Package of Social Sciences (version 17.0) was used for data entry and statistical analysis. Descriptive statistics (i.e., frequency, percentage, mean and standard deviation) were applied. Statistical significance of difference in the outcome of both study groups was judged by applying the unpaired t-test. A statistically significant difference was considered at $p < 0.05$.

RESULTS: The clinical success was significantly higher among patients belonging to group A (i.e., those who received augmentin) compared with Group B (i.e., who received amoxicillin) in preventing the postoperative infection. Among patients in Group A, 15 cases (93.7%) had successful take of graft compared with 10 cases (62.5%) in group B. Difference in success rate between study groups was statistically significant ($p = 0.033$), as shown in Table (2) and Figure (1).

DISCUSSION: There is a controversy concerning what to use for prophylactic antibiotics in patients with CSOM undergoing tympanoplasty. Some authors denied any useful role for prophylactic antibiotics in tympanoplasty. John et al⁷ found that systemic prophylactic antibiotics did not influence either the success rate of myringoplasty surgery or the audiometric result. In an uncomplicated tympanoplasty case, prophylactic antibiotics are unwarranted. Jackson⁸ concluded that prophylactic antibiotics are harmless, but useless. In common uncomplicated tympanoplasty, antimicrobial prophylaxis is unwarranted. An indication for prophylaxis exists in the draining ear, which, intuitively, has a high post-infection rate with graft failure to take. However, Gulya et al⁹ stated that for a draining ear antimicrobial coverage is recommended prior to surgery. One of the major problems facing the use of prophylactic antibiotics, especially in developing countries, is the cost¹⁰. However, many otolaryngologists still use different antibiotics hoping to achieve better results¹¹⁻¹⁴. There are several factors predisposing to failure of graft take, like the site of perforation whether it is

Variables	Males (n=20)		Females (n=12)		Total (n=32)	
	No.	%	No.	%	No.	%
Hospitals						
Aseer Central	5	25	4	33.3	9	28.1
Saudi German	13	65	7	58.3	20	62.5
Al-Namas	2	10	1	8.3	3	9.4
Age groups (in years)						
20-29	4	20.0	2	16.7	12	37.5
30-39	8	40.0	7	58.3	16	50.0
40+	8	40.0	3	25.0	11	34.4

Table 1: Characteristics of study sample.

Outcome of	Group (A)		Group (B)		P
Tympanoplasty	No.	%	No.	%	Value
Success	15	93.7	10	62.5	0.033
Failure	1	6.3	6	37.5	
Group A: Augmentin group			Group B: Amoxicillin group		

Table 2: Outcome of tympanoplasty according to used prophylactic antibiotic

marginal or total increase of risk of failure also technical problem¹⁵; size of perforation¹⁶; and type of approach for surgery¹⁷. However, on the basis of results obtained in the present study, it has been documented that augmentin is highly effective in preventing early post-tympanoplasty infections compared with amoxicillin. This finding is in agreement with the results of Fisch and May¹⁸, Onion¹⁹ and Schaidler and Rosen²⁰, who stated that augmentin is a broad-spectrum antibiotic and it is the antibiotic of choice in cases of tympanoplasty, mastoidectomy and stapes surgery. In conclusion, augmentin is the prophylactic antibiotic of choice for cases of CSOM undergoing tympanoplasty.

ACKNOWLEDGEMENT: The author would like to thank Prof. Mohd. Yunus Khan and Dr. Ossama Abdel Rahman Mostafa from the Department of Family & Community Medicine, College of Medicine, King Khalid University for their help for reviewing the manuscript.

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Laser: An Emerging Tool in Laryngology

*Anjum Naveed, **Alexander Murphey , **Jack Borders

ABSTRACT: AIM: The aim of this prospective study is to assess the utility of The KTP (Potassium Titanyl Phosphate) laser in pediatric and adult laryngology. **MATERIAL AND METHOD:** We have performed 31 laryngeal procedures both for pediatrics and adults in two years (2006-2008) for variety of laryngeal lesions. These procedures include congenital, benign and malignant lesions. Most of these patients were recruited from the outpatient services of the department of Otolaryngology Tawam hospital Al Ain, United Arab Emirates and some of them were referred from peripheral medical centers. **Results:** The KTP laser is an important and versatile state of the art tool for both pediatric and adult laryngology. It has wide range of applications in the air way from the nasopharynx to the distal Bronchi. Due to its multiple ways of applications, it provides precise surgical care. We have performed 31 laryngeal procedures both for pediatrics and adults in two years, and have not encountered any complication during surgery. The use of KTP laser in grade 3 and grade 4 subglottic stenosis is questionable. **CONCLUSION:** We believe that Benefits of endoscopic use of KTP laser include decreased morbidity and a significant quick recovery rate versus open procedures. Other big advantages of the KTP laser are its multiple modes of delivery, the flexibility of its fiber, and its easy maneuverability in the airway. **Key Words:** Laryngology, Lasers, KTP Laser Endoscopy

INTRODUCTION: The introduction of Laser technology into medical practice began in 1960. Otolaryngology was the first discipline successfully to apply CO₂ laser clinically. After collaborating to develop the endoscopic attachment to the CO₂ laser, Jako performed the first in vivo experiment on the canine larynx in 1969¹. With the advent of manipulating arm and micromanipulator technology, Strong and Jako began applying CO₂ laser to laryngeal microsurgery². John D Bierlein at DuPont(Wilmington, Delaware) in 1988 introduced the Potassium Titanyl Phosphate (KTP/532) Laser. It differs from previous lasers in that its energy is a visible green light. This color allows for a beam that is easily able to cut and coagulate simultaneously. It also does not require a change of tips during work and can be used in both contact and non-contact modes with simply a bare fiber. It cuts faster than the ND: YAG laser and coagulates better than the CO₂ laser. It works easily through clear fluid and provide the tactile feedback important to a surgeon.

There are 7 ways of delivering the KTP Laser to the target tissue in air way surgery.

