

OTOLARYNGOLOGY

HEAD & NECK SURGERY

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Contents

Editorial

- NEW TRENDS IN THE FIELD OF MEDICAL EDUCATION: CHALLENGE AND DIRECTION FOR NEED OF BASIC REFORMS OF MEDICAL TRAINING IN PAKISTAN.** 1

Kalimullah Thahim
Karachi - Pakistan

Original Articles

- ETIOLOGY OF CHRONIC HEADACHE AND FACIAL PAIN IN PATIENTS REFERRED TO ENT CLINIC** 3
Shoaib Ahmed, Saadat Ullah Waleem, Nadeem Wazir Malik
Karachi - Pakistan
- COINS AS FOREIGN BODY IN THE ESOPHAGUS. CAN THIS EMERGENCY BE PREVENTED?** 6
Naeem Akhtar, Muhammad Javaid Shareef, Fiaz Hussain
Faisalabad - Pakistan

- COMPARISON OF LEVEL OF RECALL OF RISK INFORMATION FOLLOWING MAXILLOFACIAL TRAUMA AND ELECTIVE HEAD AND NECK SURGERY AFTER INFORMED CONSENT** 10
Faisal Hameed, Wahab Kadri, Muhammad Paras Naseem, Muhammad Yasir Nasir, Syed Mahmood Haider, Syed Mohammad Abdullah Salman
Karachi - Pakistan

- INCIDENCE OF TRACHEOSTOMY IN GUN SHOT TRAUMA VICTIMS** 15
Manzoor Ahmed, Kamran Ashfaq, Iqbal Hussain Udaipurwala, Maryam Khan, Muhammad Ashfaq
Karachi - Pakistan

- THE ROLE OF ULTRASOUND GUIDED FINE NEEDLE ASPIRATION CYTOLOGY IN THE MANAGEMENT OF PAROTID TUMORS** 18
Noor Alam Ansari, Iqbal A. Muhammad Khyani, Munir Ahmed Baloch, Muhammad Shuja Farrukh, Ghazanfar Zaidi
Nawabshah - Pakistan

Case Reports

- AN UNSUAL CASE OF SUPRASTERNAL EPIDERMOID CYST** 21
Tooba Noor, Atif Hafeez Siddiqui, Iqbal A. Muhammad Khyani, Zeba Ahmed, M. Umar Farooq
Karachi - Pakistan

- SUPRAGLOTTIC LARYNGEAL PARANGLIOMA: A RARE CLINICAL ENTITY MANAGED BY LATERAL PHARYNGOTOMY APPROACH** 24
Sudhir M. Naik, Ashok Shenoy, Purshottam Chavan, Akshay S, Sumit Gupta
Bangalore - India

- MALIGNANT SOLITARY FIBROUS TUMOR OF THE NASAL CAVITY AND PARANASAL SINUSES** 27
Anurag, Shankar Shah, B. Pradhan, N M Thapa
Kathmandu - Nepal

Event Reports

- WORKSHOP ON COCHLEAR IMPLANT** 29
Dr. Zeba Ahmed
Karachi - Pakistan

New Trends in the Field of Medical Education: Challenge and Direction for Need of Basic Reforms of Medical Training In Pakistan.

Kalimullah Thahim

Considering the flurry of activities in the field of Medical education, a bright future is envisaged. It has become obvious along with many things in life; Medical Education has not become static. However the change in the approach to teaching and learning is not easy as we do face resistance for change from senior faculty members and the experience that we have as trainers and trainees. The loyalty of the past will certainly not hinder in sharing the joy and satisfaction of the future trends and excitement ahead. The new trends have already brought comfort, challenge and innovation, where thinking and understanding is brought about in place of rote learning. The story is not new as we consider, back in 1913, Sir William Osler commented "We have outrun an educational system framed in simpler days and for simpler conditions. The pressure comes hard enough upon teachers but far harder upon the taught who suffer in a hundred different ways". Change in the field of Medical Education since then has become inevitable. In 1930, an average Physician could enter into independent medical practice after 1-2 year of training. Today an average Physician has to complete at least 5 to 6 years of medical training and yet another 6 to 8 years in postgraduate course to complete specialized training¹. In Pakistan, most of the Medical Colleges, particularly the private Medical Colleges do not provide the right kind of quality and quantity and experience to cater to the need of educational activities. Our principal task is "patient Care"..

The evidence based medicine refers to a condition where problems are faced by practitioners/postgraduate (PG) students, in dealing with a problem in making a diagnosis or the clinical context of a patient. It provides the literature search to identify the evidence available on the clinical condition. The problem is critically evaluated, and determine the "Best Evidence" to diagnose/treat/manage the patient. The key element in this cycle is the ability of the clinician to search and retrieve the literature pertaining to the clinical condition that needs to be resolved in the shortest time possible. The recent Journals provide best solution². The electronic information sources assume significance in this context by providing rapid access. Among the resources that are available electronically online are medical databases. These include free for subscription databases like Medline as well as subscription databases that provide medical literature in full text format. Further, most of the reputed medical journals as well as textbooks that are recommended by the Medical Council of Pakistan for PG courses are now being made available in electronic version online through the Internet.. Yet critical thinking and problem solving skill is mandatory in the context of EBM³.

Student Assessment is recent activity in medical science, in which the teacher and the students are involved. The stake is high and is directly related to quality assurance and accreditation of the program. The system works like a loop, the teacher and student provide feedback to each other. In this context the major responsibility lies on the shoulder of teacher to assess the students, recognize the basic principle of assessment, the advantages and disadvantages of various assessments. To underpin the reliability and validity of assessment, primarily stress upon self assessment, assessment of knowledge, skill and attitude⁴.

Self-Directed Learning (SDL) is basic responsibility of the student to learn and identify the needs for learning, initiate the learning process, the learning objectives and determine the learning strategies. Individual assess, manage and takes his (her) own responsibility to manage without the help of teacher. Four step processes is needed. Being ready to learn: requires time for analyzing current situation, study habits. Family situation and support network at school and home. Setting learning Goals: would need a time line for each activity, structure and sequence of activity, and a feedback from advising faculty for evaluation of each goal. Student need to understand their approach to studying. The key to SDL is

concerned with principle of adult learning⁵. The approaches may be deep approach, surface approach or strategic approach.

Problem-Based-Approach (PBL) is an instructional method that challenges the learner to “learn to learn”. They have to learn and work in a group to solve the problem⁶. Problem-based-learning support many theories such as information processing theory, cooperative learning theory, self determination theory and control theory. Information aspect comprises of prior knowledge activation and elaboration of knowledge⁷. The major benefits of PBL include, problem solving, self directed learning, lifelong learning, resources identification and evaluation, critical reasoning, creative thinking, transfer of learning in real life situation, group leadership and communication and identification of own strength.

Faculty Development (FD) is most important aspect of new trends in Medical Education. It is a system of educating the teaching faculty the science of Medical Education to improve their teaching skill. FD basically meant to enhance the process of education rather than content expert. In Pakistan training should be provided in variety of subjects relevant to the need of Doctor. Apart from clinical competencies students must develop generic competencies, which include communication skills, interpersonal skills, problem solving ability and decision-making ability along with organization skills.

Community Oriented Medical Education. (COME) mainly focuses on population groups and individual persons in community and take health care into need. COME should encompass health promotion, illness prevention and awareness of environmental and social factors in disease⁸. Continuing Professional Development (CPD) emphasizes upon the responsibility beyond their personal development with additional responsibility towards the society. This encompasses more on the quality of education and discipline activity⁹.

Integrated system of Medical Education emphasizes upon integration of teaching program occurs in two different ways- multiprofessional and multidisciplinary¹⁰. In multiprofessional education students of different profession such as medicine dentistry are taught together, while in multidisciplinary education the course may integrate horizontally where the relevant topics are taught together.

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SWALLOWING DISORDERS: FORM COMPENSATION TO RECOVERY, PRECONGRESS COURSE: NEW APPROACHES TO NEUROGENIC DYSPHAGIA

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Etiology of Chronic Headache and Facial Pain in Patients Referred to ENT Clinic

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ABSTRACT: *OBJECTIVE:* The study aimed to evaluate the underlying etiology of patients presenting to an ENT clinic with chronic headache and facial pain in a district level hospital. *STUDY DESIGN:* Retrospective study. *PLACE & DURATION OF STUDY:* This study was carried out at Sharourah Armed Forces Hospital, Saudi Arabia during last 5 years till June 2013. *METHOD:* This study evaluated medical record of patients presenting to the ENT clinic over the past five years with complaints of chronic headache and facial pain (> 02 weeks duration). *RESULTS:* Most of the causes of facial pain were found to be non sinogenic. Tension type headache was found to be the most common cause followed by migraine. *CONCLUSION:* Though the causes of chronic headache and facial pain are many, and a multidisciplinary approach is required in most of the cases to reach the correct diagnosis, nonsinogenic causes should be considered prior to jumping to the probable sinogenic cause, especially in the absence of chronic rhinological symptoms.

Key Words : Headache; Tension headache; Sinusitis; Migraine; Facial pain.

INTRODUCTION : Headache and facial pain are very common complaints in the emergency and the primary health clinics. It has been said that the life time prevalence of headache is more than 90%. There are numerous etiologies of headache and International Headache Society (IHS) has compiled a long list of pathologies that can be the cause of headache. Though headache can be a symptom of a variety of non-sinogenic diseases and syndromes, the common patient and clinician attribute most of the headaches to the sinus pathology and therefore most of the patients with headaches and facial pains are referred to an ENT clinic. Keeping in view the number of patients being referred to our ENT clinic with diagnosis of headache a need was felt to look into the etiology of headache presenting to our ENT clinic over the past 5 years.

MATERIALS AND METHODS : The retrospective study was carried out at Sharourah Armed Forces Hospital Sharourah, Saudi Arabia in June 2013. Medical record of patients presenting to the ENT clinic over the past five years were collected and examined. All those patients referred to ENT clinic with a primary diagnosis of headache of more than 2 weeks duration were included in the study. Patients with a diagnosis of recent onset headache of 2 week duration were excluded from the study. Patients with a diagnosis of recent onset headache of less than 2 week duration were excluded from the study. Patients with an obvious cause of headache (uncontrolled hypertension, drug related, acute upper respiratory tract infection, head or facial trauma, previous psychiatric history, associated history of recent fever) were excluded. Patients having any neurological signs were also excluded. A total of 233 patients were found eligible to be included in the study. Medical records were

scrutinized in detail from detailed history through the investigations to the final diagnosis and data was collected. Keeping in view the multidisciplinary requirement to reach the final correct diagnosis, medical record from other specialities (Ophthalmology, Psychiatry, Internal Medicine, Neurology) was also scrutinized when deemed necessary. The data was fed into computer software: SPSS v 17 and analyzed.

RESULTS : Out of a total of 233 patients presenting to our clinic with headache 151 were found to be females and 82 to be males with male to female ratio of 1:1.8. The most common cause of headache was found to be a tension type headache followed by migraine as the second most common cause. The results are shown in table no 1. Only 2.57% of all the patients referred to the ENT Specialist were actually found to be of rhinogenic or sinogenic in origin whereas most of the headache was due to stress related problems and belonged to the speciality of psychiatry. The top of the list diagnosis of headache in females was stress related headache followed by migraine. Neuralgias were found to be the least common etiology.

DISCUSSION : Patient referral to an ENT clinic on pretext of a sinus cause is quite common. Sinus headache' is a term used by many patients and primary-care physicians, however, contrary to popular belief, sinus headaches are quite uncommon^{1,2}. Though acute sinusitis can be the cause of an acute short lasting headache, chronic sinusitis has not been identified as a major cause of chronic headaches³. According to the International Headache Society (IHC) classification chronic sinusitis is not validated as a cause of headache and facial pain unless presenting as acute pain⁴. Overall, chronic headache is rarely attributed to be of sinonasal origin. In only few of the patients presenting with chronic headache a rhinogenic

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cause can be found. In the present study only six patients (2.57%) were identified whose headache was sinonasal in origin (marked by nasal obstruction). They all responded very well to surgical intervention. It is now well established that in the absence of any nasal signs and symptoms chronic headache and facial pain are unlikely to be of rhinogenic in origin and will therefore not be helped by surgical intervention in sinonasal area⁵. In the present study the most common cause of headache was tension type headache (TTH) (57.9%). It was twice as common in females as compared to males. This is consistent with other studies where its prevalence has been 30 – 78% in the general population. TTH is often described as pressing or tightening (non-pulsating) in quality, can be persistent or episodic and may lead to restriction of social activities⁶. They are not aggravated with physical activity and nausea and vomiting are infrequent. These patients respond favourably to low dose benzodiazepines or amitriptyline once daily in a short course spanning several weeks. Abortive medications include aspirin, acetaminophen, aspirin-caffeine-butalbital or phenacetin combinations or short half-life non-steroidal anti-inflammatory medications (NSAIDs). Referral to a psychiatrist is often beneficial and as underlying stress disorders may be the precipitating cause. The second most common cause of headache in our study was migraine (21.03%). This too is consistent with other studies where migraine was found to be the primary etiology of headache in upto 17% of females and 6% of males^{1,6}. Moreover, Schreiber et al suggest 88% of the patients presenting with a physician diagnosed or self diagnosed sinus headache were found to have migraine type headache. Migraine has been found to be three times more common in females as compared to males, which is also the case in this study. It has typically been described by the IHS as a recurrent headache disorder presenting as attacks lasting 4-72 hours. Typical features of migrainous headache are unilaterality, pulsating character, moderate to severe intensity and associated with nausea and/or photophobia and phonophobia⁴. Treatment is aimed at aborting the acute attacks with a 5-hydroxytryptamine receptor agonists and treating the acute attack with prochlorperazine, chlorpromazine and analgesics. Patients experiencing two or more attacks each month can be offered a range of prophylactic treatment. A variety of drugs have been suggested. These include amitriptyline, nortriptyline, doxepin, trazodone, imipramine, desipramine, beta blockers and calcium channel blockers. Despite the availability of numerous treatment options the treatment of migraine can be very frustrating for the patient as well as the treating physician. The third most common cause of headache found in this study was temporomandibular joint (TMJ) dysfunction (8.1%, cases). Areas of tenderness included TMJ, superficial masticatory muscles and

