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Auditory Brainstem Implants; A Strategic Hearing Rehabilitation Beyond Cochlear Implant

Iqbal A. Muhammad Khyani

Hearing impairment is a global health care problem posing additional economic burden on the society. About 15% of the population in Pakistan is hearing impaired and majority of its causes are preventable¹. In Pakistan, rehabilitation of hearing impaired is currently based on different types of conventional hearing aids. Only few centers are offering bone anchored hearing aids (BAHA) and cochlear implants for selected adults and children with bilateral severe to profound sensori-neural hearing loss who derive limited benefits from conventional hearing aids. Cochlear implantation requires a functioning cochlear nerve with a cochlear anatomy which does not preclude implantation. Therefore there are instances where cochlear implantation is either not possible, inappropriate or not indicated. Stringent criteria should be adapted for the cochlear implant candidacy as it involve meticulous workup and ample amount of financial liability. Recently auditory brainstem implants (ABI) is offered in the situation where cochlear implant is in-appropriate or not indicated.

First auditory brainstem implant (ABI) was performed by Hitselberger and House in 1979 at Los Angeles USA². This was a simple ball type electrode implanted in a patient with neurofibromatosis type 2 (NF2) after removal of vestibular schwannoma. Using a modified body worn hearing aid, this device provided useful auditory response. Based on this initial experience a two electrode and later three electrode mesh type array was developed by Huntington Medical Research Institute (Pasadena, CA, USA)³. Later on the same institute in conjunction with cochlear corporation developed 8- electrode and 21- electrode array after the suggested feasibility of multichannel stimulation. Richard Ramsden and his auditory implant team at Manchester UK used this multichannel implant primary as a part of the rehabilitation of the individuals with NF-2. Currently two types of brainstem implants are available. One from Cochlear Ltd with 21-electrode system (Nucleus 24 ABI system or ABI 24) and other Med-EL ABI with a 12 contact electrode array. An additional reference electrode is provided for advanced telemetry measurement providing added functional reliability and control.

An ABI implant is similar to a cochlear implant and has an external component comprising of a microphone headset, sound processor and a transmitter coil. The internal (implanted) part has an antenna coil, receiver-stimulator and electrode array designed for insertion into the lateral recess of the 4th ventricle of the brainstem⁴.

The indication for potential ABI recipients fall into two broad group; 1) Tumour group esp NF-2 and 2) Non-tumour group. In NF-2 group, patients developed SNHL due to cochlear ischaemia, direct pressure by tumour on cochlear nerve or surgical resection of the tumour. Non-tumour group includes children with congenital bilateral hearing loss that precludes cochlear implantation, usually due to inner ear malformations and / or cochlear nerve hypoplasia/aplasia. Acquired causes includes post meningitis ossification of the cochlea, severe cochlear otosclerosis, trauma and temporal bone dystrophy⁵. ABI workup involves team of surgeons ,electrophysiologist, audiologist and speech therapist.

Speech perception results and auditory sensation provided by ABI can be very useful in facilitating oral communication. ABI is an established intervention in selected individuals. In lieu of emerging and promising results from developed countries and even from neighbourhood developing countries, it is eminent that otologists of our country who are engaged in auditory rehabilitation should take a lead to get themselves acquainted and trained for ABI to bring rehabilitation of hearing impaired at par with global trends.

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Incidence of Tracheostomy in Gun Shot Trauma Victims A Retrospective Study

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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. **METHODS:** This was a Retrospective Observational Study carried out in ENT Department CMH Quetta from Jan 2012- Dec 2012. 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 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

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

Table-1 : 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.

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 trauma.¹¹ 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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Psychosocial Impact of External Nasal Deformity before and After Rhinoplasty

Narmaya Thapa, Bibhu Pradhan

ABSTRACT: **OBJECTIVE:** To find out psychosocial impact of external nasal deformity before and after primary rhinoplasty. **STUDY DESIGN:** Prospective, longitudinal and comparative study. **PLACE OF STUDY:** Ganesh Man Singh Memorial Academy of ENT-HN Studies, Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu, Nepal. **DURATION:** Dec. 2012 to Sept. 2013. **PATIENTS AND METHOD:** Questionnaires were filled up by patients prior to surgery and when they came to follow up 6 weeks after surgery. In order to compare psychosocial effects pre and post-operatively, pre-operative questions were added in Glasgow Benefit Inventory (GBI), 4 point numerical rating scale was used. Mean value calculated and compared by using paired t-test. Five point numerical rating scale was used for remaining questions. **RESULTS:** Out of 34 patients, 23 were male and 11 female. Age ranged from 18-57 years with mean age of 24.32 years. Twenty one patients had problem to attend social gathering before surgery while only 2 patients had some problem after surgery. Seventeen patients hesitated to talk to opposite gender prior to surgery whereas only 1 had some hesitation after it. Twenty four patients were anxious due to nasal deformity prior to surgery while only 3 patients had little anxiety after surgery. While compared statistically these points were highly significant. Self confidence was increased drastically in 21 patients after surgery. Twenty four patients felt extremely good after surgery, however, only 5 patients did extremely better in studies or work. Twenty six patients were fully satisfied with the surgery, 7 patients were satisfied moderately while 1 patient had minimal satisfaction. **CONCLUSION:** The study concluded that external nasal deformity has a significant psychosocial impact. Rhinoplasty has significant role to reduce this impact of the external nasal deformity.

KEY WORDS : External nasal deformity, Psychosocial impact, Primary rhinoplasty.

INTRODUCTION : Nose is the most prominent structure of our face. Its shape and size denotes personal as well as racial identification and beauty of the face. It is also most vulnerable structure to any trauma like physical assault, road traffic accident and fall. During ancient time nose used to be chopped as punishment to enemies and if somebody does adultery¹. If the nose is deformed, it may have psychological as well as social impact specially in young people. For example, if a young male has crooked nose, he may hesitate to attend social gatherings. Rhinoplasty is the surgery done to correct nasal deformities. It can be done with or without septoplasty. However, it is usually done along with septoplasty specially in cases of crooked noses which in majority of cases is associated with gross deviated nasal septum². Psychological assessment of the patients prior to rhinoplasty is carried out to rule out any psychological problem in the patient which significantly affects postoperative satisfaction of the patient. Aesthetic outcome of rhinoplasty has also been assessed by many authors^{3,4,5}. No prospective study has been done to compare this psychosocial impact of external nasal deformity till date. This study tried to estimate the severity of the psychosocial impact of the external nasal deformity in our society and also determine role of rhinoplasty to reduce the impact of this kind of deformity. It would be also helpful to evaluate and counsel the patient preoperatively and modify the management

accordingly.

PATIENTS AND METHOD : This was a prospective, longitudinal and comparative study carried out in Ganesh Man Singh Memorial Academy of ENT-Head & Neck Studies, Tribhuvan University Teaching Hospital, MMC, IOM, Maharajgunj, Kathmandu, Nepal. This study was conducted during a period of 10 months from December, 2012 to September, 2013.