- 1) Microscope with hand held microstat
- 2) Microscope with micromanipulator
- 3) Telescope and video monitor display with hand held microstat
- 4) Direct telescope with hand held microstat
- 5) Optical fiber through flexible bronchoscope
- 6) Optical fiber through rigid bronchoscope
- 7) Optical fiber through suction tube

Meticulous literature search revealed few published

studies on this topic. There is paucity of english literature on this topic as this is relatively newer tool used in otolaryngology. Our study would contribute to this as a useful reference.

PATIENTS AND METHODS: Tawam hospital is a tertiary care teaching hospital in the United Arab Emirates. The hospital is well equipped and has the full support of the NICU (Neonatal Intensive care unit), PICU (Pediatric intensive care unit), and ICU (Intensive care unit) for adults. We retrospectively reviewed the medical record of all the patients who underwent different procedures with KTP Laser From January 2006 to December 2008, we performed 31 cases including both pediatric and adult patients. There were 15 procedures done for pediatric patients (Table 1) and are subsequently listed. Laryngomalacia (LM) is the most common laryngeal anomaly and source of stridor (54 -75%) in newborns³. It is characterized by reduced laryngeal tone, shortened aryepiglottic folds, and supra glottis collapse. Most cases are mild and self-limited with resolution by age 12 -24 months. In some cases, LM can lead to significant upper airway obstruction, feeding disturbances, and failure to thrive in infants. The main indication for surgery is stridor with respiratory compromise and feeding difficulties with failure to thrive. The supraglottoplasty was done by trimming both lateral edges of the epiglottis, and excising the aryepiglottic folds with oedematus mucosa over the corniculate cartilage with the KTP laser, carefully sparing mucosa between the sites of incision to avoid the possibility of cicatrix formation. Fiber diameter of 0.2 mm was used with a laser power of 3 watts in continuous mode. We did five cases using this

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technique, and only one case needed the PICU for overnight stay. The other cases were successfully extubated in the recovery suite within moments of completing the procedure. The patients were always kept on anti-reflux therapy during the post-operative period. There were four cases of subglottic cysts. Due to prolonged intubation in premature babies, there is a tendency to develop subglottic cysts. In some cases, there were multiple cysts in the subglottis. Using the KTP laser, the cysts were marsupialised. None of the patients have returned with recurrent cysts. Two cases of anterior laryngeal web were done with a goal to establish a stable airway and a good voice. One case with suprastomal granulation before decannulation was done with successful decannulation in post-operative period. The KTP laser has shown it is a good tool for removing multiple laryngeal papillomas and laryngeal edema after prolonged intubation. The following 16 cases were adult patients (Table 2). There were 3 cases subglottic stenosis including one case grade 2, one case grade 3 and one case with grade 4. Patients were treated by KTP laser. In grade 3 and grade 4 subglottic stenosis after removing scar tissue with KTP laser an ultraflex tracheal stent was applied to each. Both of these patients developed circumferential stenosis proximal and distal to the stent. The patients needed removal of stents, and they are still under follow-up. Three cases with bilateral vocal cord palsy after total thyroidectomy with tracheostomy had cordotomy. They were successfully decannulated after laser treatment. We did two cases with carcinoma in situ and one T1 tumor of the vocal cords without any recurrence. Overall the KTP Laser showed it is an effective and safe tool for excision of vocal cord polyps and granulations.

DISCUSSION: The addition of lasers to the surgical armamentarium of Otolaryngology – Head and neck surgery has allowed our specialty to offer patients new and exciting ways of approaching disease management, to improve on conventional surgical technique, and to expand its scope. The CO₂ Laser is still work horse for Otolaryngology. The CO₂ wave length is efficiently absorbed by water in the mucosa of the upper respiratory and esophageal lining, and is therefore an efficient tissue ablator. The shallow depth of penetration results in a relatively small zone of collateral damage. The disadvantage of the CO₂ laser is that it is not permissible via commonly available optical fiber. This lack of maneuverability limits its use in the subglottis, trachea, and bronchi. Its shallow depth of penetration also results in poor homeostasis. The KTP laser is gaining popularity due to its transmissibility via an optical fiber used with micromanipulator attached to an operating microscope or simply as a free hand. It is also able to control hemorrhage easier than the CO₂ laser. There are many reports regarding its use in hypopharynx, upper esophagus, and trachea. Stacey L. Ishman from John Hopkins has mentioned the successful use of the KTP

Cases	Numbers
Supralaryngoplasty for laryngomalacia:	5
Excision of subglottic cyst:	4
Excision of anterior laryngeal web:	2
Excision of Suprastomal Granulations:	2
Removal of Laryngeal edema due to prolonged intubation:	1
Excision of Multiple Laryngeal Papillomata:	1

Table 1: KTP laser used in pediatric patients.

Cases	Numbers
Excision of subglottic stenosis:	3
Cordotomy for Bilateral Vocal cord palsy:	3
Excision of carcinoma in situ of vocal cords:	2
Cordectomy for Sq. cell Ca(T1) vocal cord:	2
Excision of laryngeal polyps:	5
Excision of Carcinoma of pyriform fossa (T1):	1

Table 2: KTP laser used in Adult patients.

laser for removal of impacted foreign bodies in the anterior wall of the esophagus and repair of trachea-esophageal fistulas⁴. Pardul Hazarika have reported successful excision of pyriform fossa hemangioma with the KTP laser⁵. There are many tools available in the field of surgery which can cut and sometime coagulate like: cold knife, coblation probes, radiofrequency probes, microdebrider, and harmonic scalpel. However, the laser can cut, coagulate and evaporate the tissue at same time which makes it an invaluable tool for otolaryngology and head and neck surgery.

CONCLUSION: The KTP laser surgical system is a versatile, elegant, state of the art instrument for both pediatric and adult laryngology. Due to its precision and multiple ways of application the new uses for this laser is continue to emerge. We have done 31 cases and not seen any intraoperative damage caused by KTP laser. Its use in grade 3 and grade 4 subglottic stenosis is questionable. Still the open surgery for laryngotracheal stenosis is more popular. The main disadvantage of the KTP laser is the cost factor. However the advantages describe for outweigh the disadvantages.