S.No.	Etiology of headache	Number of patients	Males	Females	%
1.	Tension type headache	135	45	90	57.9 %
2.	Migraine	49	10	39	21 %
3.	TMJ / Dental disorders	19	12	7	8.1 %
4.	Cervical pain	15	7	8	6.4%
5.	Atypical facial pain /Headache	7	3	4	3 %
6.	Rhinogenic / Sinonasal	6	4	2	2.57 %
7.	Cluster Headache	1	1	-	0.42 %
8.	Neuralgias	1	1	-	0.42 %

Table-1 : Etiology of chronic headache (n=233).

pterygomandibular raphe. Schiffman et al⁸ have also described a similar proportion of TMJ and related disorders presented as chronic headache. The fourth common cause of headache in this study, particularly occipital headache was found to be cervicogenic in origin (6.43%, cases). In these patients the pain was diffuse, more marked in the occipital region or vertex, occasionally radiating to the orbits. A feeling of pressure on the nape of neck which worsened with neck movements was seen in most patients. All patients demonstrated variable spondylitic changes on X-rays of cervical spine. A favorable response to conservative treatment offered by spinal surgeon and rehabilitation department was noted. Cervicogenic causes have been documented as etiological factors in chronic headache⁷ and have been classified by ICHD-II as secondary headaches.

All patients in this study were referred with the presumptive diagnosis of headache of sinonasal origin. However, on detailed clinical evaluation, only few patients had sinonasal symptoms and even fewer had a clear diagnosis of sinonasal pathology, hence the 6 patients (2.57%) who benefitted from surgical intervention. This clinical observation has been clearly supported in other studies^{10,11}. Cluster headache and neuralgias have been reported as rare though significant cause of headache and this was the same seen in our study where we could find only one patient each of cluster headache and trigeminal neuralgias out of a total of 233. There were only 7 patients who did not fall into any clear diagnosis and were labeled as atypical facial pain based upon a diagnosis of exclusion. According to IHS criteria, atypical facial pain is likely when the pain occurs daily and persists for much of the day and clinical features do not fall into those of cranial neuralgias or other well established disorders. No cause could be identified in any of the recent studies on the subject^{4,11,12}. **CONCLUSION** : Chronic headache is one of the most common conditions with a very high life time prevalence in the community. The differential diagnosis is large and diverse involving a host of anatomical structures, local pathologies, systemic conditions often aggravated by psychologic factors. Contrary to general perception, non sinogenic causes constitute the vast majority of causes. Often, there is an overlap in clinical presentation among diverse sinogenic and non

sinogenic pathologies, often leading to diagnostic difficulties. However, a careful history and examination with appropriate referral to neurologists, ophthalmologists, maxillo-facial surgeons and psychiatrists generally leads to a confident diagnosis and treatment.

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Coins As Foreign Body In The Esophagus. Can This Emergency Be Prevented?

Naeem Akhtar, Muhammad Javaid Shareef, Fiaz Hussain

ABSTRACT: *OBJECTIVE:* Assessment of attitude of the parents towards coins given to their children and causing an unexpected emergency situation. *DESIGN:* A survey based on questionnaire was performed among the parents of the children admitted in the department of ENT and head & neck surgery having coins impacted in their esophagus. *PLACE AND DURATION OF STUDY:* This study was conducted in the department of ENT and Head & Neck surgery, Allied Hospital, Faisalabad over a period of one year from March 2013 to February 2014. *SUBJECTS AND METHODS:* Parents of 100 children who were admitted in the ENT ward were interviewed using a questionnaire proforma. The parents were enquired especially about their knowledge regarding the coins as a foreign body in esophagus of their children causing an unexpected emergency. SPSS computer software was used and Chi square test was applied to analyse the data. *INCLUSION CRITERIA:* Children with clear cut history of ingestion of coin, belonging to either sex and ranging from 06 months to 10 years of age were included in the study. *EXCLUSION CRITERIA:* Children having history of ingestion of foreign body other than coin, history of foreign body in airways and having age above 10 years were excluded from the study. *RESULTS:* In this study we found that 57 patients (57%) were male and 43 patients (43%) were female. 82 patients (82%) were having age less than 8 years while 18 patients (18%) were having age > 8 years. 68 patients (68%) belonged to rural areas while 32% patients belonged to urban population. 51% of the parents were illiterate, 15% were primary pass, 07% under matric, 22% matric pass and only 05% parents were graduate. 65% parents had income less than 10,000 rupees per month, 21% were earning 10-15 thousands rupees per month, 09% had 16-20 thousands rupees per month and 05% of the parents had income more than 20,000 rupees per month. 76% patients reported on the same day of ingestion of coin through emergency. 23 patients presented after 1-3 days of ingestion while one patient was brought on 12th day of ingestion. 76 patients (76%) were operated on the day of admission as emergency cases while 24 patients (24%) were operated on the routine operation list. Most of the parents (58%) were anxious and much worried about the incidence. 32% parents were ashamed while 10% parents were not bothered on the event. Most of the parents pointed out risk factors as easy availability of coins (76%), easy access of coins for children (58%), lack of knowledge of the parents about the risk of coin as a foreign body in the esophagus (84%) and bad habit of children to put everything in the mouth (45%). Different suggestions proposed by the parents were restriction of coins for children (67%) and education of the children regarding danger of coin as foreign body in esophagus (30%). 03% of the parents suggest nothing. In order to prevent this emergency the parents recommended that the government should ban these coins (88%). They also suggested the role of press and newspapers (60%) and the role of television and radio (74%). The parents also stressed upon the role of health workers to educate the people regarding prevention of this emergency (90%). *CONCLUSION:* Most of the parents are illiterate and unaware of the risk that the coin can become a foreign body in the esophagus of their children. The parents can be educated and provided awareness via different modes of media such as press, T.V., radio and a campaign by health workers. This may prove helpful in reducing the incidence of this emergency to negligible level.

Key Words : Foreign body oesophagus, Coins, Parents, Literacy rate, Public awareness.

INTRODUCTION : Foreign body ingestion is a commonly encountered problem in both children and adults in emergency department^{1,2}. Foreign body in the esophagus causes mechanical obstruction and has the potential to cause serious complications, apart from significant distress to the patient and his family. There is a long list of foreign bodies which can cause dysphagia if impacted in the esophagus e.g. coins, food bolus, bone piece, ear rings, dentures and batteries etc. Foreign bodies in the esophagus in children are usually held up at the upper end of esophagus and to a lesser extent at other anatomical narrowings of esophagus. Early diagnosis and management is necessary because foreign body if stays longer may cause dangerous complications such as stricture formation, esophageal perforation and mediastinitis. In this way they become a risk factor to

increase the morbidity and mortality of the patient which can be prevented if diagnosed early and managed properly. The most commonly ingested foreign body by the children is a coin^{3,4,5,7} and the esophagus is the second most common site of impaction while the commonest site of impaction being the upper end of esophagus. Coin as a foreign body in the esophagus in children forms 4.2% of all the admission cases⁶. In this study we have emphasized on the attitude of the parents towards the coin as a foreign body impacted in the esophagus. We can prevent this commonly occurring emergency by improving health education among the public through press, T.V. and radio.

MATERIALS AND METHODS : This study consisted of 100 patients who presented with history of coin ingestion in the department of ENT, head & neck surgery,

Allied Hospital, Faisalabad over a period of one year from March 2013 to February 2014. All the parents of the children who were admitted in ENT ward were interviewed in details by using a questionnaire proforma. The questionnaire proforma included: Name, age, sex, address and contact number, presenting complaints with their duration and nature of the foreign body ingested by the patient. All the parents were enquired in details regarding their knowledge about the coins ingested by their children and their attitude was analysed towards this emergency situation. All the parents were also interviewed about their: educational status, socio-economic condition, different proposals and commitment for prevention of this incident.

The patients having a clear cut history of ingestion of coin and belonging to either sex and ranging from 06 months to 10 years of age were included in the study. The patients with history of ingestion of foreign body other than coin, children with history of foreign body in airways and having age above 10 years were excluded from the study. All the patients were thoroughly investigated regarding history, detailed physical examination of all the children performed and relative investigations done especially radiological ones. All the patients underwent endoscopic removal of the coins under general anesthesia. Coins were retrieved successfully from all the patients without any complication. All the data was analysed by using SPSS software. Chi square test was applied to analyse the data. P values less than 0.05 were considered statistically significant.

RESULTS : In this study we found that 57% patients were male and 43% patients were female (Fig.1). 82% patients had age less than 08 years while 18% of the patients had age ranging from 08 to 10 years (Fig.2). The age of the youngest patient was 06 months and that of oldest patient was 10 years. The mean age of the patients was 05.25 years. 68% of the total patients were rural dwellers while 32% patients belong to urban population (Fig.3). 51% of the parents were totally illiterate, 15% of the parents received education up to primary class, 07% were under matric, 22% parents got education up to matric and only 05% were graduate (Table.1). As far as the socioeconomic condition of the patients is concerned the majority of the parents (65%) had monthly income less than 10,000 rupees. 21% had 10 to 15 thousands rupees per month, 09% had 16 to 20 thousands rupees per month and only 05% parents had income more than 20 thousands rupees per month (Table.2). 76 children (76%) were brought by their parents to the emergency department on the day of ingestion of the coin, 14% patients reported after one day, 06% after two days, 03 % after 03 days while one patient (01%) visited ENT out door after 12th day of ingestion of coin. 76% of patients were operated on the day of admission as emergency cases while the remaining 24% patients were operated on the routine operation list. Most of the parents (58%) were anxious and much worried about the incidence. 32% parents were ashamed while 10% parents were not bothered on the event. Enquiry from the parents showed the risk factors responsible for this emergency situation e.g., they were unaware of the risk that the coins can become a foreign

body in the esophagus (84%), easy availability of coins to the children (76%) and 45% children had bad habit of putting everything in their mouth (Table.3). Different suggestions proposed by the parents were restriction of coins for children (67%) and education of the children regarding danger of coin as foreign body in esophagus (30%). 03% of the parents suggest nothing. In order to prevent this emergency the parents recommended that the government should impose ban on these coins (88%). They also suggested the role of press and newspapers (60%), the role of television and radio (74%) and printing upon the coin as danger sign (35%). Finally 90% of the parents stressed upon the role of health workers to educate the people regarding prevention of this emergency (Table.4).

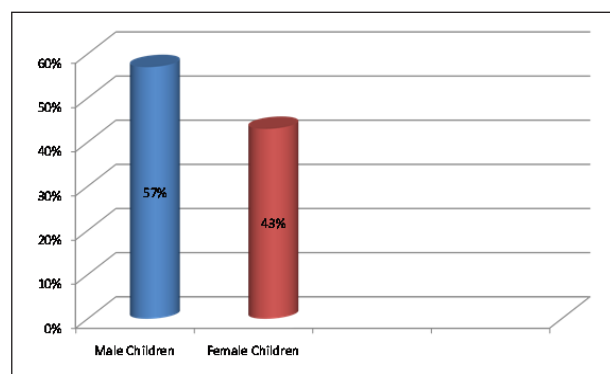


Figure 1 : Gender Distribution.

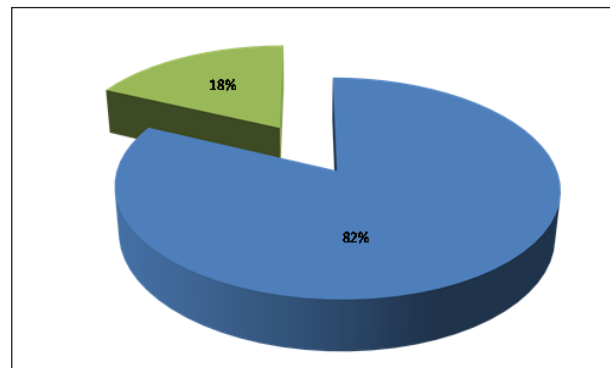


Figure 2 : Age Distribution; Age < 8 years= 82%, Age 8-10 years= 18%.

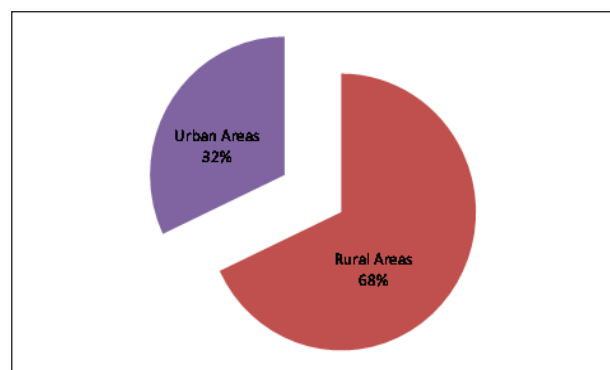


Figure 3 : Rural versus Urban Distribution.