Inclusion criteria

1. Patients who underwent primary rhinoplasty with or without septoplasty
2. Both gender
3. Age 18 years and above

Exclusion criteria

1. Patients who denied to participate in the study
2. Patients who underwent rhinoplasty with other cosmetic surgeries like blepharoplasty, cheek augmentation, chin augmentation or reduction
3. Patients who lost follow up

Detailed history was taken regarding demographic profile, causes of nasal deformity, symptomatology and expectation of the patients. Thorough ENT examination was done. They were explained about the study. Written consent was taken. Ethical approval was taken from the Ethical Review Board of the Institute of Medicine, Tribhuvan University. Surgery was done by a single surgeon. Transcollumellar (inverted V) and bilateral marginal incisions were given for open approach while

hemitransfixion incision and bilateral intercartilaginous incisions were given for closed approach. For crooked nose, bilateral lateral and median osteotomy was done. A questionnaire translated in Nepali were filled by patients prior to surgery and when they came to follow up 6 weeks after surgery. In addition to this, patients were evaluated in terms of correction of nasal deformity during follow up by comparing pre and post-operative photographs. In order to compare psychosocial effects pre and post-operatively, pre-operative questions were added in Glasgow Benefit Inventory (GBI) which was used to evaluate patient satisfaction retrospectively following many ENT interventions and to simplify the questions and rating scales of GBI, 4 point numerical rating scale (extremely-3, to some extent-2, little bit-1, none-0) was used⁶. Mean value was calculated. Five point numerical rating scale was used for remaining post-operative questions. Data were analysed by using SPSS latest version. Paired t-test was applied. P-value <0.05 was considered statistically significant.

RESULTS : Total 39 patients underwent primary rhinoplasty during above mentioned period. Of these 39 patients, 5 patients lost to follow up. Therefore, total 34 patients were included in this study. Age of the patients ranged from 18- 57 years with mean age of 24.32 years. causes of external nasal deformity in the included subjects are given in table-1. There were 23 male and 11 female patients with male female ratio of 2.09:1. Regarding types of deformity, 27 patients had crooked nose, of these 3 patients had flared alae and 1 patient had bulbous tip also. Five patients had hump nose and 2 patient's saddle nose. All the patients with crooked nose had deviated nasal septum. Therefore, 27 patients underwent septoplasty with corrective rhinoplasty, out of these 3 patients had bilateral reduction of alae as well. Five patients underwent hump reduction while 2 patients had augmentation rhinoplasty. The graft material used for augmentation was costal cartilage in 1 patient and iliac crest in another patient. Eleven patients underwent open approach whereas 13 patients had closed rhinoplasty. Duration of follow up ranged from 3 to 10 months. There was no patients who was totally dissatisfied or demanded redosurgery. Feeling of awkwardness and anxiety in social gathering due to nasal deformity was found to be minimal as depicted in table-2. There was minimal change of self confidence at education or work as shown in table-3.

DISCUSSION : With the modernization of society demand of cosmetic value has been increasing. Beside this due to increased rate of social violence, sports and road traffic accidents number of patients with nasal deformity is also rising. Along with this scope of cosmetic procedures including rhinoplasty is also going up. Americans spend over \$12 billion per year on cosmetic procedures^{6,7}. Attractiveness influences both the way people think about themselves as well as their behavior toward others and is related to traits such as self-confidence and social acceptance⁸. The studies have

Cause	No. of Patients
Developmental	24
Trauma: Fall injury	6
Roadtraffic accident (RTA)	2
Sport	1
Physical assault	1

Table-1 : Cause of external nasal deformity (n=34).

Cause		Extremely	To some extent	Little bit	None	Mean	p-value
Feeling of awkward	Pre-op	7	8	6	13	1.26	<0.001
	Post-op	0	1	1	32	0.09	
Hesitation to talk to opposite gender	Pre-op	5	6	6	17	0.97	Highly Significant
	Post-op	0	1	0	33	0.06	
Anxiety due to nasal deformity	Pre-op	15	4	5	10	1.71	
	Post-op	0	1	2	31	0.12	

Table 2: Feeling of awkward while attending social gathering, hesitation to talk to opposite gender and anxiety due to nasal deformity (n=34).

Grading	Extremely better	Better to some extent	Little bit better	Same	Worse
	No. of patients				
Self- confidence	21	7	2	4	0
Feeling	24	7	1	2	0
Study/work	5	5	2	22	0

Table 3: Change in self- confidence, feeling at study/work (n=34).

shown that cosmetic interventions can help improve the quality of life and psychological well-being of patients electing to undergo these procedures. The positive changes evoked in these patients were related to their feeling healthier and more satisfied with their appearance, being less anxious, having better emotional well-being, and having more confidence. Quality of life outcomes thus represent an important approach by which practitioners and patients can better assess the effects of cosmetic interventions⁹. Different tools have been used to assess the end results of medical interventions. Some authors use questionnaires but Alsarraf et al were the first to offer and test an outcome instrument for rhinoplasty in terms of its test- retest reliability, internal consistency^{10,11,12}. These data are useful for assessing different kinds of patients or different surgical techniques, and for comparing the results of different surgeons or for assessing one's progress in rhinoplasty. Among 34 patients who underwent primary rhinoplasty, about two third of the patients were male. This finding is consistent with the finding of Oeken et al and Aslam et al who reported 33 males out of 52 patients and 26 males out of 31 patients respectively in their study while other studies showed more female patients^{3,13,14}. The reason behind this may be in our society males work outside than females and they are more prone to get trauma and also due to male dominating society. Similarly, our maximum patients were of age group less than 30 years with mean age of 24.32 years. This finding is similar to other studies. Bagheri et al reported average age 24.4 ± 6.8 years old¹⁵. This indicates that this age group are more aware of their nasal deformities. Most of our

patients had nasal deformity due to development ie. they do not know the exact cause. It was associated with gross deviation of the nasal septum. In the study by Oaken et al also all the patients who underwent rhinoplasty had septal deviation³. Twenty one patients felt awkward while attending social gathering due to nasal deformity while only 2 patients felt awkward after surgery. Similarly, seventeen patients felt hesitation to talk to opposite gender pre-operatively while only 2 patients felt hesitation post-operatively. Dinis et al found that 13 out of 25 reported that they became aware of being more socially desirable than before surgery. Seven of them further referred that improved appearance had significantly benefited their social inter-relationships¹³. About two third of the patients had anxiety due to their nasal deformity, whereas none of them had anxiety post-operatively. In order to compare these results I did not find any literature. Most of the patients had significant improvement in their self-confidence and feeling after surgery. However, only one third of the patients mentioned that they had significant change in their work or study after the surgery. Regarding satisfaction, all the patients were satisfied with their nasal appearance after the surgery. Of these, 26 patients were fully satisfied⁷, were moderately satisfied¹, patient was slightly satisfied and none of them were unsatisfied. Our result is comparable with that of other studies. In the study by Oeken et al out of 52 patients 39 reported as an improvement, 12 patients as unchanged, and by 1 patient as worse³. In another study by Dinis et al 84% patients reported a very good/good and 16% an average, with no cases of mediocre/bad aesthetic results¹³. The study by Aslam et al cosmetic result was appreciably good in 20 (64.5%) patients by subjective evaluation¹⁴. According to Bagheri et al out of 101 patients 16 % reported unsatisfied following surgery¹⁵. In a study by Arima et al in case of crooked nose 90% of patients undergoing rhinoplasty believed they achieved a good result¹⁶.

CONCLUSION : External nasal deformity has a significant psychosocial impact. Rhinoplasty plays a significant role to reduce psychosocial effect of external

nasal deformity. This study will be continued with a larger sample size to validate the present results.