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Sino Nasal Malignant Melanoma: A Case Series

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Moushumi Sengupta ,*Debdas saha

ABSTRACT: Aim: To present a retrospective case series of Sino-nasal malignant melanoma cases consisting of eight cases, their clinical presentation, management protocol and treatment outcome. **MATERIAL AND METHODS:** Retrospective review of 8 sino-nasal melanoma patients with their clinical profile, investigation result and treatment outcome with comprehensive review of literature. **RESULT:** The 5-year survival rate in this small series was nil. Local failure with skull base invasion was noticed in 3 cases. Distant metastasis was noticed in 4 cases. **CONCLUSION:** Advanced sino nasal malignant melanoma carries a poor prognosis as seen in the present series. Early diagnosis and adequate surgical excision is beneficial in managing these lesions.

Key Words: Melanoma, Sino nasal, surgical management, treatment outcome.

INTRODUCTION: Mucosal Malignant melanoma is a lethal disease¹. Mucosal melanomas of head and neck region behave quite differently than its cutaneous counterpart. The nasal cavity is the most common location of mucosal malignant melanoma within the head and neck area. The exact origin of sinonasal tract melanoma is quite difficult to ascertain because of anatomic limitations and advanced stage at presentation with involvement of multiple subsites. The biological behavior of mucosal melanomas of sinonasal area is marked by early local recurrence and frequent metastasis to regional lymphnodes. Survival statistics for sino nasal melanomas are poor, rated only next to anorectal melanomas for the lowest survivalship. Weber (1856) was the first to describe mucosal melanoma². Lincoln, in 1885, was the first to report a mucosal melanoma of the head and neck³. Batsakis et al⁴ reported 531 cases, out of which 8 patients with sinonasal malignant melanoma were reported from eastern part of India. In this series, we reviewed 8 cases of sino-nasal malignant melanoma with their treatment modalities and outcome. **MATERIAL & METHODS:** The records of all patients who presented with Sino-nasal malignant melanoma between January 2000 and December 2007 at the Medical college, Kolkata & B.S Medical college, Bankura were reviewed. For these 8 patients, the diagnosis of primary mucosal melanoma of the sino-nasal region was established on histopathologic grounds and by ruling out melanoma at other sites. The following parameters were studied-age & sex distribution, clinical presentation of the disease, extent of the disease at initial presentation, treatment modalities employed and their outcome. The data of these 8 patients were tabulated and analyzed (Table1). **RESULT:** 1) Age & sex distribution: Patients with sino-nasal melanoma presented with age range of 10 years to 68 years with mean age of 48 years and male: female ratio of 5:3. 2) Symptoms: All patients presented with nasal obstruction. 2 patients presented epistaxis and blood stained nasal discharge. Cheek swelling was present in 6 cases and proptosis was

Cas e No.	Age & Sex	Clinical presentation	Clinical examination	Radiologica l findings	Treatment	Follow-up
1	58, M	Epistaxis, Rt NO, Swelling inner canthus	Blackish pigmented mass in Rt nasal cavity	40*30cms mass in Rt nasal cavity, maxillary antra, ethmoids	Radical Maxillectomy including orbital exenteration + CT+ Revision Sx	Liver mets within 1 month of revision Sx & died
2	48, F	Rt proptosis, Swelling Rt cheek	Rt proptosis, Rt nasal mass, maxillary swelling & cervical lymphadenopathy	Rt maxillary SOL extending into Rt nasal cavity, Rt orbit + ethmoid	Radical maxillectomy + RND + CT	Succumbed to disease d/t systemic mets
3	10, F	Lt NO	Blackish polypoidal mass in Lt nasal cavity extending into nasopharynx	Nonenhancing mass in Lt maxilla, nasal cavity & nasopharynx	Medial Maxillectomy with removal of mass from maxilla, ethmoid and nasopharynx + CT	Local recurrence after 2 yrs, death d/t disseminated mets
4	53, M	Rt NO, Rt facial swelling, Multiple subcutaneous nodules (FIG 1&2)	Blackish nasal mass completely destroying septum & occupying Lt nasal cavity, multiple nodules in neck, pelvis, chest	Huge heterogeneous mass in Rt nasal cavity destroying alveolar margin, extension maxilla, frontal, ethmoid (Fig3)	Bx + CT	Died after 6 cycles of CT d/t disease
5	52, M	Rt NO, Rt cheek swelling (Fig4)	Black polypoidal mass in Rt nasal cavity & Rt palatal bulge	CT & MR. SOL RT maxilla, Sphenoid, Ethmoid (Fig 5,6,7)	Bx + immunotherapy+ radical maxillectomy + CT	No locoregional recurrence after 6 months of follow up
6	68, M	Rt NO, Fullness Rt Cheek	Black polypoidal mass in Rt nasal cavity & Rt palatal bulge	SOL in Rt maxilla, ethmoids	Rt total maxillectomy + RT	Local recurrence & mets, died within 3 months
7	47, M	Rt NO	Mass coming out of nose & attached to nasal ala	Huge SOL in Rt nasal cavity attached to ala with involvement of maxillary & ethmoids	Rt hemirhinectomy+ radical maxillectomy + RT	Died within 4 months d/t Recurrence
8	44, F	Rt NO	Polypoidal mass in Rt nasal cavity	SOL in Rt nasal cavity & maxillary antra	Total maxillectomy + CT	No locoregional recurrence after 6 months of follow-up

* Dept. of Plastic Surgery, ** Dept. of ENT, *** Dept. of Anaesthesiology, R.G Kar Medical College, MGM Medical College, India.



Figure 1-2: Clinical photograph showing multiple subcutaneous nodules all over the body & broadening of nasal bridge.

noticed in 1 case.