Serial Number	Educational Status of Parents	No. of Parents	Percentage
1	Illiterate	51	51%
2	Primary class	15	15%
3	Under matric	07	07%
4	Matric	22	22%
5	Graduate	05	05%

Table-1 : Educational Status of the Patents.

Serial Number	Income per month	No. of Parents	Percentage
1	Rupees < 10,000	65	65%
2	Rupees 10,000-15,000	21	21%
3	Rupees 16,000-20,000	09	09%
4	Rupees > 20,000	05	05%

Table-2 : Socio-economic condition of the parents.

Serial Number	Risk Factor	No. of Parents	Percentage
1	Unawareness	84	84%
2	Easy availability of coins	76	76%
3	Habit of putting coins into the mouth	45	45%

Table-3 : Risk factors for foreign body esophagus in children.

Serial Number	Suggestions by the parents	No. of Parents	Percentage
1	Ban on coin	88	88%
2	Public information through print media & electronic media	60	60%
3	Advertisement on radio, television & newspaper	74	74%
4	Printing upon the coins as danger sign	35	35%
5	Health education of the public by health workers	90	90%

Table-4 : Suggestions by the parents regarding prevention of coin ingestion.

DISCUSSION : Foreign body ingestion is a commonly encountered problem in both children and adults in emergency department^{1,2}. Foreign body in the esophagus causes mechanical obstruction and has the potential to cause serious complications, apart from significant distress to the patient and their family. There is a long list of foreign bodies which can cause dysphagia if impacted in the esophagus e.g. coins, food bolus, bone piece, ear rings, dentures and batteries etc. Foreign bodies in the esophagus in children are usually held up at the upper end of esophagus and to a lesser extent at other anatomical narrowings of esophagus. Early diagnosis and management is mandatory because foreign body if stays longer may cause dangerous complications such as stricture formation, esophageal perforation and mediastinitis. In this way they become a risk factor to increase the morbidity and mortality of the patient which can be prevented if diagnosed early and managed properly.

The most commonly ingested foreign body by the children is a coin^{3,4,5,7} and the esophagus is the second most common site while the commonest site of impaction being the upper end of esophagus. Coin as a foreign body in the esophagus forms 4.2% of all the admission cases⁶. The site of impaction of coin in the esophagus depends upon certain factors e.g., age of the patient, type of foreign body and duration of ingestion, as well as certain individual pathological lesions of the esophagus itself

such as stricture, stenosis and fistula etc^{3,8}. Overall 28-68% of gastrointestinal foreign bodies are found in the esophagus⁹. The most frequent site of coin impaction in children is at the level of cricopharynx which is the narrowest part of the esophagus. As most of the cases of coin impaction in esophagus involve the children^{3,10}. Therefore the overall commonest site of coin lodgement in the esophagus is its upper third¹¹. Different foreign bodies have been described in different studies. It observed in their studies that coin (65.3%) was the commonest foreign body occurring mainly in the pediatric age group^{5,12-3}. Patients having esophageal foreign bodies require prompt diagnosis and treatment¹². This is crucial because delay in diagnosis and treatment may lead to severe complications. Radiological evaluation of the esophageal foreign bodies is needed in both symptomatic and asymptomatic patients. Coin ingestions witnessed are generally managed well without any problem. However non-witnessed coin ingestions often can pose problems. This may result in difficult and delayed diagnosis ultimately leading to severe morbidity and mortality¹⁴⁻¹⁶. Majority of the patients in our study who ingested coin were below 08 years of age (82%) which is consistent with other studies. In a study 60% of the patients were less than 10 years of age¹⁷. Rigid esophagoscopy and forceps removal is the traditional and oldest method for removal of the foreign bodies in the esophagus including coins. In our study all cases of coins (100%) in the esophagus were removed by this method with no gross complications. In the studies foreign bodies were successfully removed by esophagoscopy without any complication in 90.8% of the cases^{12,18}. In certain situations other methods may be tried to remove the coins from esophagus e.g., removal of the coin by using a laproscopic cautery hook¹⁹, by using magnet tube²⁰ and by balloon extraction²¹. According to a study conducted the complication rate can be reduced if esophagoscopy and removal of the foreign body is performed within 24 hours²². We operated 76 patients within 24 hours as emergency cases and no complication was observed after removal of the coin by rigid esophagoscopy.

CONCLUSION : It is very important that the parents of the children should realized about their attitude towards coins as a foreign body in the esophagus. This is only possible through health education among the public which unfortunately is lacking. The emergency presentation of coin ingestion in children can be prevented if the parents are provided with proper health education by different means such as press, T.V., radio and health workers. In this way they may be able to play their role to prevent coin ingestion in children which will ultimately reduce the morbidity and mortality.

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Comparison of Level of Recall of Risk Information Following Maxillofacial Trauma and Elective Head and Neck Surgery After Informed Consent

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 Muhammad Yasir Nasir, *Syed Mahmood Haider,
 *****Syed Mohammad Abdullah Salman,

ABSTRACT: Head and Neck is a complex region of Human body, Most patients are conscious of their aesthetic as well as functional concerns related to their facial zone (head and Neck). Misunderstandings about consent requirements and goals, differing legal standards for informed consent disclosure, and the time pressures and competing demands of Surgery may also hinder the informed consent process. **OBJECTIVE:** This study aimed to observe the level of recall of information given in informed consent to patients undergoing major Oral, Maxillofacial and Head and Neck surgery, and whether the level of recall was the same for patients with Maxillofacial trauma as for patients undergoing elective Maxillofacial and Head and Neck surgery. In addition, this study seeks to formulate recommendations in the light of this information. **MATERIAL AND METHODS:** 116 patients were evaluated at oral and maxillofacial surgery department of three different centers between October 2013 and May 2014. verbal information regarding the diagnosis, recommended treatment, other treatment choices, and potential complications specific to the surgery were given to patient and then detailed informed consent were signed by patient in the presence of his relatives. All patients included in the study were over 18 years of age. At 1-3 days postoperatively, the other author interviewed the patients which lasted approximately 10 min included open ended questions. In each area, the patient's knowledge was sorted into three levels: no knowledge, insufficient knowledge, and full knowledge. A statistical comparison was made between elective Maxillofacial surgery patients and trauma patients with regard to the rates of recall of the information given to patients in informed consent, and the effect of educational level, age, and gender on recall of that information. **RESULTS:** We evaluated total 162 patients, out of which 68 patients were trauma patients while 48 were elective patients. 16 were illiterate 18 gone to primary school, 39 have secondary education, 14 got higher school certificate, 18 have graduation and 11 have post-graduation. Post operatively recall evaluation revealed that 91 patients have complete knowledge while 17 patients have insufficient knowledge and 8 patients have no knowledge related to diagnosis. Operation details are 52 patients (44.8%) know their nature of surgery, 40 patients (34.5%) have incomplete or insufficient knowledge of their surgery while 24 patients (20.7%) do not know about their surgery. Regarding possible complication of surgery 9 patients (7.8%) had full knowledge, 40 patients (34.5%) had insufficient knowledge, and 67 patients (57.8%) had no knowledge. The consent form had been read by 26 maxillofacial Trauma Patients (38.23%) while 25 elective surgery patients (52.08%) were read the form. 40 out of 51 patients (78.43%) understood and the constant form ($p < 0.01$). Compared with the patients who underwent elective surgery, there were more patients in the trauma group who had no recollection of potential complications ($p < 0.01$). **Conclusion:** Maxillofacial specialists to be able to overcome legal problems that may arise in the future, it is necessary to spend sufficient time on the process of informed consent and to establish good communication with the patient. Considering that some of the information given to the patient will be forgotten after a time, informed consent process should include signed documentation.

Key Words : Medical ethics, Informed consent, Recall, Maxillofacial Trauma, Head and Neck Surgery.

INTRODUCTION : Head and Neck is a complex region of Human body, Most patients are very conscious of the aesthetic and functional outcome of their surgical procedures. The management of patient including initial history to surgical procedures or treatment plans; all is performed only after a series of thorough decisions and discussions¹. For diagnosis, the consultant makes the major decisions. It is evident that surgeon or physician is the one who decides or selects the appropriate procedure, but the patient's autonomy cannot be compromised² so that the informed consent comes in as an ethical and legal requirement before proceeding with

any invasive clinical procedures³. Informed consent supports the principle of respect for autonomy, which is one of the fundamental principles of medical ethics⁴. Informed Consent is defined as the "process of communication between a patient and physician that results in the patient's authorization or agreement to undergo a specific medical intervention,"⁵ valid informed consent requires patient's understanding of the proposed intervention, including potential risks, benefits, and alternatives⁶. Failure to obtain adequate informed consent compromises patient autonomy⁷⁻⁸, places patient safety at risk^{9,10,11} and legally may constitute carelessness

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or negligence¹²⁻¹³. Despite its critical importance to the provision of safe, high-quality, patient-centered health care, the process of informed¹⁴⁻¹⁵ consent in clinical practice is frequently inadequate and prior research has demonstrated that patient comprehension of the key elements of clinical informed consent is often poor¹⁶⁻¹⁷. Surgeons receive little training in how to conduct informed consent discussions¹⁸, Differing legal standards for informed consent disclosure⁸, the time pressures and competing demands of Surgery may also hinder the informed consent process. Many consent forms do not contain the key elements of informed consent¹⁹ or are written in a language too complex for many patients to understand²⁰⁻²². Patients who do not speak Urdu or have limited literacy are at increased risk for poor comprehension²³. Informed consent is based on the subjective assumption that the patient will understand and remember information provided preoperatively; however, the level of understanding and recall of information derived from the procedure of informed consent may be different for patients being treated for trauma⁹. Such patients are different in regard to decision making as they are not prepared previously to make decision regarding the operation when it is performed under emergency or within a few days of the event. In contrast to patients undergoing elective Maxillofacial or Head and Neck surgery participate in a preoperative decision-making process. The process of informed consent has a considerable effect on the decision-making of the patient regarding the operation. When the patient has insufficient recall postoperatively, legal complications may arise, especially in cases in which there is a question of malpractice⁹. This study aims to observe the level of recall of information given in informed consent to patients undergoing major Oral, Maxillofacial surgery, and whether the level of recall is same for patients with Maxillofacial trauma and for patients undergoing elective Maxillofacial surgery. In addition, this study seeks to formulate recommendations in the light of this information.

MATERIALS AND METHODS : This prospective study comprised a total of 116 consecutive patients (37 women, 79 men; mean age 38.90 ± 14.91 years, range 18-75 years) who underwent Oral, Maxillofacial, Head and Neck surgery at Department of Oral and Maxillofacial Surgery of three different Hospital namely Abbassi Shaheed Hospital Karachi (ASH), Civil Hospital Karachi (CHK) and National Institute of Oral Diseases Karachi (NIOD) between October 2013 and May 2014. Initially Patients were given verbal information regarding the diagnosis, recommended treatment, other treatment choices, and potential complications specific to the surgery. Simple Urdu language was used to enable the patients to understand the explanations. The patients' questions were answered. Later, patients were given the detailed written consent form, which contained the same information under the same headings, and were asked to read and sign it with a witness. While explaining the potential complications, issues that could affect the patient's decision were listed under seven or eight headings of equal importance. The Oral, Maxillofacial, Head and Neck conditions and risks pertaining to surgery were explained to the patient and the relative. Potential

complications for trauma patients were delayed or nonunion of a fracture, mal-union, infection, failure of implant, nerve damage, and wound healing problems. Potential complications of elective Maxillofacial, Head and Neck surgery were infection, swelling, implant wear, wound healing problems, recurrence, lack of relief from pain (or increased pain), and Limited Mouth Opening and loss of function. All patients included in the study were over 18 years of age, hospitalized for surgery, and accepted surgical treatment. Patients excluded from the study were those who were having revision surgery for the same problem, those who could not give consent due to trauma or confusion, and those who were suffering from dementia. There were no health professionals among the patients. At 1-3 days postoperatively, the other author interviewed the patients to measure what the patients had understood from the informed consent, a questionnaire was prepared in accordance to the consent form, and was completed by the author in a postoperative interview with the patient, which lasted approximately 10 min. The form included open ended questions to ascertain the patient's knowledge regarding the diagnosis, surgery being performed, and complications specific to the disease. In each area, the patient's knowledge was sorted into three levels: no knowledge, insufficient knowledge, and full knowledge. When evaluating specific complications, to be able to standardize the level of recall, if a patient could cite three or more major complications, knowledge was evaluated as "full", one or two complications "insufficient", and no recall of complications, "no knowledge". Demographic and clinical data of the patients recorded were age, gender, educational level, literacy, and type of surgery. The patients were questioned as to whether they had read the form, and if so, whether they had understood it. A statistical comparison was made between elective Maxillofacial surgery patients and trauma patients with regard to the rates of recall of the information given to patients in informed consent, and the effect of educational level, age, and gender on recall of that information. This study was approved by the Local Ethics Committee. Statistical analysis was performed using the SPSS 19.0 statistics program. The relationship between variables was examined with Spearman correlation coefficients. Data were examined categorically using Pearson chi-square test and Fisher's exact test. Significance level was defined as $p < 0.05$.