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IV ADVANCED ENDOSCOPIC SKULL BASE SURGERY INTERDISCIPLINARY ENT / NEUROSURGERY TEAM (FRESH-INJECTED CADAVER SPECIMENS)

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Metallic Discoid Foreign Body - Emerging Complications with Changing Trends

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ABSTRACT: **OBJECTIVE :** To analyze the complications, nature and frequency of disc shaped, metallic impacted foreign body in ENT region and suggest management relevant for each case. **STUDY DESIGN:** Multi-centric Descriptive study. **PLACE AND DURATION OF STUDY:** Study was conducted at ENT departments of CMH Multan and Rawalpindi from April 2010 to February 2015. **MATERIAL AND METHOD:** All patients reporting with round, flat (disc shaped) metallic foreign body anywhere in ENT region were included in the study. The data was analyzed with regards to nature and frequency of different metallic discoid foreign bodies. A comparison of two main discoid metallic foreign bodies i.e. coins and button battery was then made with regards to complications, frequency and nature. **RESULTS:** A total of 78 cases of metallic discoid foreign body in ENT region were included in the study during the period mentioned. All were children between 1-7 years of age. Out of them 56 cases had coin impaction in oesophagus (5 rupee coin in 22 & 1 rupee coin in 6 cases). During the same period 8 cases of button/disc battery were encountered in the nose, 4 in ear and 10 in oesophagus. The complications with button / disc battery impaction outnumbered those with coin impaction. They included nasal septal perforations, drumhead perforation (both encountered with small button battery only) and oesophageal perforations (encountered only with large button battery). **CONCLUSION:** Coins are still the most common metallic discoid foreign body encountered in ENT region. They are followed by button/disc battery, which are however much more dangerous with regards to complications. Effort must be made to remove button / disc battery as early as possible, preferably within two hours of ingestion / instillation. If however more than eight hours have elapsed since ingestion of button / disc battery, the possibility of tissue damage and perforation must be borne in mind.

Key Words : Button battery, Disc battery, Metallic foreign body.

INTRODUCTION : Evolving trends of time have changed the course of several diseases, and foreign body in ENT region particularly in paediatric age group is one of them. It may not be wrong to say that the nature and behavior of most commonly encountered foreign bodies particularly in paediatric patient's changes after every decade. Till the last decade, coins in oesophagus were perhaps the most commonly encountered metallic discoid foreign body. It may be an interesting fact that inflatory trends in global economy are having its positive and negative impacts in nature of foreign body in ENT region. Due to rising inflation, coins are seen less frequently and are being replaced by currency notes - a positive outcome in the sense that incidence of coins in oesophagus has decreased. On the contrary, increased mechanization has brought with it the era of digital toys - a negative outcome in the sense that digital batteries of variable sizes are getting available to a pre-school child and now frequently being encountered as foreign body not only in oesophagus but also in nose and ear.

MATERIAL & METHOD : A study was carried out in ENT departments of CMH Multan and Rawalpindi from April 2010 to February 2015.

Inclusion Criteria:

All patients coming with history of impaction of discoid

metallic foreign body anywhere in ENT region irrespective of age were included in study.

Exclusion Criteria:

Non-metallic foreign bodies and metallic foreign bodies with shapes other than discoid.

Since the idea was to study the effect of impacted discoid foreign body in ENT region, therefore the foreign bodies including coins and button battery that had passed beyond oesophagus without obstruction were excluded from the study. A total of 78 patients fulfilling above criteria were included in the study. The nature of metallic discoid foreign body (coin or battery cell), size of discoid foreign body and the region of ENT where the foreign body had impacted was noted. Furthermore the time elapsing between impaction of foreign body and its removal was noted. The metallic discoid foreign body in oesophagus was removed endoscopically under general anaesthesia while those in nose and ear were removed by conventional method (under general anaesthesia when required). The findings during removal i.e. charring of tissues, granulation tissue formation and perforation of nasal septum / tympanic membrane / oesophagus were noted. After providing the relevant post-removal treatment, any complication during the follow-up period was also noted.

Data was analyzed in SPSS version 19 and Chi Square test was used as the test of significance to compare complication rate of button / disc battery with that of coin. P-value was fixed at below .05 to be significant. RESULTS: All patients in our study fell in the age group between 1-7 years. Out of 78 patients included in the study, 56 had coin impacted in oesophagus. In 44 cases it was a 5 rupee coin (size 2.5 c.m.) while in remaining 12 cases it was a one rupee coin (size 2 c.m.). In all of these cases the coin was removed endoscopically. All had uneventful recovery. In 54 of these cases there were no long term complications. In two cases however some degree of dysphagia developed due to oesophageal stricture in the long term followup period. As regards the button/disc battery 08 cases of small batteries (size 5-7 m.m.) as foreign body were encountered in nose out of which four developed nasal septal perforation (Fig 3). Four cases had small button battery impaction in deeper part of external meatus, all of whom developed perforation of eardrum as would be elaborated in discussion section. No case of the small disc battery was encountered in oesophagus, probably because small batteries even if ingested would pass through oesophagus unobstructed. 10 cases of large button batteries (size 2 c.m.) as foreign body were encountered in oesophagus, out of which four developed local tissue necrosis and fibrosis while two developed oesophageal perforation with tracheo-oesophageal fistula formation. Out of the latter two cases, a one year old child died as would be elaborated in the discussion section, while the other case was managed conservatively by paediatric surgeon and eventually lost to followup. Since large button battery is large enough and cannot be put in nose or ear, therefore no case of large button battery was encountered in these two sites. Chi Square test showed complications encountered with button battery vastly outnumbering that of coin with P value less than .05 (beyond .00) in favor of button / disc battery. Table 1 shows the summary of discoid metallic foreign bodies encountered in our study.

DISCUSSION: Coins and button / disc batteries constitute the bulk of impacted discoid metallic foreign bodies in ENT region. Since most readers are quiet familiar with coins, therefore the first part of discussion button / disc batteries (Fig 1). Disc or button battery cells are usually disposable primary cells. Common anode materials are zinc or lithium. Common cathode materials are manganese dioxide, silver oxide, carbon monofluoride, cupric oxide or oxygen from the air. Mercuric oxide button cells were formerly common, but are generally no longer available due to the toxicity and environmental hazard of mercury¹. The unit is placed in a 2-part metal casing held together by a plastic grommet. The grommet electrically insulates the anode from the cathode. The metal undergoes oxidation on one side of the separator, while the metal

oxide is reduced to the metal on the other side, producing a current when a conductive path is provided (Fig 1).