3) Signs: Most consistent clinical sign in the present series is blackish pigmented nasal mass (8 cases) followed by maxillary swelling in 6 cases, axial proptosis in 1 case, subcutaneous nodule in 1 case. 1 patient presented with cervical lymphadenopathy. 3) Radiological study: CT scan of nose and paranasal sinuses was done in all cases in the present series. X-ray chest and ultrasonography of abdomen were done in all cases to see distant metastasis. Nasal and maxillary sinus involvement was seen in 3 cases whereas multiple sinus involvement was noted in 4 cases indicating advanced disease. Liver metastasis was noticed in 1 case in ultrasonography. MRI was done in one case.

4) Treatment modality:

a) Radical maxillectomy: 3 cases.

b) Total maxillectomy: 4 cases

c) Medial maxillectomy: 1 case—advised further surgery, but the patient refused.

d) Palliative Radiation therapy: 2 cases

e) Chemotherapy with DTIC : 6 cases

f) Immunotherapy: 1 case

(Multiple modalities were used in single patient, so total is more than 100%)



Figure 4: Clinical photograph of patient no. 5

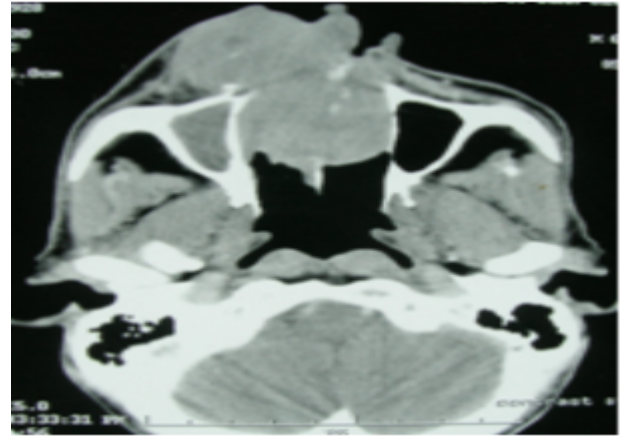


Figure 3: Ct scan (coronal cut) showing mass in nasal cavity.

5) Local recurrence: 3 cases

6) Distant metastasis: 4 cases

DISCUSSION: Melanoma arises from melanocytes, which are neuroectodermal in origin and situated in the basal layer of skin, adnexas and some mucosal membranes. Common sites of mucosal melanomas are head, neck and lower extremities, which are commonly exposed to sunlight, a definite predisposing factor. Less commonly they occur in the oral and genital mucosa, nail beds, conjunctiva, orbit, oesophagus, nasal mucosa or nasopharynx and leptomeninges. Sino nasal melanomas arise from dispersed melanocytes in the sino-nasal mucosa. The incidence of mucosal malignant melanoma of head and neck region is only 0.4-4%³. Sino-nasal region accounts for less than 1% of all malignant melanomas. Both sexes are equally affected. Holdcraft and Gallagher found that sinonasal melanoma represented 3.6% of all sinonasal malignancies in the Armed Forces Institute of Pathology (AFIP) files⁵. In his series, Harrison reported that melanoma represented 12.5% of all the sinonasal malignancies he had treated⁶. Conley in 1990, while reviewing his extensive personal experience with head and neck melanoma, found the incidence of upper aerodigestive

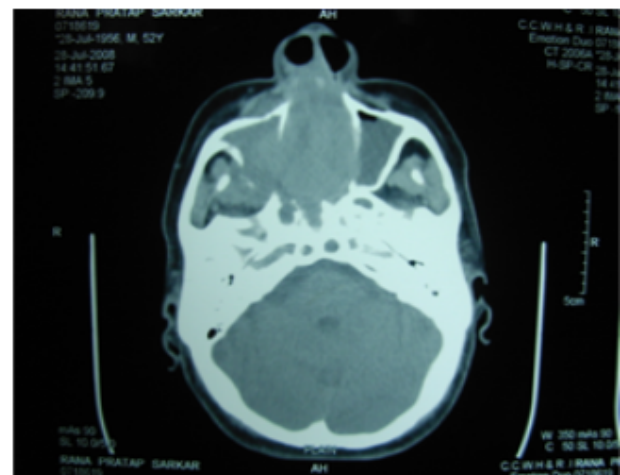


Figure 5: CT scan & MRI of patient no. 5

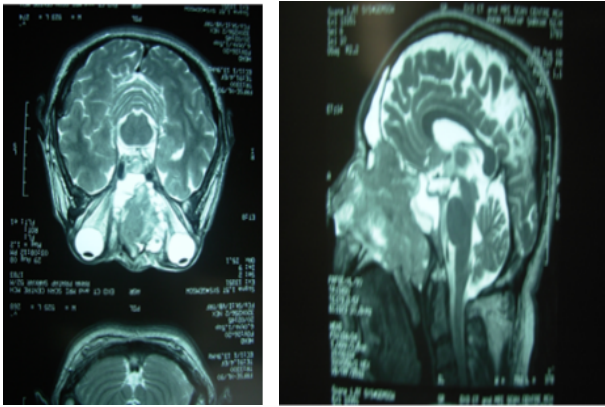


Figure 6,7: CT scan & MRI of patient no. 5.

and sinonasal melanoma to be 6.7% of head and neck melanomas⁷. Sinonasal mucosal melanoma is primarily a disease of adults and the elderly. The onset is typically 2 decades later than that of skin melanoma. In the AFIP series, the mean age was 61 years and the range was 17 to 84 years⁵. 78% of Harrison's patients were older than 50 years.⁶ In the present series the age range was 10 years to 68 years with mean age of 48 years. Paediatric mucosal melanoma is an extremely rare clinical entity. The youngest patient reported is a 8 month old baby⁸. In Harrison's series youngest patient was of 7-year old⁵ whereas in the present series youngest patient is of 10 years⁹. This series has slight male preponderance like other series^{5,6}. Unilateral nasal obstruction & epistaxis were two most common presentations in the present series. In Harrison's 40-patient-series all patients had similar complaints, only 2 had facial deformity⁶. Proptosis was presenting feature in 12.5% patients in the present series whereas in the series of Lee, only 3 of 35 patients had diplopia and/or proptosis¹⁰. In the present series, site of origin could not be ascertained because of extensive disease involvement at the time of presentation. Most common site of involvement in the nasal cavity is, anterior portion of the nasal septum followed by lateral wall & turbinates. Ravid and Esteves, in reviewing the topic of mucosal melanoma, first noted the relative rarity with which melanoma presents in the middle turbinate, as well as the virtual nonexistence of melanoma higher up in the superior turbinate or even in the olfactory region⁸. Nasal cavity was mainly involved in many series^{5,6,8} whereas in the present series in all the cases nasal and sinus involvement noticed. Since malignant melanomas are noted for their unpredictable biological behavior, the stage of the disease at primary diagnosis is the objective prognostic guide. Various institutions have created their own clinical staging, but this simple staging is the modification of the Memorial Hospital for Cancer and Allied diseases scheme. Tumours localized to primary site as stage I, regardless of their extent, those with nodal metastasis to stage II, and those with hematogenous spread as stage III. Based on cellular composition, 3 different types of malignant mucosal melanoma can be distinguished: spindle cell, polygonal cell, and mixed cell. These are encountered with varying frequency. Batsakis et al.