RESULTS : We evaluated total of 116 patients, out of which 68 patients (58.6%) were placed in Maxillofacial Trauma group while 48 patients (41.4%) were placed in elective oral and maxillofacial group. Regarding education of patients 16 patients (13.8%) were illiterate, 18 patients (15.5%) attended primary school, 39 (33.6%) had upto secondary school education, 14 patients (12.1%) got higher school certificate, 18 patients (15.5%) completed their graduation while 11 patients (9.5%) pursued post-graduation. Post operatively recall evaluation revealed that 91 patients (78.4%) had complete knowledge related to their diagnosis while 17 patients (14.7%) had insufficient knowledge and 8 patients (6.9%) had no knowledge. Evaluating surgical operation recall 52 patients (44.8%) knew their nature of surgery, 40 patients (34.5%) had incomplete or insufficient knowledge of their

surgery while 24 patients (20.7%) did not know about their surgery. Regarding possible complication of surgery 9 patients (7.8%) had full knowledge, 40 patients (34.5%) had insufficient knowledge, and 67 patients (57.8%) had no knowledge. 51 patients (31.48%) answered that they had read the consent form while 111 patients (68.51%) did not read it. The consent form had been read by 26 maxillofacial Trauma Patients (38.23%) while 25 elective surgery patients (52.08%) were read the form. 40 out of 51 patients (78.43%) had understood the constant form ($p < 0.01$). While gender appeared to have no effect on recall of diagnosis, surgery, or complications ($p > 0.05$), age was inversely correlated with the awareness of surgery and complications ($p < 0.01$). When educational level was evaluated, the high school and university graduates were more knowledgeable about the complications than were the illiterate and those educated to the primary school level ($p < 0.05$). In a comparison between patients with Maxillofacial trauma and those who underwent elective surgery, no difference was found between the two groups in terms of age, gender, or educational level ($p > 0.05$). More patients in the elective surgery group had read the consent form ($p < 0.05$). No significant difference was determined between the two groups in rates of awareness of diagnosis, surgery, and complications ($p > 0.05$). Compared with the patients who underwent elective surgery, there were more patients in the trauma group who had no recollection of potential complications ($p < 0.01$) (Table 3).

DISCUSSION : It is evident in literature that no consensus is ever made regarding what constitutes a full, informed consent. The AMA (American Medical Association) describes informed consent as a communication process in which the patient's diagnosis; the nature, purpose, risks, and benefits of the proposed procedure; and the nature, risks, and benefits of alternatives to the proposed procedure, including the option of not receiving any treatment, should be discussed²⁴. However, the content of interventions and the outcome measures of studies included in this review focused overwhelmingly on patient understanding of procedural risks. An undisclosed risk that occurs and causes harm may lead to a claim of malpractice²⁵. Thus, a focus on risks may indicate a primary concern with malpractice risk reduction and/or a misperception of informed consent as little more than a medical warning, with the sole purpose of advising patients of the procedural risks they may encounter²⁶. Only a small minority of studies included assessments of the risks, benefits / indications, alternatives, and general knowledge about a procedure, suggesting that important aspects of patient understanding in informed consent are not routinely addressed and may not be well understood by clinicians and researchers. No such study is conducted locally in Maxillofacial Surgery or head and neck surgery that explains patient autonomy or their own decisions for surgery.

Although informed consent is a basic necessity but it should not be a mini medical education for the patient²⁷. It is crucial that the patient understand the operation, the benefits, risks, and other treatment choices. It has been reported that when patients are evaluating the information related to the anticipated operation, in

Maxillofacial Trauma		
	Frequency	Percentage
Mandible Fractures	23	33.82 %
Maxillary Fractures	12	17.64 %
ZMC Fractures	19	27.94 %
Orbital Floor Fractures	8	11.76 %
Frontal Bone Fractures	6	8.82 %
Total	68	100 %

Elective Maxillofacial, Head and Neck Surgery		
	Frequency	Percentage
Oral Squamous Cell Carcinoma	13	27.08 %
Benign Tumors of jaws	12	25 %
Cystic Leasions of Jaws	19	39.58 %
Soft tissue leasions of Head and Neck	4	8.33 %
Total	48	100 %

Table-1 : Number of patients undergoing different types of surgery.

	Diagnosis	Surgery	Complication
Full Knowledge	91(78.4%)	52(44.8)	17(14.7)
Insufficient Knowledge	17(14.7%)	40(34.5)	42(36.2)
No Knowledge	8(6.9%)	24(20.7)	57(49.1)
Total	116	116	116

Table-2 : Recall of diagnosis, operation, and complications by study patients.

consideration of anxiety, too much detail offers no advantage over simple explanations²⁸. Conceptual clarity regarding the key elements of informed consent knowledge, and the alignment of legal and ethical requirements, will help to focus improvements to the informed consent process and standardize evaluations.

When the informed consent process is carried out by the surgeon, better communication is established, and there is a lower risk of legal problems. Patients who had completed informed consent were all immediately pleased with the process, but postoperatively, the same groups of patients remembered less than 50% of the risks related to the operation²⁹⁻³⁶. In our study, when questioned during the informed consent process, all the patients stated that they had understood the information they had received from their physicians about their state of health, and were satisfied with the process. Nonetheless, the informed consent given by patients about to undergo surgery in this study did not always meet this objective. In the interviews conducted in the early postoperative period, all of the patients immediately and correctly stated the diagnosis and described operation; however only 9 patients (7.8%) could recall three or more major risks associated with the operation, and 67 patients (57.8%) could not recall any complications. Even though the patients' rate of recall of complications was low, the consent procedure contributed to the patients' decision making, and the rapport created by communication with the surgeon increased patient satisfaction. Recall of information conveyed during the informed consent procedure was lower after emergency surgery than after non-emergency operations^{29,33-36}. It has been reported that the rate of recall of surgical risk is lower in patients who have sustained Maxillofacial trauma than in patients who have undergone non-emergency elective Maxillofacial surgery²⁹. One of the study in orthopedics shows, 100% of the elective surgery patients and 90% of the trauma patients were able to describe the operation. The rates

	Maxillofacial Trauma				Elective Cases		
	Diagnosis	Surgery	Complication		Diagnosis	Surgery	Complication
Full Knowledge	55(80.9%)	23(33.8%)	8(11.8%)		36(75%)	29(60.4%)	9(18.8%)
Insufficient Knowledge	10(14.7%)	24(35.3%)	22(32.4%)		7(14.6%)	16(33.3%)	20(41.7%)
No Knowledge	3(4.4%)	21(30.9%)	38(55.9%)		5(10.4%)	3(6.3%)	19(39.6%)
Total	68	68	68		116	116	116

Table-3 : Recall of diagnosis, operation, and complications by patients with respect to type of surgery.

Maxillofacial Trauma										Elective Cases									
Diagnosis			Surgery			Complication			Diagnosis			Surgery			Complication				
	Illiterate	Middle	Graduate	Illiterate	Middle	Graduate	Illiterate	Middle	Graduate		Illiterate	Middle	Graduate	Illiterate	Middle	Graduate	Illiterate	Middle	Graduate
Full Knowledge	6	31	14	1	16	7	1	4	3		2	23	11	1	18	7	1	5	4
	(8.8)	(45.5)	20.5%	(1.47)	(23.5)	(10.3)	(1.47)	(5.9)	(4.4)		(2.9)	(47.9)	(22.9)	(1.47)	(37.5)	(10.3)	(1.47)	(10.4)	(8.3)
Insufficient Knowledge	2	8	2	1	15	8	2	15	5		2	5	1	4	9	5	3	12	5
	(2.9)	(11.8)	2.9	(1.47)	(22.1)	(11.8)	(2.9)	(22.1)	(10.4)		(2.9)	(10.4)	(1.47)	(5.9)	(18.8)	(10.4)	(4.4)	(25.0)	(10.4)
No Knowledge	2	2	1	8	10	2	7	22	9		2	2	0	1	3	0	2	13	3
	(2.9)	(2.9)	(1.47)	(11.8)	(14.7)	(2.9)	(10.3)	(32.4)	(13.2)		(2.9)	(2.9)	(0)	(1.47)	(6.3)	(0)	(2.9)	(27.1)	(4.4)
Total	10	41	17	10	41	17	10	41	17		6	30	12	6	30	12	6	30	12
	(14.7)	(60.3)	(25.0)	(14.7)	(60.3)	(25.0)	(14.7)	(60.3)	(25.0)		(12.5)	(62.5)	(25.0)	(12.5)	(62.5)	(25.0)	(12.5)	(62.5)	(25.0)

Table-4 : Recall of diagnosis, operation, and complications with respect to education level of patient.

of recall of the complications related to the operation were found to be 22% of the trauma group and 62% of the elective orthopedic patients. In our study, the level of awareness of the diagnosis and operation showed differences between the trauma patients and elective maxillofacial patients. Thirty-Eight patients (55.9%) in the trauma group and 19 patients (39.6%) in the elective group did not recall any potential surgical complications. This difference can be explained by the fact that the time to operation was shorter for the trauma group than for the elective maxillofacial surgery group, who might have had the opportunity to research the maxillofacial condition and the proposed procedure, and to speak with doctors on several occasions. It has been stated that advanced age and low educational level decrease the rate of recall of the potential risks of an operation, and younger, better educated patients have a better recall of complications³²⁻³³. Gender does not appear to have any effect on recall³². In our study, demographic information was obtained, and a comparison was made between the two groups. While advanced age and low educational level were not seen to affect the rate of patient awareness of the diagnosis and operation being performed, a negative correlation was seen with the recall of risks related to the operation. Giving written explanations in addition to the verbal information generally has a positive effect on the level of recall for the patient^{31,33,37}. Mauffrey et al³⁸. reported that the addition of written information to the oral discussion made a significant contribution to the recall of surgical risks in elective lumbar vertebrae surgery; however, Shurnas et al³¹. showed written information to have no influence. Another point is that, for various reasons, the informed consent form given to the patients is not always read. A study by Lavelle-Jones et al³³. reported that

the form was not read by 69% of the patients. In our study, each patient was given a written consent form and was asked to read it in addition to the verbal information; however, 16 patients (13.79%) were illiterate and 18 patients (15.51) were primary teaching ability. 29 patients (25%) were unable to read consent form completely. Of the 51 patients (31.48%) who read the informed consent form, 47 patients (92.15%) stated that they had understood the form. One of the reasons for the low rate of reading the form is that many of our patients were illiterate or had only primary education. The rate of recall of information was found to be higher in patients undergoing elective maxillofacial surgery; a greater percentage of these patients had read the form. Previous studies have stated that the information given in the form is forgotten over time. Best recalled just after signing the form, information is recalled at the lowest level 6 months later³³⁻³⁹. In those studies, various questionnaires and forms with multiple-choice questions were used. In our study, to prevent patients guessing or giving the correct answer by chance, they were questioned directly by one of the authors who then recorded their answers. The patients were questioned in the early postoperative period, when there is a high rate of recall. In order to be able to standardize the scoring, the patients were not expected to have complete recall; however, specific statements regarding the diagnosis and operation, and listing a certain number of complications were accepted as full knowledge.

One of the limitations of this study is that the patients undergoing major maxillofacial elective and trauma surgery were admitted to the study while anticipating different surgical procedures, and having different potential complications explained to them. The potential complications that were described were organized in a

numbered list in an attempt to overcome this problem. On the other hand, even if every patient has a standard form, and if the same information is given using Urdu terminology, specific answers to the patient's questions would necessarily focus on different information, which could affect the standardization of the information given. Also, the illiterate patients and those who did not read the form disturbed the uniformity of the information. Although every patient could not be informed in the same way, the study attempted to compensate for these differences. In conclusion, for maxillofacial specialists to be able to overcome legal problems that may arise in the future, it is necessary to spend sufficient time on the process of informed consent and to establish good communication with the patient. Considering that some of the information given to the patient will be forgotten after a time, informed consent process should include signed documentation.

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Incidence of Tracheostomy in Gun Shot Trauma Victims

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ABSTRACT: *OBJECTIVE :* To determine the incidence of tracheostomy in gunshot victims presenting in a tertiary care centre over a 12 month period. *STUDY DESIGN :* Retrospective Observational Study. *PLACE DURATION OF STUDY :* This study was carried out in ENT Department CMH Quetta from Jan 2012- Dec 2012. *MATERIALS AND METHODS:* Data of gunshot victims presenting in CMH Quetta was retrospectively evaluated for the incidence of tracheostomy. *RESULTS:* A total of 106 cases presented with gunshot wound (GSW) during the period of study. 95% were male. 35.8% suffered GSW to face and neck. 71% of the individuals suffering GSW to face and neck underwent tracheostomy. 53 tracheostomies were performed during the same period and GSW to face and neck was the reason for tracheostomy in 67.9% of the cases. The average ICU stay following tracheostomy was 13 days. 53% of the cases were tracheotomized within first two hours of presentation. *CONCLUSION:* Facial and neck trauma following gunshot wound is relatively common in Quetta. Urgent tracheostomy is required to secure airway in such cases.

Key Words : Tracheostomy, Gunshot wounds, Facial and neck trauma.