Disc batteries vary in diameter from 5 to 23 mm and in weight from 1 to 10 g. Coins on the other hand have variable size in different countries and usually weigh slightly more than the button battery. The size of large button / disc battery commonly used in toys is almost equal in size to recently introduced one rupee Pakistani coin (Fig 4). An increased incidence of disk-type battery ingestion has become a serious problem in recent years². Vast majority of disk battery ingestions occur when curious children explore their environment. Children younger than 6 years account for 61% of ingestions, with a peak incidence in ages between 1 and 3 years³. According to one study the known diameters of ingested disk batteries were as follows: 11.6 mm (55% of cases)^{7,8-7,9}, mm (31% of cases), 20 mm or more (6.7% of cases), 5.8 mm (3% of cases). Cases of large diameter (20 mm) disk battery ingestions increased from 1% of cases from 1990-1993 to 18% of cases in 2008³. This new discoid metallic foreign body i.e. button / disc battery is far more dangerous than the coin in the following ways:

a, Coins as a foreign body were encountered mainly in oesophagus but button / discoid battery cells being of variable size are also encountered in nose and even ears.

b, Coins caused more alarm to the parents but usually did not cause much damage other than mechanical obstruction and pressure. However button / disc battery can cause damage in several different ways which include:

- Electrical discharge from the battery. Pressure necrosis (as is also true for coins). Caustic injury from leakage of the battery's contents⁴.
- Liquefaction necrosis may occur because sodium hydroxide is generated by the current produced by the battery (usually at the anode which is the flat surface without an imprint code or "+" sign)³. Toxic effect of mercuric oxide: some batteries contain lethal levels of mercuric oxide (5g) 4 which

Nature of Foreign body	N (78)	Site of lodging in ENT region			Time elapsed between lodging and removal		Outcome		
		Oeso-phagus	Nose	Ear	Less than 8 hours	More than 8 hours	Unevent full removal	Perforatio n / T.O. Fistula	Necrosis / Fibrosis
Coin	56(72%)	56 (72 %)	0 (0%)	0 (0%)	14 (18 %)	42 (54 %)	54 (69 %)	0 (0%)	2 (2.5%)
Small Cell	12 (15 %)	0 (0%)	8 (10 %)	4 (5%)	6 (7.5%)	6 (7.5%)	2 (2.5%)	6 (7.5 %)	4 (5%)
Large Cell	10 (13 %)	10 (13 %)	0 (0%)	0 (0%)	6 (8%)	4 (5%)	4 (5%)	2 (2.5 %)	4 (5%)

Table 1 : Site & time elapsed till removal of discoid foreign body and its outcome.

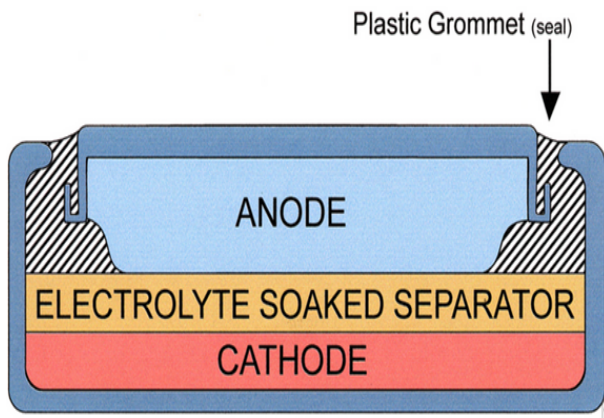


Fig-1 : Section of button battery showing its compartments.

- can cause toxicity. However this theoretical threat of mercury toxicity has not been borne out by clinical experience. In a series of 2382 battery ingestions, no clinical evidence of mercury toxicity was observed⁵. Batteries containing other heavy metals, lithium, or manganese are not toxic⁴. A maximal effect occurs in less than 2 hours⁶, while oesophageal perforation (in case ingested button battery lodged in oesophagus) is highly possible after eight-hour retention at a specific site⁷. Serious adverse long term sequelae of oesophageal button battery include esophageal stenosis, oesophageal fistula^{8,9,10}, massive bleeding, and death¹¹. Even bilateral vocal cord paralysis has been reported due to button battery ingestion, although the cell had been removed just 5 hours after ingestion¹². Other recorded complications include mediastinitis, pneumothorax, pneumoperitoneum, tracheal stenosis, tracheomalacia, aspiration pneumonia, empyema, lung abscess, and spondylodiscitis¹³. In addition to the complications of button battery generally mentioned in literature, we would like to add certain other complications that were encountered in our study. Small button battery lodged in nasal cavity caused nasal septal perforation in four cases out of eight reported cases (Fig 3). These four cases were however those in which the battery

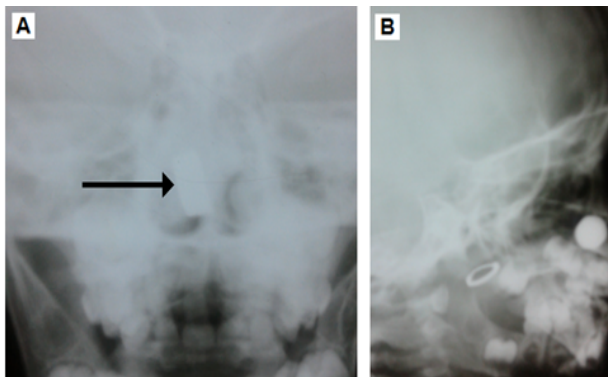


Fig-3 : Erosive Ability of coin. Arrow points at small button battery eroding nasal septum (A). Same button battery in lateral view of nose (B).

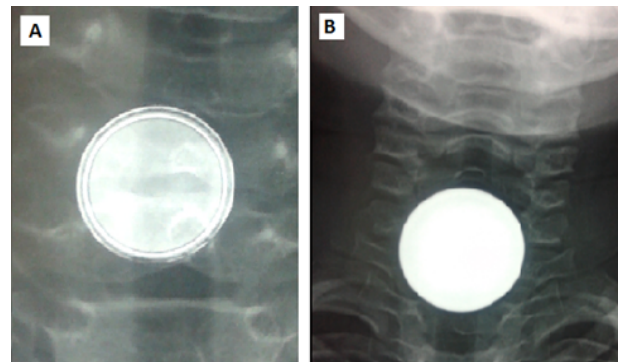


Fig-2 : Radiology Of Button Battery vs coin Distinctive double contour of button battery (A) in Oesophagus as against one rupee coin (B) at the same site.

had been inside the nostril for more than 24 hours. Small button battery impacted in deeper part of external meatus caused drumhead perforation in all the reported cases in our study, which was partly due to erosive effect of battery and partly due to manipulation involved to remove the battery (general anaesthesia was required in all of these cases and removal of impacted battery required lot of manipulation). Since small button batteries with size around 5 millimeters, are small enough to pass through the oesophagus unobstructed, therefore the oesophageal complications encountered in our study were associated with large button battery only which can get impacted in oesophagus (Fig 2). Large button battery lodged in oesophagus caused granulation / stricture formation in four cases while oesophageal perforation in two case and out of a total of ten. Out of the later two cases, one was a one year old child with trachea-oesophageal fistula formation who ended fatally after about ten days although the battery had been removed on third day of impaction. The death occurred mainly because the parents took the child away from hospital to get spiritual treatment, ignoring all medical advices. The other case was managed conservatively by paediatric surgeon and eventually lost to followup. As regards the coins encountered in oesophagus, all the cases in our study had uneventful endoscopic removal, with all except two cases having



Fig-3 : Comparative Sizes of Coins and Button Battery-(Left to Right) 5 rupee coin (diameter 2.5 c.m.), 1 rupee coin (diameter 2 c.m.), large button battery with diameter 2 c.m. (eroded due to prolonged impaction in oesophagus) and smallest button battery (diameter 5 mm).