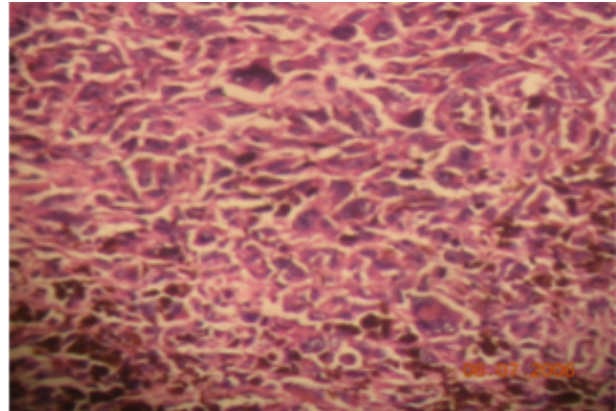


Figure 8: Histopathological photograph of malignant melanoma (400 X).

noted that the spindle variant is much less common in skin melanoma than in mucosal melanoma⁴. In the AFIP series of 39 cases, there was one spindle cell type, 13 polygonal cell type, and 25 mixed cell types⁵. In the present series of 8 cases, 4 had mixed cell type, 1 with spindle cell type and 3 polygonal cell type. Immunohistochemistry has added tremendously to our ability to make a confident diagnosis of malignant mucosal melanoma in the head and neck. In general, melanomas react positively with antivimentin and NKI/C-3 antibodies. It reacts strongly with S-100, which is a calcium-binding protein found in neural tissues, and oral mucosal melanoma stains specifically with antibodies against the alpha subunit of S-100. It also reacts strongly with HBM-45, which is specific to melanoma cells. Melanomas spread by lymphatics to the regional lymph nodes. Overall, in 18.7% of patients with malignant mucosal melanoma of the head and neck region, lymphatic metastases were evident on presentation, whereas in 16.4% of patients (90 of 550 evaluable cases), these developed after treatment¹¹. The most common sites for hematogenous spread are liver, lung, bone and brain. Generally, presence of metastasis accounts for poorer prognosis, but in case of sino-nasal melanomas metastasis do not correlate well with the prognosis. This explains the unpredictability of the biological behaviour of mucosal melanoma. Prognosis appears unrelated to size, site or pigmentation and patients can develop local recurrences, cervical node deposits and distant metastases at any time after their initial treatment. Local recurrence is the main problem in management of sinonasal melanoma. Manolidis & Donald noted 42.9 % local recurrence¹¹. The propensity of malignant mucosal melanoma to fail at the primary site has dire consequences for the survival of the patient¹¹. Of 484 patients in 14 series in which specific information about local control was provided, 258 patients (53.3%) failed locally¹¹. In the present loco-regional recurrence was evident in 3 out of 8 patients. Collected data from 11 series showed the average distant metastatic rate at presentation to be 10% (44 of 437 patients). In 12 studies, data were available for metastases after treatment; this average was 51.5% (171 of 332 patients)¹¹. In the present series one patient presented with distant metastasis¹² and three more patient showed

distant metastases after treatment. The treatment is multi disciplinary team approach. The main stay of treatment is surgery that involves wide local excision of the tumour. Typically, a lateral rhinotomy incision provides a very good approach although a mid facial degloving or a cranio facial excision may be necessary. However, endoscopic resection may be carried on as recurrence rate do not change if a radical excision is undertaken. Regional lymph node dissection should be carried out whenever clinically involved regional node is seen. Some surgeons also proposed the theory of prophylactic lymph node dissection as lymphogenous spread is characteristic of melanoma; the regional lymph nodes are commonly involved early in the biological course of the disease. It is also seen that prophylactic node dissection improves the survival rate (5 yr survival rate with negative node is 76% and that with positive node is only 22%). Treatment of metastases remains wide local excision of the lesion, sometimes repeated resection may be needed. Though malignant melanoma is radio resistant but optimal survival rate is seen following surgery and radiotherapy. In general irradiation alone has not controlled the disease, some form of surgical procedure has been required in the course of the disease. Chemotherapy and immunotherapy can also be tried. At the Memorial Sloan-Kettering Cancer Center, radiation was used as a palliative measure alone¹³. Various types of chemotherapy had been tried such as vinca alkaloids, alkylating agents, antimetabolites, levamisole, DTIC (dimethyl-trizeno-imidazolcarboxamide) and dactinomycin. The most extensively studied drug is DTIC which has showed some promise with around 23% response. Remission of disease could not be achieved but it prolonged the median survival of the patients¹⁶. Immunotherapy has been used in the form of a bacillus Calmette-Guérin vaccine to treat mucosal melanoma, but always as adjunctive treatment in isolated cases¹¹. Recent advances like adjuvant therapy is used specially for patients with metastasis and involves the use of high dose of interferon. However, it has not been accepted widely. Gamma knife radiosurgery has come up as a treatment option in case of mucosal melanoma¹⁵. Gy peripheral dose at the 50% isodose line using a 18 mm collimator gives excellent results with fewer side effects and less injury to the patient¹⁴, Lee et al., in their study of 35 patients with this disease, made a comparison between primary treatment modalities. Six of 15 patients treated with radical surgery had local control of disease, versus 1 of 11 patients treated with local resection and 0 of 8

patients treated with radiotherapy, chemotherapy, or a combination of the two¹⁰. Of the 21 patients of Panje and Moran, the only 3 survivors were treated with surgery alone, and 3 who received chemotherapy died without response to their treatment¹³. Patients with nasal mucosal melanoma have a 31% 5-year survival rate, whereas sinus melanoma patients fare poorly, with a 0% rate of 5-year survival. In our series, 2 out of 8 patients had local control of disease, 6 patients died of distant metastases or local recurrence within 3-6 months of primary treatment. Sino-nasal malignant melanoma is very aggressive tumour with unpredictable biological course and ultimate lethal outcome. Early diagnosis and treatment hold the key to better survival in this malignancy.