INTRODUCTION : In the present era development of lethal weapons has seen an unprecedented increase. Use of hand guns and other small arms has resulted in a rising incidence in firearm related injuries¹. In 2009 12500 cases of gunshot related injuries were reported in Pakistan². These injuries constitute a major challenge in maxillofacial surgery, causing deformities of human body and financial burden to our society³. Easy availability of modern and sophisticated weapons has greatly increased the number of casualties caused by firearms⁴. Facial and neck trauma due to gunshot assumes importance as it involves vital organs, threatens the airway, may lead to massive hemorrhage and is potentially life-threatening. The first priority therefore in these patients is airway maintenance with cervical spine control^{5,6}. Recent times have seen a decreasing trend in incidence of tracheostomy for maintenance of air way and the development of newer methods of intubation like submental intubation and laryngeal mask means that tracheostomy is always done as a last resort, however in an underdeveloped country with lack of adequate facilities it remains highly popular and the method of choice for securing air way for long term control^{1,7}. Origins of tracheostomy date back to 2000 to 2500 BC, though Chevalier Jackson is responsible for making it a mainstream procedure in surgical arena in early part of 20th century^{8,9}. Various studies performed on facial and neck trauma patients found that failure to intubate, secure or protect the airway was the most common factor related to patient mortality. Swelling and bleeding from the injury may also compromise the airway. In such cases tracheostomy provides immediate and secure access with ease of ventilation and tracheal

toilet¹⁰. The objective of this study was to determine the incidence of tracheostomy in gunshot victims presenting in CMH Quetta over a twelve month period.

MATERIALS AND METHODS : This was an observational retrospective study carried out in CMH Quetta from Jan 2012 to Dec 2012. The data of gunshot victims presenting in CMH Quetta was studied and evaluated for site specific frequency, site related incidence of tracheostomy, their timing and duration for which they were tracheotomized and complications if any. Overall frequency of tracheostomy in the hospital was also calculated.

RESULTS : A total of 106 cases presented with gunshot wound (GSW) during the period of study. 101(95.3%) were male and 5(4.7%) were female. Of these the greatest number i.e. 38 suffered GSW to face and neck(35.8%), 32 cases(30.2%) presented with abdominal GSW, 15 cases (14.1%) presented with GSW to limbs, 12 (11.3%) had GSW to head and 9(8.5%) to chest. 25.5%(27 cases) suffering GSW to face and neck underwent tracheostomy, 4.7%(5 cases) suffering GSW to head underwent tracheostomy, 2.8%(3 cases) having GSW to abdomen and 1% (1 case) having GSW to chest were tracheotomized. Over all incidence of tracheostomy in gunshot victims was 39.1%. A total of 53 tracheostomies were performed during the same period of which GSW was the greatest reason for tracheostomy i.e. 36 patients (67.9%), 4 cases of RTA (7.5%), 5 cases of bomb blast injuries (BBI) (9.4%), 2 cases each of Ca larynx and burns (7.4%) and one case each of sepsis, tetanus, epilepsy and suicidal attempt were tracheotomized (7.5%). Data is presented in tabulated form. Mortality rate was 17.9 % (19 cases) but the cause was not tracheostomy related

in any case. 7.5 % (4 cases) individuals had immediate and intermediate complications which include hemorrhage, apnea, aspiration of blood, subcutaneous emphysema, reactionary bleed and tube blockage but no patient had late complications which include laryngeal stenosis, tracheal stenosis, tracheo-esophageal fistula, stomal granulations and unsightly scars. 18.9% (10 cases) patients were less than 13 years, in them the rate of complication was 20% (2 cases). The average duration of stay following tracheostomy was 17.4 days the shortest being 9 days and longest being 42 days. Average ICU stay of tracheotomized patient was 13 days. In 28 cases tracheostomy was done within the first two hours of presentation while in 11 cases the tracheostomy was done in first 48 hours and in remaining cases the tracheostomy was done within 8 days of admission.

DISCUSSION : Quetta in the recent years has seen a sharp increase in targeted killings of civilians and surprisingly many victims suffer multiple injuries to their facial and neck region. These individuals have complex anatomical defects with compromised airways which therefore necessitate the establishment of an emergent airway^{1,11}. Individuals suffering gunshot wounds have increased chances of developing necrosis and oedema of the tissues, in such cases if injury is in or around the neck establishment of an alternate airway becomes a necessity . Also these individuals later have to undergo multiple reconstructive procedures to face. In such a situation tracheostomy becomes the first choice for securing the airway¹². With regards to maxillofacial trauma indications for performing tracheostomy include upper airway obstruction, facial edema, airway diversion for facial fracture repair, tracheobronchial hygiene, insecure oro/nasal-tracheal intubation and long term ventilation. Variables suggesting long term need for ventilation include head injury and poor Glasgow coma scale, mechanism of injury, facial injury pattern and patient co morbidities¹³. It is generally believed that intubation for longer than 2-3 weeks will increase the patient's risk of complications such as tracheal stenosis, vocal cord dysfunction and tube dislodgement; furthermore toilet of the endotracheal tube becomes difficult with increase in duration of intubation¹⁴. There are mixed data available on presence of serious complications such as glottic and subglottic stenosis, pneumonia and death which are considered to be more frequent in patients intubated for more than two weeks compared with those receiving early tracheostomy while other studies suggest a decreased intensive care unit stay and length of stay, a lower rate of pneumonia, lower mortality, decreased resource utilization and more importantly easier nursing care when tracheostomy was used earlier in hospital course¹⁵⁻¹⁹. As a result there remains significant controversy with regards to timing of tracheostomy and /or necessity of tracheostomy in maxillofacial trauma. It has been observed that incidence of complications is higher in tracheostomies performed in children as compared to adults, it may be because the procedure is difficult and that the larynx and trachea

Site (GSW)	CASES n(106)	TRACHEOSTOMY DONE	OVERALL INCIDENCE	REGION WISE INCIDENCE
Face and Neck	38	27	25.5%	71%
Head	12	5	4.7%	41.67%
Abdomen	32	3	2.8%	9.4%
Limbs	15	0	0	0
Chest	9	1	1%	11%

Table-1 : Site specific incidence of tracheostomy in Gun Shot trauma victims

CAUSES OF TRACHEOSTOMY	Cases (53)	Incidence %
GSW	36	67.9%
BBI	5	9.4%
CA LARYNX	2	3.7%
BURNS	2	3.7%
RTA	4	7.5%
OTHER CAUSES Sepsis,Tetanus, Suicidal Attempt And Epilepsy)	4	7.5%

Table-2 : Overall incidence of tracheostomy with causes.

are of smaller caliber^{20,21}. However overall the incidence of complications has decreased because of high volume; low pressure cuffs used these days²². In our hospital the standard protocol is to perform tracheostomy of all individuals presenting with gunshot facial& neck trauma where injury involves the floor of mouth, tongue base, mandible or any of the neck zones, there is requirement of multiple maxillofacial corrective operations, possibility of laryngeal trauma or enlarging neck hematomas. Our study showed surprising results in that facial and neck area was most often targeted (35.8%) for firearm injury followed closely by the abdomen. A study by Fattabi showed that 43% cases underwent tracheostomy for maxillofacial trauma while our study had a higher percentage of 71%¹⁰. Similarly a study by Periera C had a 35% incidence of tracheostomy in GSW victims of maxillofacial trauma¹¹. Another study carried out by Bukhari GA noted a 52% incidence of tracheostomy in patients of maxillofacial trauma³. Maybe it's because of the fact that in our study both neck and face were included in one group which was not the case in other studies, also in our study all the patients presented with gunshot trauma while other studies also included individuals having maxillofacial trauma due to other causes like road traffic accidents and sport related injuries which are usually less serious. In our centre facial and neck gunshot trauma was the single most important factor by far (67.9%) for performing tracheostomy, however in a study done by Fattabi oncological causes were the highest reason of tracheostomy 51 %, while maxillofacial trauma was the second most common cause 43%¹⁰. Similarly a study by Gilyoma showed that traumatic upper air way obstruction was the most common cause of tracheostomy; however maxillofacial trauma constituted only 9%²¹. A study done in south Africa had a 22% incidence of tracheostomy following maxillofacial gunshot trauma²³. Studies have shown that doing a tracheostomy decreases duration of ICU stay²⁴. Complications arising from performing an emergency tracheostomy include early complications such as bleeding, pneumothorax, recurrent laryngeal nerve injury, and tracheostomy dislodgement associated

with postoperative swelling. Long-term complications include scarring, tracheomalacia, tracheal stenosis, and the development of tracheoesophageal and tracheocutaneous fistula²⁵. In our study too average ICU stay of a tracheotomized patient was 13 days which are comparable to average ICU stay in a study done by Glapa. M which was 11 days with an average hospital stay of 15 days²⁶. In our study 2% of the patients had early and intermediate complications while no one had any late complications while a study by Fattabi. T noted a 4.1 % incidence of complications of which 0.6% had serious late complications like tracheal stenosis, while a study by Gillyomi et al had a complication rate of 21.6% however various studies document the rate of complications in tracheostomy from 9-15%^{10,21,9,27-29}. Average follow up period of our patients in this study was 4 months which is less than in other studies. The rate of complication in children was 20% which was much higher than in adults. Carr, M M in his article quoted incidence rates of as high as 46 % for complication in children while it was 30% in a study done by Zia S in Pakistan and 25.3% in a study of Waldron J.³⁰⁻³²

CONCLUSION : Upper airway obstruction secondary to gunshot wound is the most common cause of tracheostomy at our centre. Incidence of facial and neck trauma secondary to gunshot wound is very high in Quetta .Management of facial and neck trauma requires prompt airway assessment and appropriate management. In expert hands tracheostomy is the safest way of maintaining an adequate airway till the emergency is over.

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The Role of Ultrasound Guided Fine Needle Aspiration Cytology in the Management of Parotid Tumors

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ABSTRACT: *OBJECTIVE :* To define the role of ultrasound guided fine needle aspiration cytology (FNAC) in the diagnostic work up and management of parotid tumours. *STUDY DESIGN:* Multicentric, retrospective study. *PLACE AND DURATION:* A multicentric study conducted at departments of ENT and Head and Neck Surgery of People's University of Medical Health Sciences, Nawabshah; Dow University of Health Sciences & Civil Hospital, Karachi and Bolan Medical College, Quetta, during January 2004 to January 2010. *SUBJECTS AND METHODS:* 169 patients who had required parotid surgery were evaluated. The results of ultrasound guided FNAC were compared with the histopathological findings obtained from the specimen postoperatively. *RESULTS:* The overall sensitivity of ultrasound guided FNAC for malignant cases was 84.6% and specificity was 96.7%. We noted 11 true positive, 88 true negative, 2 false negative and 3 false positive results. Positive predictive value for diagnosing malignancy was 78.6% and negative predictive value for malignancy was 97.7% The overall accuracy of FNAC of parotid tumors in this study was 90.5%. *CONCLUSION:* Ultrasound guided FNAC is a reliable tool in investigating the parotid tumours. It helps in patient's counseling and anticipate the outcome of the planned procedure. It reduces ambiguity in the management plan and hence patient's expectations regarding morbidity and mortality of the disease. Ultrasound guided FNAC was found to be superior in diagnosing parotid tumours indicated by its high accuracy.

Key Words : Fine needle aspiration cytology, Ultrasound guided, Parotid tumours.

INTRODUCTION : Fine needle aspiration cytology (FNAC) is a well-established investigation in many head and neck tumours. It has been accepted as a useful tool in the diagnosis of neoplasia within various tissues, particularly neck masses, parotid and thyroid gland. The role of FNAC in the preoperative evaluation of patients presenting with parotid tumours continues to be a controversial subject and has not been uniformly accepted. Some surgeons advocate the use of FNAC in all patients while others prefer a more selective approach, performing FNAC only when suspicion for malignant disease is high¹. FNAC has been reported to have poor sensitivity for parotid tumours and a reasonably high false negative rate that reduces its usefulness in the opinion of its critiques². The fundamental argument against performing FNAC in all patients is that the majority of parotid masses are benign. The "80% Rule" states that 80% of salivary neoplasms are in the parotid, 80% of these are benign and 80% of those benign lesions are pleomorphic adenoma on histological diagnosis³. The purpose of this study is to access the efficacy of ultrasound guided FNAC in the diagnostic workup of parotid tumors and its management.

SUBJECTS AND METHODS : This is a multi-centre retrospective study conducted on 169 patients with parotid tumours between January 2004 and January 2010 at Ear, Nose, Throat, Head and Neck Surgery departments of Peoples University of Medical Health Sciences, Nawabshah, Dow University of Health Sciences & Civil Hospital, Karachi and Bolan Medical College Quetta. After informed consent patients of both

genders who presented with parotid tumours and required surgery were included in the study at each centre. Patients who did not give consent or those who had viral infections (such as Mumps) were excluded. Demographic data and relevant clinical information were recorded on an institution approved performa. FNAC was performed by senior pathologists under ultrasound guidance with standard protocols. The results of the pre-operative FNAC was compared with that of histopathological findings on the surgical specimen.

For the purpose of study, the FNAC results were classified into the following categories.

- True negative (TN): Absence of neoplasm diagnosed correctly on cytology.
- True positive (TP): Presence of neoplasm diagnosed correctly on cytology.
- False negative (FN): Cytology failed to diagnose neoplasm.
- False positive (FP): Cytology was incorrectly considered diagnostic or suspicious for neoplasm.

The following parameters were analyzed according to standard criteria.

- Sensitivity = $TP / (TP + FN)$
- Specificity = $TN / (TN + FP)$
- Positive predictive value = $TP / (TP + FP)$
- Negative predictive value = $TN / (TN + FN)$
- False negative rate = $FN / (TP + FN)$
- False positive rate = $FP / (TN + FP)$
- Accuracy = $(TP + TN) / (TP + FP + TN + FN)$

The collected data was entered and analyzed on SPSS version 16.0 software.