no long term complications. Both the later two cases were children under 4 years of age living in a remote village, the coin had remained impacted for several days before its endoscopic removal and therefore both the children subsequently developed mild degree dysphagia due to oesophageal stricture formation. Diagnosis is usually clear on history. However in case of doubtful history a simple radiograph may settle the issue. Button batteries of all sizes have a distinctive double contour on radiograph and therefore can easily be picked on Plain X-ray (Fig 2). Comparative sized of common coins currently used in Pakistan and different button / disc batteries are shown in Fig 4. Blood and urine mercury levels may be obtained only if the mercury-containing cell has been observed to fragment in the GI tract or radiopaque droplets are observed in the gut on radiographs. In one study conducted at Lahore, Pakistan, out of a total of 154 cases of foreign body ingestion reported in children over a period of 5 years, 9 were alkaline disc batteries of small size¹⁴. In 2009, the American Association of Poison Control Centers listed disc batteries as the number 1 cause of fatal ingestions in children younger than 5 years. Lithium batteries are the most dangerous, and they are rapidly rising in use by manufacturers. Paralleling that rise, there has been a 6.7-fold increase in major or fatal outcomes between 1985 and 2009¹⁵. Emergency medicine physicians, otolaryngologists, radiologists, gastroenterologists, and pediatric surgeons may be able to mitigate, although not entirely prevent, potential serious complications in patients with disk battery ingestions by proper diagnosis and timely treatment¹⁴. In a country like Pakistan where no specific legislation exists to guard against this potentially fatal condition, following measures may be taken to prevent the occurrence of this condition-

- Parents and particularly mothers must be educated to keep a vigilant eye on their children while they are playing with toys powered by button/ disc battery.
- If the battery compartment in toys is not guarded by a secure screw, the parents should securely tape the compartment before handing over the toy to small children.
- Government should seriously think of legislating on inscribing a warning for the parents on the toys powered by button battery in the same way that cigarettes bear warning for being injurious to health.

CONCLUSION : Coins are now followed in frequency of occurrence by button/disc battery. Button / disc battery becoming a foreign body in ear, nose or oesophagus, should not be taken parallel to a coin foreign body. It should be removed as early as possible,

preferably within two hours of ingestion / instillation. If however patient reports after more than eight hours of ingestion (as is common in Pakistan), the high possibility of tissue damage and perforation must be borne in mind.

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Microbiology and Drug Sensitivity Pattern of Chronic Suppurative Otitis Media in a Tertiary Care Hospital of Saudia Arabia

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*Nureni M.A. Oyetunji, *Mohammed El Nashawany

ABSTRACT: **OBJECTIVE:** To determine the frequency and drug sensitivity of different microbial agents causing chronic suppurative otitis media (CSOM) in patients visiting tertiary care hospital in Buraidah, Al Qaseem, Saudi Arabia. **STUDY DESIGN:** Descriptive cross sectional study. **PLACE AND DURATION:** ENT OPD, King Fahad Specialist Hospital, Buraidah, Al-Qaseem, Saudi Arabia from July 2009 To June 2010. **SUBJECTS AND METHOD:** 109 ear swabs were acquired from cases diagnosed as chronic suppurative otitis media on the basis of history and clinical examination, who have not taken any local or systemic antibiotic treatment for the last 7 days. Patients taking steroids or suffering from any co-morbidity like chronic renal failure, diabetes mellitus or any disease which may affect the immune system, were excluded from the study. **RESULTS:** The average age of patients was 30.30 ± 19.61 years. *Pseudomonas aeruginosa* was found in 37(40.2%) cases followed by *staphylococcus aureus* 30(32.6%) cases. *Pseudomonas aeruginosa* was sensitive to Ciprofloxacin (97.3%), Gentamicin (67.6%), Amikacin (83.3%) and Cefepine (70%). Ciprofloxacin (86.7%), Gentamicin (83.3%), Clindamycin (80%) were found to be sensitive against *staphylococcus aureus*. **CONCLUSION:** *Pseudomonas aeruginosa* and *staphylococcus aureus* were the commonest organism causing CSOM. Ciprofloxacin found to be the most potent antibiotic against all common pathogens.

KEY WORDS : CSOM, Drug sensitivity, Microbiological culture.

INTRODUCTION : Chronic Suppurative otitis media is suppuration of middle ear cleft and its mucosal lining, for more than 6 weeks¹. The close relation of middle ear cleft to facial nerve, auditory labyrinth and posterior cranial fossa makes it easy for complication to develop. Chronic suppurative otitis media has poly microbiological etiology², the recent overuse of antibiotics has caused alteration in major bacterial strains and their sensitivity to antibiotics³. This study contributes to practice of evidence based medicine, avoiding antibiotic resistance and their effectiveness. Chronic ear disease has plagued humanity even before the beginning of modern history⁴. Chronic otitis media (CSOM) is a long standing suppuration of middle ear cleft and its mucosal lining⁵, associated with purulent otorrhea that persists for more than six weeks in the presence of tympanic membrane perforation. It is slow and insidious in its course⁶, sparing no age group⁷. The close relation of middle ear cleft to facial nerve, the auditory labyrinth, the lateral venous sinuses and the middle and posterior cranial fosse makes it easy for complications to develop⁵, leading to severe morbidity and possible mortality. CSOM has polymicrobial etiology⁵. Many infectious diseases have been controlled in the 20th century by improving living conditions, public health measures and with the use of antibiotics⁸. Early optimism about ending of all infections with the introductions of antibiotics has failed with time; in fact, there has been an increase in infectious diseases

morbidity and mortality with these antibiotics⁹. The recent overuse of antibiotics has caused alteration in major bacterial strains and the sensitivity to antibiotics making the condition more difficult to treat. Treatment failure and disease complication are caused by development of antibiotic resistant strains⁶ leading to exacerbation or prolongation of illness, as well as additional burden of an expensive medical cost for the patient¹⁰. Limited data is available from Saudi Arabia on this topic and almost all the studies are those published before year 2002^{11,12,13}. These data showed that prevalence of CSOM in the central province of Saudi Arabia was 1.15%¹², although in other parts of the Kingdom, the prevalence was found to be as high as 2.89%¹³. *Pseudomonas aeruginosa*, was the predominant pathogen (51%) followed by *staphylococcus aureus*^{11,12,13}. The recent epidemiological data collected from different studies done in Pakistan, Japan and Singapore from 2004-2006 suggested the same findings^{15,16,17}. Drug sensitivity pattern of *pseudomonas aeruginosa* showed that Ciprofloxacin was the antibiotic of choice against majority of isolates. In view of changing antimicrobial patterns and the importance of knowledge regarding common organisms and their sensitivity patterns, the current study has been designed. The result of this study will contribute to practice evidence based medicine for prescribing empirical antibiotic therapy thus preventing antibiotic resistance in the region.

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MATERIAL AND METHOD : The objective of this study was to determine the frequency and drug sensitivity of different microbial agents causing chronic suppurative otitis media in patients visiting tertiary care hospital in Buraidah, Al Qaseem, Saudi Arabia. Chronic suppurative otitis media is considered as purulent otorrhea that persist for more than 6 weeks with perforation of tympanic membrane. This descriptive cross sectional study was carried out in King Fahad Specialist Hospital, Buraidah, Al-Qaseem, Saudi Arabia from June 2009 to May 2010. 109 ear swabs samples acquired from patients coming to ENT OPD with discharging ear for more than 06 week. Ear swabs were taken from cases diagnosed as chronic suppurative otitis media on basis of history and clinical examination and have not taken any local or systemic anti biotic treatment for last 7 days. The patients who were taking antibiotics, steroids or suffering from any co-morbidity like chronic renal failure, diabetes mellitus or any diseases which can affect the immune system, were excluded from this study. A statistical program for social science (SPSS-13) was used to analyze data. Frequency and percentage were computed for categorical variables like sex, micro-organisms and sensitivity pattern. Mean, standard deviation, 95% confidence interval were computed for quantitative variable of age and duration of discharge.