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Laryngeal Thrush : A report of 2 Cases

*Navneet Agarwal , **Ritu Agarwal

ABSTRACT: Candidial infection of the larynx is an uncommon condition. The lesions may be confined to the vocal folds or may involve various other sites in the larynx. These lesions may mimic malignancy or a premalignant condition. There have been very few cases of laryngeal thrush reported in the literature. Awareness of this entity is essential because the management depends on an accurate diagnosis. These lesions invariably respond to a course of oral antifungal therapy and correction of risk factors. We report 2 cases of laryngeal thrush.

Key Words: Larynx , Thrush , Antifungal.

INTRODUCTION: Fungal infection in Larynx is relatively uncommon condition but the incidence is increasing due to wide spread use of inhaled & oral steroids, increasing incidence of immunosuppressive disorders¹. The clinician must have a wide index of suspicion as many of these mimic malignancies or premalignant conditions. We are reporting two cases of Laryngeal Candidiasis because:

- (1) Laryngeal Candidiasis is a rare condition.
- (2) The General practitioners as well as ENT specialists must be aware of this rather uncommon condition so as not to miss the diagnosis.

CASE-1: A 55 year old male was admitted to the department of ENT with complaints of severe dysphagia since 7 days. The patient was a chronic smoker but not on any other medication. The examination showed a normal oral cavity. Laryngeal examination showed dirty greyish-yellow membrane involving bilateral Valleculla , Arytenoids , Pyriform fossa and the false cords [Figure 1, 2]. Blood investigations showed TLC-30,000/ with neutrophilia. HIV was negative and Blood Sugar was normal. The patient was provisionally diagnosed as a case of membranous laryngitis. The patient was put on injectable Amikacin and Amoxycillin + Clavulanic combination but there was no improvement even after 3 days. Swab for fungus and Biopsy was taken [Figure 3]. The swab was positive for Candida and biopsy was reported as acute on chronic inflammation with presence of fungal hyphae. The patient was put on oral Fluconazole 150 mg OD and he showed a significant improvement after 4 days. The membrane had significantly decreased after 7 days. The oral Fluconazole was continued for 4 weeks.

CASE-2: A 25 year male was admitted with complaints of severe throat pain and dysphagia since 7 days. The patient was on broad spectrum antibiotics for 7 days. Examination showed multiple shallow ulcers on the palate and the posterior pharyngeal wall. He was clinically diagnosed as a case of Herpetic Pharyngitis and Tab Acyclovir 400 mg QID was started. Initially the patient improved but after 4 days there was increase in pain associated with hoarseness. Oral cavity showed dirty membrane on the posterior

pharyngeal wall and vocal cords. Swab for fungus was positive. The patient was prescribed Clotrimazole lozenges and oral Fluconazole 150 mg OD along with Tab Acyclovir .There was a significant clinical and symptomatic improvement within 3 days.

DISCUSSION: Although infections due to Candida have become increasingly recognized in recent years but Laryngeal Candidiasis remains a poorly described and infrequently diagnosed condition. Candida is a normal commensal in upper respiratory tract. It becomes pathologic when the immune system becomes impaired or the host defenses are weakened. It generally develops secondary to pharyngeal or pulmonary infections.² Candida overgrowth occurs when the immune system and the mucosal barrier of the host get impaired, hence Candida infection is relatively common in patients of Diabetes Mellitus, in immunocompromised patients, patients on long term corticosteroids, inhaled steroids and radiotherapy. Many patients have multiple predisposing factors. Inhalational steroids were identified as the most common risk factor accounting for 89% of cases.³

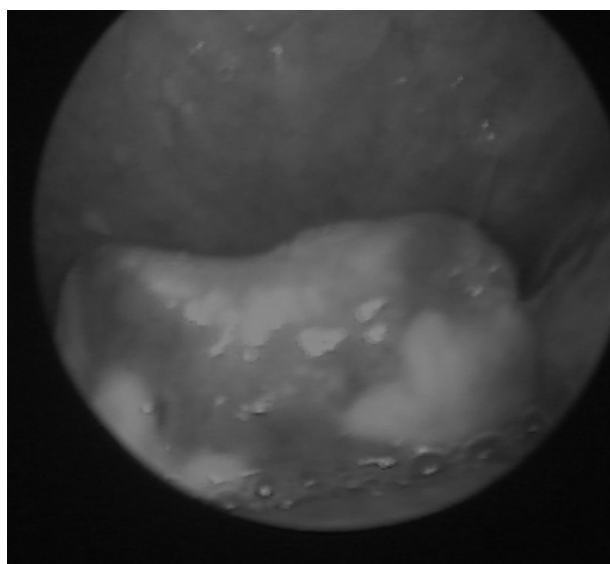


Figure 1: Greyish white membrane on epiglottis

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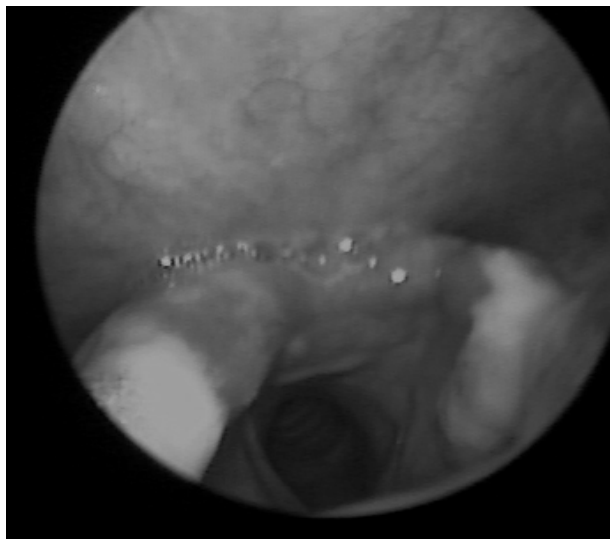


Figure 2 : Greyish white membrane on both Arytenoids.