RESULTS : 169 patients underwent ultrasound guided FNAC and subsequent surgery to the parotid gland. The patient's age ranged from 9 to 78 years at the time of surgery. There were 73 men and 96 women with male to female ratio 1.5:2. (Figure-1). The diagnosis was made on postoperative histopathology and patients were grouped into benign and malignant tumours. Out of the 169 cases 75 patients were found to be having neoplastic disease. 13 patients had malignant tumours and 62 had benign disease. Among malignant tumours, 11 cases were diagnosed on pre-operative FNAC. Of the 62 benign diseases, 54 were diagnosed as benign on pre-operatively FNAC report. (Table-1). On analyzing the correlation between FNAC and histopathology, we found that overall 65/75(86.6%) correlated very well. Of these, 43/65(66.2%) were exact, and 22/65(33.8%) had a similar diagnosis on FNAC and histology. 16/169(9.4%) were diagnosed wrongly on FNAC. In this study there were 65 true positive, 88 true negative, 10 false negative and 06 false positive results. Overall, the sensitivity of FNAC was 86.7% and specificity was 93.6%. (Table-2)

Positive predictive value for diagnosing malignancy was 78.6% and negative predictive value for malignancy was 97.7%. The false negative rate for malignancy was 15.3% and the false positive rate was 3.2%. The overall accuracy of FNAC in parotids tumours was 90.5%. In this study the chances of ultrasound guided FNAC of parotid giving an accurate diagnosis was highly significant.

DISCUSSION : Histological evaluation of the parotidectomy specimen remains the gold standard practice in the management of parotid mass. The role of FNAC in the investigation of parotid masses is controversial. In recent years ultrasound guided FNAC has gained acceptance as a mean of providing pre-operative cytological diagnosis of salivary gland tumour accurately¹. Some surgeons perform FNAC in all such patients while others prefer a more selective approach^{1,2}. Those who perform FNAC for all patients presenting with parotid mass believe it to be beneficial in certain scenarios, such as patient with malignant diseases of parotid, thus FNAC provides beneficial pre-operative information that may play a significant role in counseling the patient regarding the extent and nature of the proposed surgery and also the risk of facial nerve injury during the procedure³. This study reports the results of FNAC of parotid masses over a seven years period. The diagnostic accuracy of FNAC in this series was 90.5%, the sensitivity was 86.7% and the specificity was 93.6%. In this study 84.6% of the malignant tumours and 87% of benign tumours were classified correctly on cytological evaluation. The results of this study are comparable to those of previous studies and confirm the diagnostic utility of FNAC in parotid tumours⁴⁻⁶. The reported sensitivity and specificity of FNAC in the diagnosis of parotid lesions vary from 69 to 96 percent, while its reported sensitivity and specificity in the diagnosis of malignant lesions range from 57 to 88 percent, respectively^{2,7-14}. In a reported

N=169	
Benign (62)	Malignant (13)
T.P. : 54	T.P. : 11
F.P. : 03	F.P. : 03
T.N. : 88	T.N. : 88
F.N. : 08	F.N. : 02
Sensitivity: 87.1%	Sensitivity: 84.6%
Specificity: 96.7%	Specificity: 96.7%

Table-1 : Diagnosis on ultrasound guided FNAC with sensitivity and specificity

N=169			
Positive on FNAC = 71		Negative on FNAC= 98	
True Positive : 65	Benign : 54 Malignant : 11	True Negative : 88	
False Positive : 06	Benign : 3 Malignant : 3	False Negative : 10	Benign : 08 Malignant : 02

Table-2 : Overall efficacy of ultrasound guided FNAC.

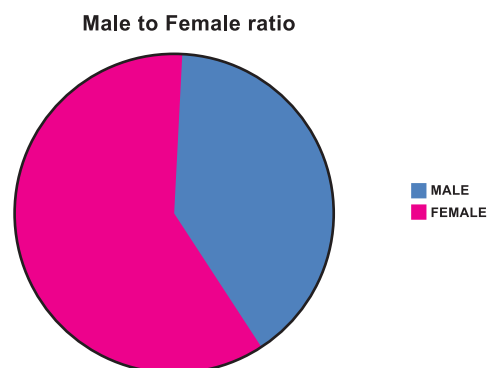


Figure-1 : Gender distribution: M:F ratio=1.5:2.

study triple test approach on the basis of clinical-radiological-cytological evaluation is advocated to minimize the rates of false negative and false positive cases in FNAC diagnosis of parotid masses¹⁵. The majority of false positive and false negative diagnosis in our study were due to scant number of cells, and in the case of adequate number of cells, the cells were not representative of underlying neoplastic lesion. The principle argument against performing FNAC for all parotid lesions is that almost all patients will ultimately require parotidectomy for final diagnosis. In addition, cytological interpretation requires an experienced cytopathologist who is not always easily available. The diagnostic challenge may potentially result in delay in diagnosis and the management of the disease¹⁶. Sometimes, insufficient tissue is aspirated and the procedure needs to be revised, but this hindrance is now very well managed with ultrasound guidance. A source of controversy lies in the impact of parotid FNAC on clinical management and treatment planning in parotid tumours. Some authors claim that the tissue diagnosis beforehand determines the type of surgery needed but others hold the opinion that it is the size and position of the tumour within the parotid gland that dictates the extent of the surgery^{10,14,17}. We found that the pre-operative tissue diagnosis enables

the surgeon to better counsel the patients regarding the nature of their disease, type of surgery offered to them and the expected outcome of the procedure. It also permits the diagnosis of conditions best managed by non-operative means, such as lymphoma.

CONCLUSION : Ultrasound guided FNAC of the parotid tumour can play a useful role in the diagnostic and therapeutic decision making process as it is a relatively inexpensive, minimally invasive method that provides reliable pre-operative information. It aids in pre-operative patient counseling regarding the surgical plan and its expected outcomes.

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An Unusual Case of Suprasternal Epidermoid Cyst

Tooba Noor, Atif Hafeez Siddiqui, Iqbal A. Muhammad Khyani,
Zeba Ahmed, M. Umar Farooq

ABSTRACT : Cystic lesions in the neck are classified as those arising in the midline and those in the lateral neck. Dermoid and epidermoid cysts are not uncommon findings but a rare entity if present in the head and neck region and usually associated with a relative history of trauma. We present an unusual case of a 21 year old male with suprasternal cystic mass without history of trauma or surgery. The cyst was excised successfully without an eventful recovery. Epidermoid cyst should be considered in the differential diagnosis of suprasternal masses. Even though, histopathological and radiological features help to confirm the diagnosis, unusual locations can make the simple diagnosis difficult.

Key Words : Epidermoid cyst, Suprasternal mass, Excision.

INTRODUCTION : Cystic lesions in the neck are a common finding. It is useful to classify them as those arising in the midline and those in the lateral neck. The common lateral cystic masses are cystic hygromas, branchial cleft cysts, bronchogenic cysts, laryngocele; sternomastoid tumors while thyroglossal cysts, teratomas, thyroid cyst, suprasternal space abscess, Ludwig's angina, and keratin cysts are those arising from midline¹. The term keratin cysts include epidermoid cysts and pilar cysts². Benign teratomatous lesions are dermoid cysts and teratoid cysts³. Epidermoid and dermoid cysts are uncommon but not rare lesions. They are non-odontogenic inclusion cysts lined by ectoderm⁴. They are mostly congenital due to trapping of ectoderm at time of fusion of neural tube or other epithelial linings but may also be secondary or acquired due to inclusion of epidermal elements into dermis post-traumatically or iatrogenically⁵. Most cases have been reported in ovaries and the testicles (80%) with 7% occurring in the head and the neck area and 1.6% within the oral cavity⁶ with a relative history of trauma or surgical procedure mostly associated. We present an unusual case of an epidermoid cyst in the neck above suprasternal notch in a young man without a clear history of trauma or surgical intervention. Prior verbal consent was obtained from the patient and his family for publication.

CASE REPORT : This is a case of a 21 years old young male patient presented to outpatient department of ENT with history of swelling on front of the neck above suprasternal notch for 1 year. The neck swelling was progressively increasing in size associated with mild pain. There were no other associated complains like discharge, chest pain, respiratory distress, change in voice or difficulty in swallowing except the cosmetic concerns. There was no significant traumatic history, surgical intervention or familial ailments. A presumptive diagnosis of lipoma, sebaceous cyst and dermoid cyst were made and the patient was admitted. On examination, the general physical and systemic examinations were unremarkable. Local examination

revealed midline swelling in front of the neck above suprasternal notch with no signs of inflammation, punctum, sinus, discharge or visible pulsation. On palpation, the lump was 3x2 cm in size soft, cystic, fluctuant, non-tender with smooth surface and regular margins, freely moveable in all directions, not adherent to overlying skin or underlying tissue. Trans-illumination test was negative. Percussion note was dull. There was no audible bruit. Cervical nodes were not palpable (Fig. 1). The chest radiograph and thyroid scan was normal. Complete blood count and erythrocyte sedimentation rate were within normal limits. Ultrasonography revealed hypo echoic area with internal echoes 2.8x1.7 cm with no vascular flow on Doppler. Contrast enhanced- CT revealed homogenous hypo dense mass 3.3x2.5 cm in size located subcutaneously (Fig. 2). FNAC showed fat cells consistent with fatty mass. It was planned to excise the mass under general anesthesia. Patient was kept supine with shoulder bag to extend the neck. After scrubbing and draping, skin crease incision marked over the swelling. On exploration, the cyst was situated in the subcutaneous space overlying the trachea not extending into chest but attached to surrounding fascia (Fig 3). Complete excision of the cyst was easily accomplished with an uneventful recovery (Fig 4). Histopathological examination revealed epidermoid cyst. The patient was recuperated well and remained symptom free during 3-months period follow-up.

DISCUSSION : Epidermal cysts have been named by several different terminologies but the epidermoid cyst is the more general term that is mostly favored. Epidermal inclusion cyst (EIC) refers to those cysts that are the result of the implantation of epidermal elements into the dermis. The cause of epidermoid cyst may include failure of surface ectoderm to separate from the underlying structures, sequestration of surface ectoderm or implantation of ectoderm. Epidermoid cysts can thus be either congenital or acquired. The congenital ones develop during the fusion of the embryo when the ectodermal tissue gets trapped in the line of fusion. Such



Figure 1 : Patient presenting with midline suprasternal cystic swelling.

types of “embryological” events usually occur during 3rd to 5th week of gestation⁷. Congenital epidermal cysts may result from failure of surface ectoderm to separate from underlying neural tube, or due to abnormal sequestration of surface ectoderm along the line the embryologic sites of dermal fusion along the eyes, ears and face. The acquired cysts which are also known as epidermal inclusion cysts (EIC) can be described as a dermal cystic enclosure of keratinizing squamous epithelium that is filled with keratin debris⁸. EICs are usually secondary to trauma and mainly observed in the fingers, palms and soles. EIC also occur in other areas and in tissues deeper than the dermis which may be secondary to biopsy or surgery^{2, 3, 9}. The most accepted theory of pathogenesis is the “epithelial implant theory” according to which epidermal elements being driven into deeper tissue is the cause of cysts. The trapped epidermis acts like a skin graft becomes independent and continues to grow in its new location producing keratin thus forming a cyst. Implantation may due be a blunt or a penetrating trauma including lumbar puncture, needle biopsy or surgery^{5, 7, 10}. The fingers, toes, palms and soles are commonest sites for EICs. The presumable reason for

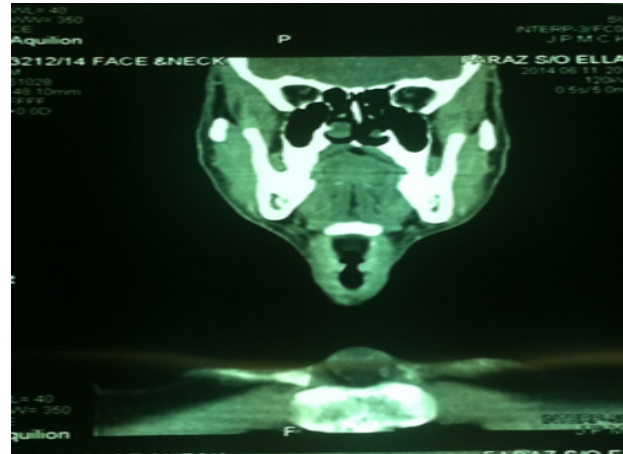


Figure 2 : CECT neck coronal view showing hypodense mass behind the manubrium sterni (arrow).

this is that these sites are very prone to trauma. More likelihood of being traumatized is also probably the reason that men are affected more than women^{5, 7}. While some cases of post-traumatic EIC of the head and neck region and skull bones have been described, to the best of our knowledge, ours is an unusual case of EIC in the neck above suprasternal notch without a precedent surgery or clear history of trauma described in literature. In the absence of a history of trauma or intervention, the cause in our case may be attributed to a remote history of blunt trauma which was elicited only on detailed questioning and which the patient had only a vague recollection of it or it may be due to congenital cause as the commonest age of presentation of a congenital cyst being first four decades¹¹. Clinically, they most commonly present with a midline, painless, slow growing swelling in the neck enlarging over years due to accumulation of cutaneous products. Typically, the mass is soft, mobile and unattached to overlying skin. The symptoms depend on the location and size of tumor and the pressure it exerts on the surrounding structures. They are described as pearly tumors because of the shiny, smooth and waxy character of their dry keratin.



Figure 3 : Intraoperative picture revealing the cyst.



Figure 4 : The excised cystic mass.