RESULTS : A total of 109 ear swab sample of the patients were included in this study. The average duration of discharge from the ear of the patients were 1.41 ± 2.58 months (95%CI: 0.9 to 1.9) as presented in table-1. Out of 109 samples, organism growth was observed in 92(84.4%) sample while no growth was seen in 17(15.6%) samples. Frequency of different microbiological agent causing chronic supportive media is presented in table 2. *Pseudomonas aeruginosa* was found in 37(40.2%) cases followed by *staphylococcus aureus* 30(32.6%) cases. *Proteus mirabilis* and fungal infections were accounted for 5(5.4%) cases each. Coagulate negative staphylococci was accounted for 03(3.3%) of all isolates and *streptococcus constellatus* accounted for 4(4.3%) of all isolates. The gram negative organism of *E.Coli* species accounted for 3(3.3%), *klebsiella pneumonia* 2(2.2%) while *hemophilus influenza* was found in 1(1.1%) case only. The result of in vitro sensitivity test showed that *pseudomonas aeruginosa* was sensitive to ciprofloxacin (97.3%), gentamicin (67.6%), amikacin (83.3%) and cefepine (70%) as shown in figure 1. Ciprofloxacin (86.7%), gentamycin (83.3%), clindamycin (80%) were found to be sensitive against *staphylococcus aureus* (figure 2). Ciprofloxacin was found to be 100% sensitive against *proteus mirabilis* and this organism was 60 to 70 percent sensitive to gentamycin, amikacin and amoxiclane as presented in figure-3. Similarly ciprofloxacin was found to be 100% sensitive against coagulate negative staphylococcus, staphylococcus

epidermidis and *klebsiella pneumonia* while it was above 60% sensitive to streptococcus and *E.Coli* as shown in table 3 and 4. Gentamycin (66.7%), cotrimoxole (66.7%) and clindamycin (100%) were found to be sensitive to coagulase negative staphylococcus (table 3). Amikacin and amoxiclane were found to be 100% sensitive against *escherichia coli*. Ampicillin, augmentin and Cefepine were also found to be 100% sensitive against *Hemophilus influenza* as presented in table-4.

DISCUSSION : This study was carried out in King Fahad Specialist Hospital, Buraidah, Al Qaseem, Saudi Arabia. Our study is based on the objective to know the frequency of various causative bacteria causing CSOM and their susceptibility patterns to selected antibiotics. The knowledge of the prevailing strains and antibiotic sensitivity patterns in the region is essential to meet the challenge of CSOM. Prevalence of CSOM in Saudi Arabia, Pakistan, India and Korea is reported to range between 1% to 6%¹⁴. The lowest prevalence is found in developed countries like USA and UK (< 1%). Chronic suppurative otitis media is prevalent in all age groups and is evident from the results of various studies; it has a peak incidence in 31 to 40 yrs age group. In our study the peak incidence of disease was seen in 31 to 50 yrs age group (35.8%) followed by 31.2% in age group of 11 to 30 yrs. with mean age of pt 30.30 ± 19.61 . In this study 62 pts (56.9%) were male and 47 (43.1%) were female. In another study male were affected more than female with a ratio of 1.79:1. In our study majority of the patients (50.58%) were having discharge for last 1-5 yrs, whereas 46% had discharge for less than 1 year and only 2.8% had discharge for more than 5 years.

The wide range of microbes in CSOM has been subjected to exhausting investigations. Earlier studies reported the predominance of gram +ve bacteria. Studies as earlier as 1952 isolated staphylococcus aureus in 32.7% cases of which 42% were penicillin resistant and 55% were penicilline sensitive. Subsequent work stressed the wide spread presence of mixed gram +ve and gram -ve organisms in varying proportions with gram positive aerobic organisms predominating^{19,20,21}. The prevalence of gram-ve aerobes in CSOM has cast serious doubts on the earlier impression of role of nasopharynx as source of infection. An altered theory of "fecal aural" route was suggested²², but other authors in careful documented study conclude that foecal-aural route does not play a significant role in the microbial colonization²³. In our study *pseudomonas aeruginosa* was the commonest organism isolated (40.2%), followed by *staphylococcus aureus* 32.6%, *proteus mirabilis* 5.4%, *streptococcus constellatus* 4.3%, Coagulase negative staphylococcus 3%, *staphylococcus epidermidis* 2.2%, *Hemophilus influenzae* in 1.1% and *Klebsiella pneumonia* in 2.2 % cases. Fungus was grown in 5.4% of cases. These findings are almost similar to previous

Variables	Mean±SD	95%CI	Median (IQR)	Min-Max
Age (Years)	30.30±19.61	26.58 to 34.03	30(7.5)	<1 - 90
Duration of discharge	1.41±2.58	0.9 to 1.9	1(1.94)	<1 - 19

Table-1 : Descriptive statistics of characteristics of patients n=109.

Microbiological Agent	No. of Ear Swabs	Percent
<i>Pseudomonas aeruginosa</i>	37	40.2%
<i>Staphylococcus aureus</i>	30	32.6%
<i>Proteus mirabilis</i>	5	5.4%
Fungal infections	5	5.4%
Coagulase negative staphylococcus	3	3.3%
<i>Staphylococcus epidermidis</i>	2	2.2%
<i>Streptococcus constellatus</i>	4	4.3%
<i>Escherichia coli</i>	3	3.3%
<i>Hemophilus influenza</i>	1	1.1%
<i>Klebsiella pneumonia</i>	2	2.2%

Table 2. Frequency of different microbiological agent causing chronic suppurative media. n=92.

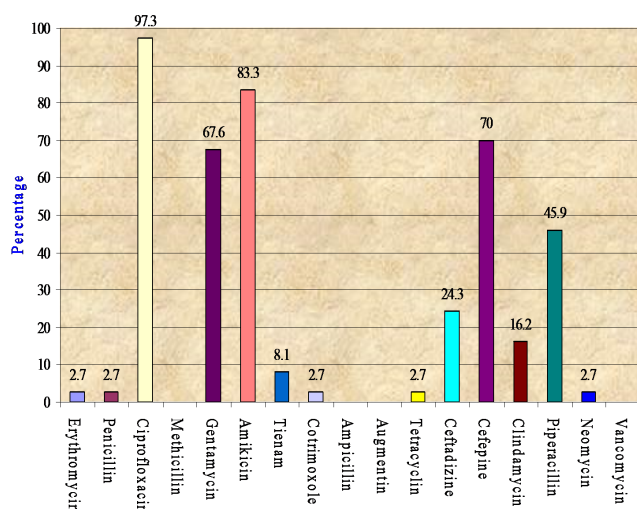


Figure-1. Antimicrobial sensitivity of pseudomonas aeruginosa. n= 37.

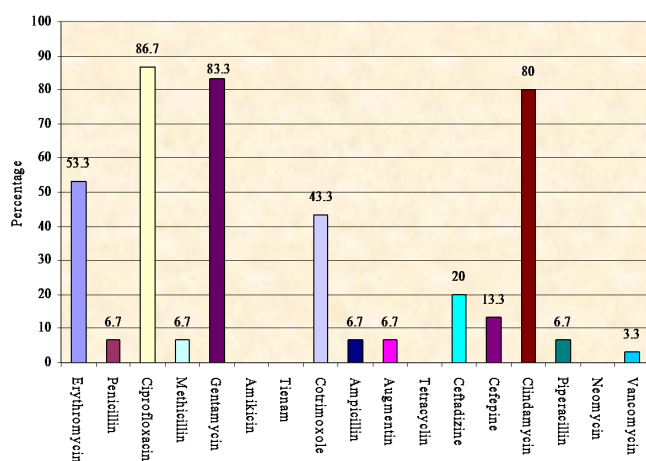


Figure-2. Antimicrobial sensitivity of staphylococcus aureus n= 30.