The symptoms include change in voice, dysphagia and lump in throat. Wong et al found dysphonia to be the most common presenting symptom.³ Examination reveals white, greyish pseudomembrane which may be associated with erythema, ulcerations, etc. The pseudomembrane is generally seen on Vocal Cords, Arytenoids and the Supraglottic region.⁴ The differential diagnosis includes Leucoplakia, malignancy, Membranous Laryngitis. A high index of suspicion is necessary for diagnosis of these cases. Biopsy has been advocated for the diagnosis of the thrush by various authors.⁵ However, many authors advocate that biopsy is only indicated if there is incomplete resolution or malignancy is suspected.⁴ Treatment includes removal of predisposing factors, with oral Fluconazole 100-400mg per day for 3-4 weeks. The duration may be increased in immunocompromised patients. Amphotericin B may be used in refractory cases. Both of our cases were non diabetic, HIV negative, not on any inhalational steroid therapy. The first case was initially managed as membranous laryngitis but fungal nature of the disease was considered when the patient did not respond to treatment. In the second case, the patient was diagnosed as a case of viral pharyngitis. The breach in mucosa may have given Candida a chance

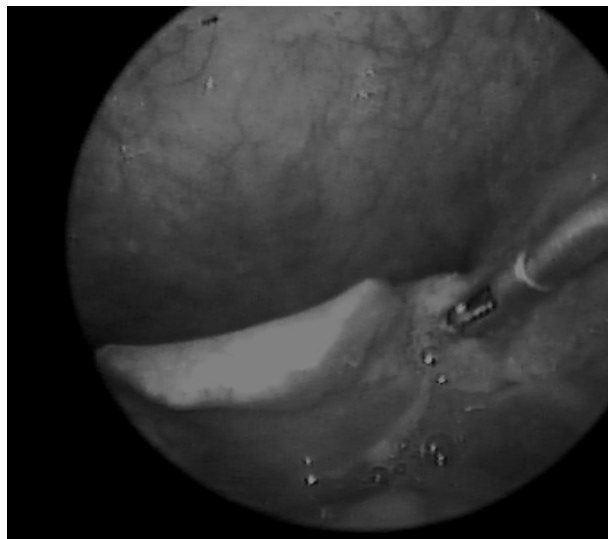


Figure 3 : Biopsy being taken from membrane on vallecula.

to overgrow as an opportunistic infection. Whenever hoarseness and dysphagia occur in patients receiving broad spectrum antibiotics and examination shows dirty grey membrane involving the larynx, a diagnosis of laryngeal Candidiasis must always be taken into consideration.

In these times of increasing use of steroids (oral and inhalers) and increasing incidence of immunodeficiency diseases, the clinician must be aware of Laryngeal Thrush and keep a wide index of suspicion. Early diagnosis and treatment is a must to prevent spread and systemic involvement.⁴

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Unusual Presentation of Tracheal Foreign Bodies Presentation of Three Rare Cases

Bharti Solanki

ABSTRACT: Foreign bodies in the air passages are challenging clinical problems among E.N.T. emergencies. Aspiration of foreign body in respiratory tract is a common and dangerous problem in childhood but is rare in adults. A report of three interesting cases in which diagnosis of foreign body in tracheobronchial tree was not suspected preoperatively and it was only after bronchoscopy.

Key Words: Foreign Body, Trachea.

INTRODUCTION: Accidentally inhaled foreign bodies lodged in the aerodigestive tract makes the commonest emergency in the E.N.T. Largely tracheal foreign bodies although less common than bronchial foreign bodies are potentially dangerous. Commonly seen foreign bodies are betel nut, peas, ground nut, metallic objects and needles etc. but one should always have a high degree of suspicion for atypical and unusual objects also. Normal X-ray and Barium swallow do not appear to raise the same intensity of suspicion of foreign body as with abnormal ones. When ever the diagnosis is unclear, patients must be posted for diagnostic endoscopy.

CASE REPORTS : Case I- A 4 months old female child was referred from pediatric department with the complaints of fever, cough and difficulty in breathing since 10 days and change in voice since 5 days. The child was diagnosed as a case of laryngeal diphtheria and was under treatment of pediatrician. Cough was non productive and irritating type. There was no history of foreign body inhalation. However parents were giving history of some kind of digital (finger) manipulation in oral cavity by local quack and only after that, the child developed change in voice. Since last 5 days the condition of child, worsened and so pediatrician referred the case to ENT department. Clinical examination revealed sternal and suprasternal indrawing. Air entry was equal both sides with added sound. Chest X-ray was normal (Fig. 1). Tracheal air

shadow was also found to be normal, only cry was brassy. In view of the provisional diagnosis patient was taken in theatre to remove the diphtheric membrane from vocal cords if any. To my surprise there was no membrane on vocal cords. Right vocal cord was found torn off and left was lacerated. There was no space in rimal chink due to oedema; A 0° tracheal endoscope was negotiated through rimal chink up to trachea. There was evidence of a metallic shine of foreign body in trachea then a 3 mm bronchoscope was negotiated and a foreign body was visualized and removed. It was a metallic coloured wrapper of Guttaka pouch of 2.5 cm length and 1.5mm width (Fig. 2). Respiratory distress completely disappeared immediately and voice restored gradually over a period of 5-7 days. Post operative recovery was uneventful.