The size of the cyst can range from few mm to 12 cms. A history of trauma or intervention is usually elicited. The time lag between inciting event and appearance of symptoms may vary from as early as 6 months to 20 years¹². To determine the nature and content of the lesion, a CT scan showing moderately thin walled, unilocular masses filled with a homogenous, hypoattenuating fluid material virtually pathognomic for a dermoid cyst in this location consistent as in our case. Epidermoid cysts have fluid attenuation on CT scans and on MRI they are hypointense in T1 and hyperintense on T2 weighted images¹¹. In our case, the cyst was excised completely in toto and sent for histopathology. On histology, EIC have a squamous epithelial lining, which only rarely shows calcification. They contain debris rich in keratin and lipids formed by desquamation of their squamous epithelial lining as was found in our case. Unlike a dermoid cyst, EIC lack appendages like hair, sweat glands, etc⁹. The treatment consists of complete surgical enucleation while taking precautions to not rupture the cysts, as they may act as irritants to the surrounding fibrovascular tissues. Incomplete surgical excision of the cyst may lead to recurrence. Although rare, about 5% of cysts undergo malignant transformation. Surgery should be deferred during an active infection which should be controlled with empirical antibiotics¹³.

CONCLUSION : Epidermoid cysts should be considered in the differential diagnosis of all suprasternal masses.

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Supraglottic Laryngeal Paraganglioma: A Rare Clinical Entity Managed by Lateral Pharyngotomy Approach

Sudhir M. Naik, Ashok Shenoy, Purshottam Chavan, Akshay S, Sumit Gupta

ABSTRACT: Laryngeal paragangliomas are benign slow growing tumors with symptoms resembling squamous cell carcinoma. Hoarseness or dysphasia are the commonest presenting symptoms and usually it presents as an submucosal mass on laryngoscopy. 90% of these tumors occur in the supraglottic larynx and the rest in the glottic and the subglottic region. We report a 35-year-old male presented to us with hoarseness of 4 months duration. Contrast arteriography demonstrated that the left superior thyroid artery supplied greater than 80% of the blood supply to the laryngeal mass. The tumor was excised through lateral pharyngotomy approach with an elective tracheostomy. Microscopy suggested it to be paraganglioma and immunohistochemistry confirmed it.

Key Words : Laryngeal paraganglioma, Supraglottic, Lateral pharyngotomy, Angiography.

INTRODUCTION : Head and neck paragangliomas are rare tumors arising from the neural crest¹. They are highly vascularized tumors involving the walls of the blood vessels or specific nerves^{2,3}. In the larynx they arise from superior or inferior laryngeal paraganglia and are seen in the supraglottis in 90% of the cases. Since these tumors are from neural crest-derived cells of the parasympathetic nervous system, they usually appear adjacent to nerve structures, most commonly the superior laryngeal nerve or the recurrent laryngeal nerve. The paragangliomas of the larynx show a female preponderance compared to other neuroendocrine tumors. Paragangliomas of larynx are benign submucosal lesion and the management includes a conservative resection⁴. Significant intraoperative blood loss is expected so preoperative transarterial embolization has proved beneficial^{5,6}. Percutaneous direct intratumoral embolization can also be done with same efficacy⁷. Supraglottic laryngectomy and lateral pharyngotomy are commonly used approaches for managing these paragangliomas^{8,9,10}.

CASE REPORT: A 35 years old male presented to us with hoarseness of 4 months duration. He complain of foreign body sensation in throat. There is no history of difficulty in swallowing and any other symptom. On examination a swelling on left side of the neck was seen confirmed on palpation. Indirect laryngoscopic examination revealed a congested globular fleshy mass arising from the left pharyngo-epiglottic fold, extending to the aryepiglottic fold and to the apex of the pyriform fossa with mobile vocal cords. The patient was a non-smoker and non-drinker. Contrast enhanced CT scan was done and an enhancing lesion was seen in the same region with radiological features suggesting of a vascular lesion or an paraganglioma (Fig-1). Translaryngeal fine needle aspiration cytology revealed cells similar to that of paraganglioma, but a vascular malformation and schwannomas were not ruled out. His blood investigations and urine catecholamine levels were normal. Magnetic resonance angiography revealed a 3-4 cm vascular lesion

in the left supraglottic region but the feeder vessels were not found. So a digital subtraction angiography was done that revealed the superior thyroid artery to be the feeder and a minor contribution from contralateral superior thyroid artery. Digital subtraction angiography demonstrated that the left superior thyroid artery supplied greater than 80% of the blood supply to the laryngeal mass (Fig-2). Supraselective embolization was done. Left superior thyroid artery was selectively catheterised using the 4F vertebral glide catheter run over the 0.035 Terumo guide wire and embolized using 510-750 sized PVA (polyvinyl alcohol) particles. A minimal tumor blush was noted after this and the feeders were embolized using a microguide wire with 250-500 PVA particles. Direct laryngoscopic evaluation was done in 48 hours and the pulsatile vascular lesion was assessed and approached from a lateral pharyngotomy incision. An elective tracheostomy was done to secure the patient's airway before lateral pharyngotomy with minimal blood loss. Intraoperatively the larynx was approached and the thyroid ala dissected and left superior thyroid artery was ligated and cut along with the superior laryngeal nerve. The thyroid cartilage was dissected and the tumor excised. He was extubated with the postoperative period being uneventful. Histopathology revealed features suggestive of paraganglioma and all the lymph nodes had reactive changes. Microscopic examination showed polygonal epithelioid cells arranged in discrete nests (Zellballen pattern). Immunohistochemistry results showed the neoplastic cells were positive for chromogranin, synaptophysin and S-100 but negative for CK and EMA (epithelial membrane antigen). All these features were consistent with paraganglioma.

DISCUSSION : Laryngeal paraganglioma was first described in 1955 and since then 85 cases were described in world literature. Ferlito et al analysed all the reported paragangliomas of the larynx and found 62 case reports genuinely met the criteria for diagnosis¹. These are benign slow growing tumors with symptoms resembling squamous cell carcinoma. Hoarseness or dysphasia are

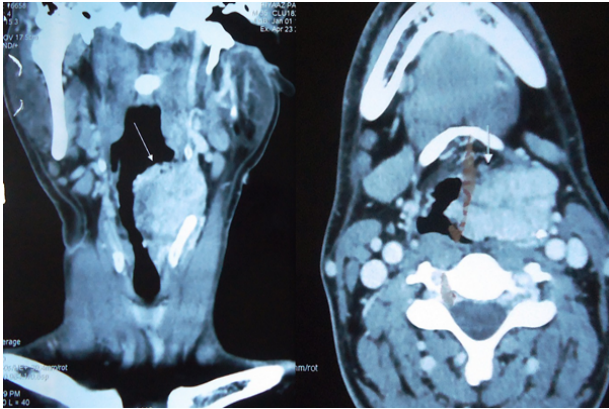


Figure 1 : Contrast enhanced CT images showing the left supraglottic tumor.

the commonest presenting symptoms and usually it presents as an submucosal mass on laryngoscopy. Rarely stridor, dysphagia, foreign body sensation and dyspnea are seen and depends on the size and location of the tumor. The majority of these tumors arise in the supraglottic larynx, and 2% of these are malignant⁹. A histological diagnosis is necessary prior to surgical treatment and repetitive fine needle aspiration biopsies are advised if they are inconclusive³. Superficial biopsies are inconclusive as they have intact mucosa, but deeper biopsies can complicate as these lesions are highly vascular. Translaryngeal biopsies are helpful in these conditions as done in our case¹¹. Laryngeal paragangliomas have the same appearance as paragangliomas of other sites on histopathology. They are highly vascular and composed of chief cells and sustentacular cells, arranged in a characteristic alveolar or Zellballen pattern. The chief cells (type I cells, epithelioid cells) are more numerous and contain catecholamine bound neuro-secretory granules and the sustentacular cells (type II cells, supporting cells) are devoid of neurosecretory granules and are characteristically located at the periphery of Zellballen. Zellballen pattern are also seen in typical and atypical carcinoid, malignant melanoma and medullary carcinoma of thyroid and are not specific for paragangliomas¹². Non neuroendocrine tumors are excluded by chromogranin positivity and the absence of keratin positivity and presence of S-100 protein-positive sustentacular cells tends to exclude carcinomas. These tumors can be confused on microscopy as carcinoid tumor, malignant melanoma, medullary thyroid carcinoma, and small-cell neuroendocrine carcinoma¹³. S-100 testing is particularly necessary to establish the correct diagnosis as its negative in typical and atypical carcinoid and small-cell neuroendocrine carcinoma. Cytokeratin, epithelial membrane antigen, carcino-embryonic antigen are negative in paragangliomas while positive in carcinoids and small-cell neuroendocrine carcinoma. Chromogranin, synaptophysin, neuron-specific enolase are positive in all the laryngeal neuroendocrine tumors. Galanin, glial fibrillary acidic protein are very specific for laryngeal paragangliomas¹⁴. 90% of these tumors occur in the supraglottic larynx and the rest in the glottic and the



Figure 2 : MRI angiography and DSA showing embolization.



Figure 3 : Lateral pharyngotomy approach with the tumor specimen.

subglottic region. Functional activity is seen in a few (2.9%), none are associated with paraneoplastic syndromes. They spread by vocal fold fixation and rarely associated with necrosis and vascular invasion¹. Some herniate through the thyrohyoid membrane and present as a neck mass. If imaging provide sufficient evidence of probable diagnosis of paraganglioma (or any other vascular tumor), then a biopsy can be omitted and direct

surgery following angiography and embolization seems better. Some tumors may be large enough to herniate through the thyrohyoid membrane and present as a neck mass³. Contrast-enhanced computerised tomography (CECT neck) and, contrast enhanced magnetic resonance imaging (MRI) rules out less enhancing laryngeal masses⁸. MRI is also useful in detecting lesions that are smaller than 5 mm and to screen for synchronous paragangliomas. Contrast enhanced MRI angiography (MRA) does not increase the diagnostic value of MRI but defines the vascularity of the tumor.¹⁵ Digital subtraction angiography (DSA) is more sensitive in detecting vascularization compared to MRA. Also tumors larger than 2.5 cm, four vessel angiography and preoperative embolization is useful in minimizing bleeding and injury to surrounding neurovascular structures. Digital subtraction angiography also allows the determination of carotid artery invasion and the performance of balloon occlusion studies to assess collateral cerebral circulation in carotid body paragangliomas^{6,16}. Usually superior thyroid artery is the primary vessel that supplies these tumors, so embolization creates a bloodless surgical field. Preoperative embolization done by superselective catheterization of the supplying branches and transarterial embolization with particulate agents dramatically improves the operative field¹⁸. Most of the laryngeal paragangliomas are managed surgically and organ preservation partial laryngectomy procedures are becoming the standard protocol. Radical surgeries are not indicated as regional and distant metastasis are rarely documented. Transoral resections are not advised because hemostasis management can prove fatal, so lateral pharyngotomy is preferred depending on the extent and site of the tumor. The endoscopic approach provides limited exposure and access to the lesion^{1,4}. The biological behaviour of the tumor is not extensively defined as the tumor is rare and the malignant potential hardly exist^{3,7}. All these lesions are treated by surgical resection which includes supraglottic or total laryngectomy and endoscopic resection. Inferior laryngeal paragangliomas present in the subglottis having dyspnea and shortness of breath and need careful consideration for airway management pre-operatively¹⁹. Laryngeal paragangliomas are benign tumors and presence of vascular, capsular or perineural invasion, focal necrosis, mitoses does not indicate metastatic potential. Malignant paragangliomas are reported in 2% in some series while pathologic findings cannot predict clinical and biological behavior of the tumor^{1,17}. Rare cases of distant metastasis is reported while neck nodes spread are rarely reported and so selective neck node clearance is not warranted¹. Regular followup is advised as no much literature on the biological behaviour of the tumor is known²⁰. No satisfactory role of radiotherapy or chemotherapy is reported in cervical paragangliomas³.

CONCLUSION : Early diagnosis of these laryngeal paragangliomas are difficult as they present with nonspecific clinical manifestation. Complete surgical resection or partial laryngectomy with meticulous dissection of surrounding tissues and preservation of neurovascular structures gives an excellent prognosis

as far as oncological clearance is concerned. Malignant paragangliomas of the larynx are rare and an major meta-analysis is necessary to provide a true biological behavior of this tumor.

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Malignant Solitary Fibrous Tumor of the Nasal Cavity and Paranasal Sinuses

Anurag, Shankar Shah, B. Pradhan, N M Thapa

ABSTRACT: Solitary malignant fibrous tumor of nose is a rare entity. We present a case of 72-years-old woman who had 8 months history of slowly progressive unilateral right-sided nasal mass first appearing as broadening of nasal dorsum and progressive nasal obstruction. The mass gradually progressed to protrude out of the right nasal cavity 2 cms from caudal end of vestibule. The patient underwent an excision and medial maxillectomy via lateral rhinotomy. Postoperatively the patient showed no evidence of residual tumor on nasal endoscopic examination during regular followups.

Key Words : Malignant solitary fibrous tumor, lateral rhinotomy, CD 34.

INTRODUCTION : In 1931 Klemperer and Rabin first described solitary fibrous tumors (SFTs) as distinct mesothelial tumors arising from the pleura¹. These tumors have been known by other names, including benign fibrous mesotheliomas and submesothelial fibromas. The true nature of these tumors has long been debated, and most investigators now believe that their origin is mesenchymal, as evidenced by their fibroblastic differentiation seen on histopathology². This explains the finding of SFTs in extrapleural sites such as the meninges, orbit, peritoneum, pelvis, adrenal glands, liver, and urogenital system^{3,4,5}. Recently, SFTs have also been reported in the head and neck region, located in such subsites as the larynx⁶, hypopharynx⁷, thyroid gland⁸, parapharyngeal space⁹, and tongue¹⁰. SFTs of the nasal cavity and paranasal sinuses are extremely rare. We report an extremely rare malignant SFT of the nasal cavity and paranasal sinuses treated by excision and medial maxillectomy through a lateral rhinotomy approach.