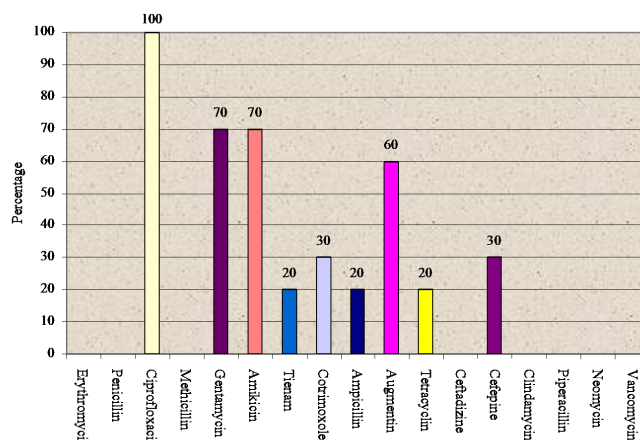


Figure-3. Antimicrobial sensitivity of proteus mirabilis. n= 5

Antibiotics	Coagulate Negative Staphylococcus n=3	Staphylococcus Epidermidis n=2	Streptococcus Constellatus n=4
Erythromycin	33.3%	0%	25%
Penicillin	0%	0%	0%
Ciprofloxacin	100%	100%	75%
Methicillin	0%	50%	0%
Gentamycin	66.7%	50%	25%
Amikacin	0%	0%	0%
Tienam	0%	0%	0%
Cotrimoxole	66.7%	50%	50%
Ampicillin	0%	0%	0%
Augmentin	0%	0%	0%
Tetracycline	0%	0%	25%
Ceftazidime	0%	0%	0%
Cefepine	33.3%	0%	0%
Clindamycin	100%	0%	50%
Piperacillin	0%	0%	0%
Neomycin	0%	0%	25%
Vancomycin	0%	0%	50%

Table 3. Sensitivity of coagulase negative staphylococcus, staphylococcus epidermidis and streptococcus constellatus.

Antibiotics	Escherichia Coli n=3	Heamophilus Influenza n=1	Klebsiella Pneumonia n=2
Erythromycin	0%	0%	0%
Penicillin	0%	0%	0%
Ciprofloxacin	66.7%	0%	100%
Methicillin	0%	0%	0%
Gentamycin	33.3%	0%	50%
Amikacin	100%	0%	50%
Tienam	0%	0%	0%
Cotrimoxole	0%	0%	0%
Ampicillin	33.3%	100%	0%
Augmentin	100%	100%	50%
Tetracycline	0%	0%	0%
Ceftazidime	0%	0%	0%
Cefepine	33.3%	100%	50%
Clindamycin	0%	0%	0%
Piperacillin	0%	0%	0%
Neomycin	0%	0%	0%
Vancomycin	0%	0%	0%

Table 4. Sensitivity of E. Coli, heamophilus influenza and klebsiella pneumonia.

regional and international studies^{23, 24, 25}. Atalah et al from Saudi Arabia 10 isolated 51% of *pseudomonas aeruginosa* and 31 % *staphylococcus aureus*, while in another study 52% of isolates were *pseudomonas aeruginosa* and 30% were *staphylococcus aureus*¹⁰ other organisms like *proteus mirabilis*, *klebsiella* and

Escherichia coli were also isolated in small numbers^{27,28}. All of the pathogenic anaerobes are part of the normal flora of the body, and require special conditions before their pathogenicity can manifest. Surgery, trauma, or diseases disturbing a mucosal surface or introduction of anaerobes into normally sterile site may lead to anaerobic or mixed infections. Anaerobes such as bacteroides produce enzymes that play a role in abscess formation or tissue destruction. Such anaerobic bacteria outnumber the aerobes in the ratio of 10:1 to 100:1²⁹ and are found predominately in nasopharynx. They play an important role in the production of suppurative infections in head and neck region including otitis media³⁰. It is an established fact that anaerobes may be responsible for virtually any type of infections in humans and no organ or tissue is immune to the effects of anaerobic bacteria. However, there is an under reporting as far as anaerobes are concerned because either the appropriate specimen are not obtained and properly transferred, or the laboratory does not perform the necessary microbiological procedures³². High number of negative culture in some studies may be attributed to inappropriate method of recovery of anaerobes. Different studies have demonstrated the anaerobic organisms in varying proportions^{33,34,35}. In our study 15.6% swabs showed no growth, this is in sharp contrast with other studies where only 2.2% of samples were sterile and no organisms isolated³¹. In our study major organism isolated was *Pseudomonas aeruginosa* majority sensitive to ciprofloxacin (97.3%) followed by amikacin (83.3%), cefepine (70%) and gentamicin (67.6%) and very few (2.7%) were sensitive to erythromycin and penicillin; this shows a high resistance against the traditional and commonly used antibiotics. These findings are similar to those reported in number of studies^{33,34,35}. The second most common organism in our study is *Staphylococcus aureus*, again ciprofloxacin was sensitive to 86.7% of isolates, followed by gentamicin in 83.7%, clindamycin 80% while, 53.3% of isolates were sensitive to erythromycin and 44.3% were sensitive to cotrimoxazole.

CONCLUSION : It is concluded from the present study that *Pseudomonas aeruginosa* and *Staphylococcus aureus* were the commonest bacteria causing CSOM. Antibiotics like ciprofloxacin, gentamicin, amikacin, cefepine and clindamycin are highly sensitive against *Pseudomonas aeruginosa* and *Staphylococcus aureus*. The knowledge of the prevailing strains and their antibiotic sensitivity patterns will be immensely helpful in combating the challenge of chronic suppurative otitis media in the region. The present study is a step towards achieving this goal; nevertheless large-scale multi-centric studies are necessary to identify the changing patterns of the prevailing flora and susceptibility to various antibiotics so as to be truly representative for the whole country. However from the current study it can be recommended that in case of chronic discharging ear presenting with

acute symptoms or signs of impending complications ciprofloxacin can be started empirically till the results of culture and sensitivity are available.

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Endoscopic Assisted Management of Juvenile Nasopharyngeal Angiofibroma : Experience at a Tertiary Care Centre

Zeba Ahmed, Atif Hafeez Siddiqui, Iqbal A. Muhammad Khyani,
Danish ur Rahim, Muhammad Umar Farooq

ABSTRACT: **OBJECTIVE:** To evaluate the efficacy of changing surgical trend in the management of juvenile nasopharyngeal angiofibromas (JNA) with endoscopic assisted surgery at Civil hospital Karachi. **STUDY DESIGN:** Descriptive study. **PLACE AND DURATION OF STUDY:** Department of Otorhinolaryngology-Head and Neck Surgery, Dow University of Health Sciences, Dow Medical College and Civil Hospital Karachi from, January 2002 to March 2014. **PATIENTS AND METHODS:** This study included 121 consecutive cases of nasopharyngeal angiofibroma over a period of 13 years. Follow up period ranges from 1month to 2years. **RESULTS:** All patients were male with mean age of 15.4 years. Epistaxis and nasal obstruction were the two most common presenting symptoms. Majority of the patients had stage III disease i-e 78 (64.4%), stage II disease in 23(19%) cases, stage IVa disease was presents in 16(13.2%) cases while stage I seen in 4(3.3%) patients, according to Fisch classification. Surgery was done in all patients. Endoscopic resection was adopted in 74(61.8%) patients while lateral rhinotomy was utilized in 33(27.2%) patients besides other approaches. Tumor recurrence was seen in 8% of cases. **CONCLUSION:** Angiofibroma usually presents in adolescent males. The triads of nasal obstruction, nasopharyngeal mass and recurrent epistaxis indicate the presence of the neoplasm. The sublabial endoscopic assisted approach is found to have better cosmetically result with removal of disease than other open approaches. Endoscopic techniques allow for excellent visualization and complete tumor resection with low morbidity.