CASE- II: A 13 years old female presented in ENT OPD with the complaints of acute onset of throat pain, vomiting, regurgitation for 1 day, with doubtful history of foreign body ingestion. There was no history of fever cough respiratory distress etc except a slight change in voice. Clinically oral cavity found to be normal. Indirect laryngoscopy was also normal. The plain X-ray of neck and chest and Barium swallow was normal (Fig. 3). Patient was admitted to the ENT ward and managed conservatively on IV line. After 24 hrs of admission she got relief from vomiting and started taking orally but the change in voice was persisting therefore patient was taken for direct laryngoscopy

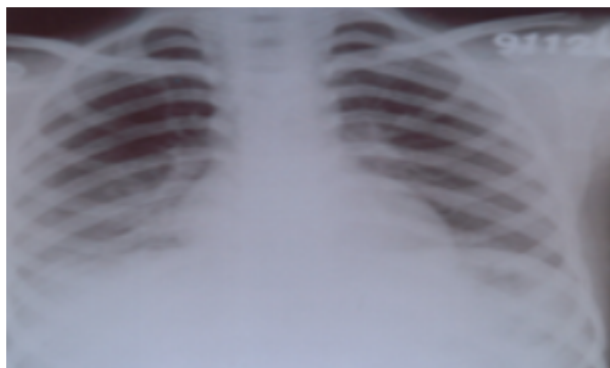


Figure 1: X-ray chest show normal air bronchogram CASE-1.

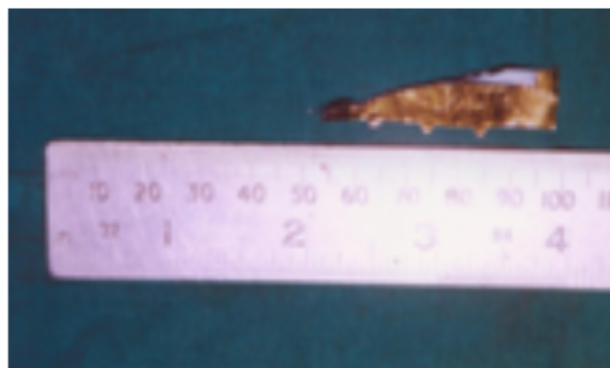


Figure 2: Foreign body (wrapper of guttuka pouch) CASE-1.

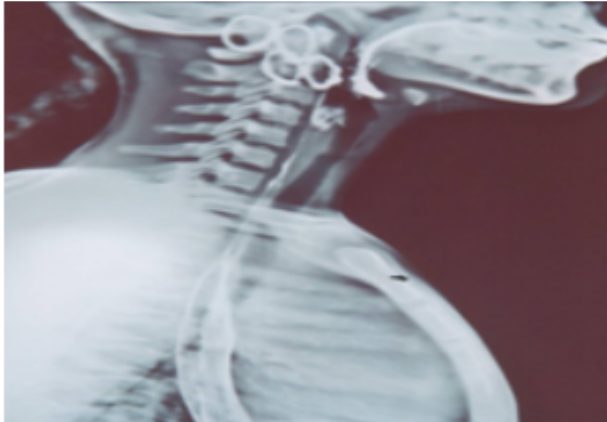


Figure 3: Barium swallow showing normal flow and normal laryngotracheal air shadow CASE-II.

under GA, which revealed normal supraglottic and glottic area with thick reddish Anterior commissure, simulating prolapsed mucosal fold- Palpation with suction catheter revealed it to be rim of F.B. a peanut forcep was inserted in between the wall and rim and gently pushed downwards and then brought out along with a plastic hollow tube of 3 cm length (a part of a whistle) which was snugly fitted in lumen of trachea underneath the subglottic region (Fig. 4). Post operatively recovery was uneventful and the voice became normal within 3 days.

CASE- III: A 7 years old female child was admitted in pediatric ward with the complain of fever and difficulty in breathing since 7 days for which she was managed medically. Patient became afebrile but her respiratory distress increased for which she was referred to the ENT OPD. Clinical examination revealed sternal and suprasternal indrawing. The voice and the IDL and plain chest x-ray was normal. Air entry equal on both sides with no added sound. There were no history of foreign body inhalation. Patient was taken for diagnostic direct laryngoscopy and bronchoscopy. Laryngoscopy was found to be normal. Bronchoscopy revealed something brownish in tracheal lumen, which was when brought out was a soft, rubbery 8 cm long cast (Fig. 5). which was a dried thickened secretion which took the shape of tracheobronchial tree. Post operative recovery was uneventful. Patient was transferred back to pediatric department on second post operative day for evaluation and to rule out other possible anomalies associated with bronchial cast.

DISCUSSION: There are numerous reports in the literature on foreign bodies with variable manifestations. The various forms of trachea-bronchial foreign bodies can give rise to the variable clinical presentations. Dysphasia and respiratory distress are often the presenting feature but diagnosis is often complicated by parental ignorance, lack of clear positive history and negative X-ray findings as evident in the above three cases. Foreign bodies in trachea can produce inspiratory or biphasic stidor. Prolonged wheeze in expiratory phase is also suggestive of



Figure 4: Foreign body (Part of whistle) CASE –II.

intrathoracic tracheal obstruction although it can be absent with smaller objects. In all three cases there was no history of foreign body inhalation and the radiological findings were normal. Since the patients were not responding well to medical treatment, there was a high degree of suspicion and a diagnostic endoscopy was performed which revealed the site and nature of foreign bodies. This case report highlights that in children with symptoms related to airway without positive history of foreign body and normal radiological findings and failed medical treatment, one should be vigilant enough and possess a high index of suspicion for tracheobronchial foreign body.



Figure 5: Foreign body (Tracheo Bronchial Cast) CASE –III

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EXCERPTA MEDICA (AMSTERDAM), IMEMR (INDEX MEDICUS FOR
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RECOGNISED BY PMDC & HIGHER EDUCATION COMMISSION, PAKISTAN.
ISSN # : 0257-4985

Pakistan Journal of Otolaryngology is published in April, August and December

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