CASE REPORT : A 72 years old woman had 8 months history of slowly progressive unilateral right-sided nasal mass first appearing as broadening of nasal dorsum and progressive nasal obstruction. The mass gradually progressed to protrude out of the right nasal cavity, 2 cms from caudal end of vestibule. She reported right side nasal bleed on and off since last 3- 4 months. She also reported the recent onset of increasing right epiphora, but denied diplopia or changes in visual acuity. Her medical history was significant for Hypertension and Diabetes mellitus. She denied a history of tobacco or alcohol intake. She denied chronic or recent episodes of sinusitis. She had a history of cholecystectomy and hysterectomy in the past. A thorough cranial nerve examination was unremarkable as was the remainder of her head and neck examination. Clinical examination showed an obvious large, smooth mucosa covered mass filling the right nasal cavity with slough covered surface with hemorrhagic areas on it and bleed on touch. (Fig-1) There was no evidence of mucopus or polyps, and the left nasal cavity showed a deviated septum towards left side due to mass effect. She had right eye proptosis present with lateral displacement of the eye ball .On

Nasal endoscopy of the left side well appreciable mass was seen coming from right side choana and partially covering left side choana. Computed tomography (CT) of the nose and paranasal sinuses (Fig-2) showed a large, expansile, mass arising in the right nasal cavity with extension into the choana of right side and pushing septum towards left side. The mass also extended up to the cribriform plate superiorly and was not associated with intracranial or intraorbital involvement. There were features of multisinusitis present. Previous pre operative biopsy showed tumor of fibrous origin but was negative for malignancy. The patient underwent an excision and medial maxillectomy via lateral rhinotomy. Intraoperative findings included pinkish, firm mucosa covered, dumbbell shaped, broad based 10 x 5 cms (Fig-3). Mass arising from right lateral wall of nasal cavity, middle meatus area, extending posteriorly up to nasopharynx, superiorly up to ethmoids. Septum was free of infiltration by mass but pushed towards left side grossly and medial wall of antrum was intact. The periorbital remained intact. Pathological examination revealed a 10 x 7x4 cm malignant SFT. Light microscopy showed a high mitotic rate (>6 mitoses/10 high-powered fields [HPF]), diffuse proliferation of spindle fibroblastic cells with blood vessels focally arranged like hemangiopericytoma . Focal areas of necrosis were present within the surgical specimen. (Fig-4) Lateral nasal wall margin was positive for disease. Immunohistochemical studies were positive for CD34. Postoperative recovery was uneventful. Sutures were removed after 10 days. On follow up nasal endoscopic examination was performed. Patient showed no evidence of residual tumor up to one year.

DISCUSSION : SFTs are rare neoplasms that were originally described as arising from mesothelial cells exclusively within the thoracic cavity¹. Immunohistochemical studies and electron microscopy have since helped identify the neoplastic cells as undifferentiated mesenchymal cells with no evidence of mesothelial or epithelial differentiation. The mesenchymal rather than mesothelial origin of the tumors is further supported by the growth of this tumor in numerous extraserosal sites. Interestingly,



Figure 1 : Right side huge nasal mass protruding out of nasal cavity.

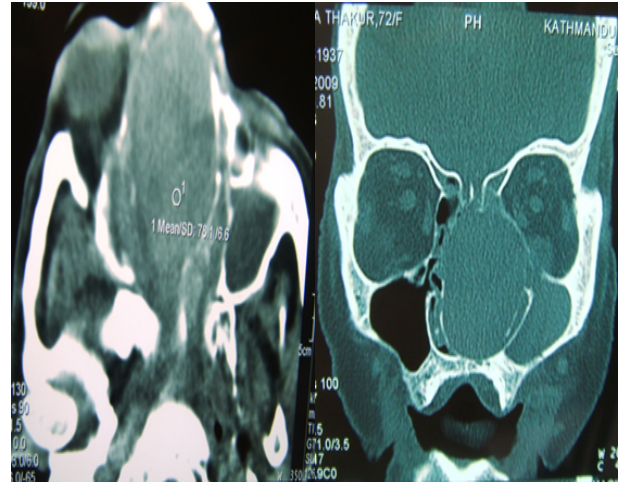


Figure 2 : Right side huge nasal mass protruding out of nasal cavity.

extrathoracic SFTs appear to have histological, immunohistochemical, and ultrastructural features similar to those described for tumors arising from the pleura-based intrathoracic regions¹¹. Extrathoracic SFTs reported in the English literature over the last several decades and the preferred sites seem to be within the head and neck region, including the larynx⁶, hypopharynx⁷, parapharyngeal space⁹, tongue¹⁰, orbit¹², and paranasal sinuses and nasal cavity¹³. Much like their intrathoracic counterparts, extrathoracic head and neck SFTs tend to behave in a benign fashion¹⁴. In most cases, however, the term refers to atypical histologic features, including nuclear atypia, increased cellularity, necrosis, and more than 4 mitoses per 10 HPF, and not to the clinical behavior of the tumor¹⁵. Approximately 10 to 15% of SFTs located outside the thoracic cavity are recurrent or metastatic. In addition, a small percentage of histologically benign tumors demonstrates clinically malignant behavior⁵. However, no nasal SFT has been reported to recur or metastasize. On review of the literature, 21 cases of a primary SFT

arising in the nasal cavity and paranasal sinuses were reported. Most patients in this series sought treatment for complaints of a unilateral mass, nasal obstruction, rhinorrhea, epistaxis, and/or exophthalmos¹⁶. Other signs and symptoms, such as epiphora, anosmia, headache, facial pain, and visual disturbances, can also be present. On CT, SFTs of the nasal cavity and paranasal sinuses classically show irregular central bone density due to remodeled and reactive native bone; on T2-weighted MRI, the soft-tissue component of SFTs is iso- to hypointense¹⁷. Pathological diagnosis of SFTs can be difficult because these tumors express various histologic features that mimic those found in other soft-tissue neoplasms such as hemangiopericytomas, schwannomas, fibrous histiocytomas, fibrosarcomas, and nasopharyngeal angiofibromas¹⁸. Macroscopically, SFTs are well-circumscribed, tan, rubbery masses often tethered by a pedicle. Microscopically, these neoplasms are described as “patternless” with a haphazard arrangement of bland-appearing spindle cells, hypercellular and hypocellular sclerotic foci, stromal hyalinization, and a prominent



Figure 3 : Gross dumbbell shaped , well circumscribed specimen of tumor mass measuring 10x7x4 cms.

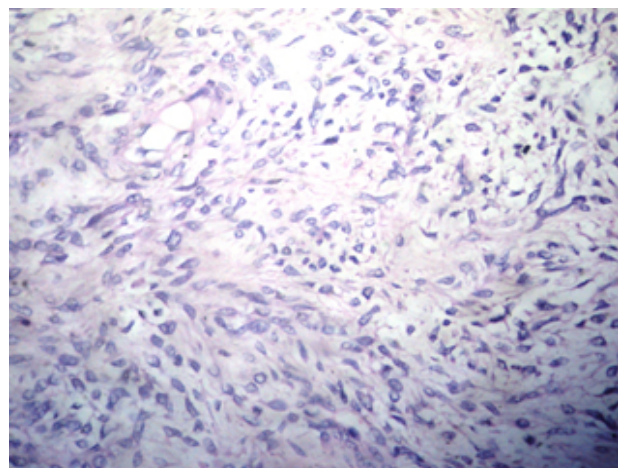


Figure 4 : Irregularly distributed spindle-shaped cells in a dense collagenous stroma with prominent vascularity.

branching vasculature¹¹.

Immunohistochemistry is the key to the correct diagnosis of SFTs. Almost all tumors exhibit strong immunoreactivity for CD34, a myeloid progenitor cell antigen^{2,11,19}. In addition, 75% of the tumors are diffusely reactive for bcl-2 protein¹¹. Other common markers include CD99 and vimentin. Classically, these tumors show negative staining for keratin, epithelial membrane antigen, S-100, glial fibrillary acidic protein, and carcinoembryonic antigen, further highlighting their mesenchymal origin²⁰. Resectability is the most important prognostic factor; therefore, effective treatment of SFTs of the nasal cavity and paranasal sinuses involves en bloc surgical excision^{17,21}. Previously reported cases of SFTs in the nasal cavity and paranasal sinuses have been removed using a variety of surgical techniques, including local excision, medial maxillectomy, external ethmoidectomy, endoscopic resection, and sphenoidectomy²². The lateral rhinotomy approach allows wide access to the nose, some elements of skull base, the nasopharynx and the paranasal sinuses for removal of benign and malignant lesions²³. En bloc medial maxillectomy and ethmoidectomy provides complete visualization of all tumour margins while preserving the orbital rim, eye, nasal pyramid, and lacrimal apparatus. The medial maxillectomy can be accomplished via either lateral rhinotomy or mid-facial degloving techniques. The morbidities associated with a lateral rhinotomy incision are epiphora, chronic dacryocystitis, transient diplopia and Eustachian tube dysfunction²⁴.

CONCLUSION :

This case highlights the importance of recognizing SFTs as uncommon tumors of the nasal cavity and paranasal sinuses with the capability to invade the skull base. SFTs therefore should be included as part of the differential diagnosis of such presentations. This case also stresses the important distinction between the histopathology and clinical behavior of SFTs, emphasizing that malignant pathology does not imply malignant behavior.

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III WORKSHOP ON OSAS; DISE AND PHARYNGOPLASTY

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Workshop on Cochlear Implant

Dr. Zeba Ahmed

Cochlear implant workshop was held from 13th to 17th March 2015 at Department of ENT, Head & Neck surgery Dow international Medical college OJHA Campus, in collaboration with professional development center, Dow University of Health Sciences Karachi.

About 15% of the population is suffering from hearing impairment, majority of them are due to preventable causes but cases of congenital SNHL are increasing day by day due to variety of socio-cultural reasons in our region. In vast majority of these cases, conventional rehab measures with the use of hearing aids and/or speech therapy are not much beneficial. Cochlear implant is relatively newer technique that can cater the needs of majority of such cases if they meet the criteria of cochlear implant candidacy. The cost incurred in private sector in Pakistan is very high (25000 USD) which cannot be afforded by many parents especially from lower and middle class.

This time we planned training workshop on Cochlear Implant with lectures and live demonstration of implant surgeries from 13th to 17th March 2015. We selected 14 candidates from registered patients for cochlear implant. This time, our aim of the program was to educate and train postgraduates and junior practicing otologist regarding cochlear implant besides implanting the suitable registered candidates.

Dr. Diab Khassan, a renowned otorhinolaryngologist from Research & Clinical Ear Department State Scientific Centre of Otorhinolaryngology, Moscow, Russia was invited as guest faculty to conduct the workshop. Total of 50 registered participants were present. The workshop was conducted in two sessions, lectures and video relay of live surgery with two way communication from operation theatre to answer the queries of participants in seminar hall. One of the faculty member was there to guide the participants.

Day 1: The program begins with the recitation from Holy Quran. Course Director Prof. M. Umar Farooq pro vice chancellor of DUHS, welcome all the participants, workshop participants were the eminent otolaryngologist of the city, professor, faculty members of the DUHS and numbers of postgraduate trainees.

Speaking on the occasion he said that it was the 1st cochlear implant workshop of its kind, & was the continuation of the gigantic & tiring efforts of our otological team resulted in pioneering this type of scientific moot in the province. He said, the ultimate benefit of holding the cochlear implant session go to poor and needy patients suffering from hearing disability. Dr. Iqbal Khyani, the associate course director of the workshop invited the subject experts for lectures. The guest faculty delivered on cochlear implant candidate selection. This was followed by live surgery demonstration.

Day 2: The day began with the guest lecture followed by the live surgery demonstration with live relay from operation theatre. The workshop followed by morning and evening sessions of live surgery demonstration with Lunch & Prayers break in between.

Day 3 & 4: On 15th and 16th, the master trainer delivered the lecture on difficulties and complications of cochlear implant with videos presentation followed by morning and evening sessions of live surgery demonstration with Lunch & Prayers break in between.

Day 5: Live surgery sessions followed by certificates distribution to all the participants. Certificates of appreciation were presented to all participant organizers and facilitators. The Pro vice chancellor DUHS, Prof. M Umar Farooq presented the shield and letter of appreciation to Dr. Diab Khassan.

In his closing remarks, Prof. M. Umar Farooq said that he is glad to organize this sort of workshops for the benefit of deaf and dumb children .He expressed his gratitude's to the guest faculty from Moscow, Russia for being here to conduct the workshop. He thank all team members for their hard work in organizing this scientific event.

Speaking on the occasion, Dr. Diab Khassan the guest faculty from Moscow said that, he is glad to learn that the department of ENT, Head & Neck Surgery of this university continued to organize these workshops. He said that he is impressed by the affection and hospitality of the Pakistani people and love to visit here again.

In his vote of thanks, Dr. Iqbal A Muhammad Khyani, the associate course director extends his profound gratitude's to the foreign faculty, course director and all the participants to grace the occasion. He thanked all the team members and supporters for organizing this workshop. Expressing their views the participants were satisfied with the individual attention, teaching and guidance of the guest and local faculty. They appreciated the efforts of the team for arranging such Scientific and informative CME workshop.

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