KEY WORDS : Juvenile nasopharyngeal angiofibroma, Nasal tumors, Endoscopic sinus surgery.

INTRODUCTION : Juvenile nasopharyngeal angiofibroma (JNA) is a rare benign neoplasm of the nasopharynx that accounts for 0.5% of all head and neck tumors¹. Although histologically benign in appearance, JNAs are locally aggressive and destructive, spreading from the nasal cavity to the nasopharynx, paranasal sinuses, orbit and skull base with even intracranial extension. Juvenile nasopharyngeal angiofibromas are highly vascular, non-encapsulated tumors affecting predominantly young males², though there are reports of this tumor being found in children, in the elderly, young even in pregnant women. The gender selectivity of JNA and the relatively young age at diagnosis suggest hormone-dependent development. Hormonal disorders have been reported in patients with JNA. Androgen and estrogen receptors have been identified in tumor tissue; however, a hormonal influence on JNA is controversial^{1,3}. It arises from either the lateral wall or the roof of the nasopharynx esp the sphenopalatine foramen⁴. Although histologically benign in appearance, but locally aggressive and destructive. They may become life-threatening with excessive bleeding or intracranial extension⁵. The classic triad of epistaxis, unilateral nasal obstruction and a mass in the nasopharynx suggests the diagnosis of JNA and is then supplemented by imaging tests. Computed tomography (CT), magnetic resonance imaging (MRI) and endoscopic examinations are the choice to define

the extent and location of the tumor for staging. We have selected Fisch classification to stage the JNA for the selection of surgical approaches. As this classification defines clearly which tumour can be resected by endonasal techniques and those that would be better tackled by more open approach⁶. Surgical removal is the most accepted mode of treatment. Surgical excision of JNA with pre-operative embolization has an advantage of much reduced blood loss during surgery. Currently, surgery appears to be the best treatment of the JNA. Other methods such as hormone therapy, radiotherapy and chemotherapy treatment modalities are now used occasionally as complementary treatments. The surgical approach can be made through open, as the transpalatal, transmaxillary, lateral rhinotomy, mid-facial degloving and Le Fort type I osteotomy. With the advent of minimally invasive techniques, endoscopic surgery has been used to treat JNA in recent years, ideal for tumors confined to the nasopharynx, nasal cavity, and sphenoid sinuses with minimal extension into the pterygopalatine fossa. The first mention of an endoscopic resection date back in 1996. Since then a number of cases were reported and all showed that endoscopic resection had a lower morbidity for the early stages of disease^{7,8}. Large juvenile nasopharyngeal angiofibromas are a therapeutic challenge because of their relation to major vasculature and cranial nerves at the base of the skull, and their propensity for

recurrence. From 2000 through 2004, the lateral rhinotomy approach and its extensions, was recommended as the best method of managing angiofibroma in most patients, but with the advent of endoscopic techniques it emerges as an alternative approach to open procedures due to reduced morbidity and comparable because of recurrence rates⁹. This study presents a comparative analysis of current surgical approaches for the treatment of nasopharyngeal angiofibroma, including extension of tumors i-e stage, postoperative morbidity, complications, and recurrence rate and present our experience of endoscopic management of JNA.

PATIENTS AND METHODS : It was a descriptive study conducted at the Department of ENT-Head & Neck Surgery, DUHS, DMC and Civil Hospital Karachi from January 2002 to March 2014. All young males with recurrent epistaxis and progressive nasal obstruction with a suspicion of angiofibroma were included. The subjects were assessed according to a set protocol which included detailed history, clinical examination, routine /special investigations such as CT scans Nose and PNS with contrast to assess the extent of the tumor. Standard protocol for the management of Angiofibroma was initiated. Angiography and preoperative embolization was done in majority of cases and surgery was performed within 24 hours of embolization. Different surgical procedures and postoperative complications were recorded with a follow up period from one month to two years. All those young males who were presented with recurrent epistaxis and progressive nasal obstruction along with enhancing mass on CT scan up to stage IVa (according to Fisch classification) were included, stage IV b disease

Complications	No. of Cases conventional surgery=47	%	No. of cases Endoscopic technique=74	%
Nasal Crusting	34	72.34	47	63.51
Facial Numbness	27	57.44	15	20.27
Temporary Anosmia	11	23.4	9	12.16
Haemorrhage	4	8.51	3	4

Table-1 : Post operative complications.

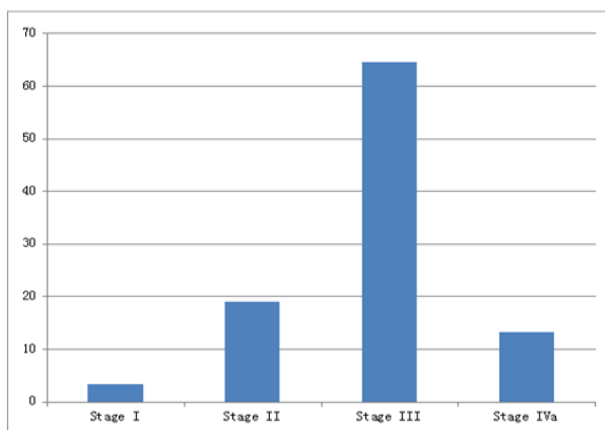


Figure-1. Tumor Stages (According to Fisch classification) on the basis of findings on imaging.

and those who have received treatment somewhere else were excluded from the study.

RESULTS : Total of 121 young males were included between the age of 5-32 years. Majority were between age of 14-17 years (n=111) with a mean age of 15.4 years. Youngest patient was 5 years. Majority of patients presented with more than one symptom. Epistaxis in 121 patients (100%) and nasal obstruction in 118 patients (97.5%) were the two most common presenting symptoms. All patients had enhancing nasopharyngeal mass on CT Scan. The staging according to the findings of imaging studies are shown in Fig-1. Majority of the patients had stage III disease i-e 78 (64.46%), stage II disease in 23 (19%) cases, stage IVa disease was presents in 16 (13.22%) cases while stage I seen in 4 (3.3%) patients. Angiography with embolization done in 118 patients showing supply of ipsilateral Internal maxillary artery as the only feeding vessel in 56 (46.28%) patients, bilateral Internal maxillary artery in 11 (9.09%), Internal maxillary artery with Ascending pharyngeal artery in 41 (33.88%) while 10 (8.26%) cases were receiving branches from Internal maxillary, Ascending pharyngeal and Ophthalmic arteries. Different surgical approaches were used for the removal of tumor between the years 2002-2008 and 2009-2014 as depicted in Fig-2. Lateral rhinotomy was utilized in 33 patients (27.27%), in 10 cases (8.26%) Weber Furgusson approach was used. Mid facial degloving was performed in 3 cases (2%), transpalatal approach in one (1%) case and endoscopic technique was adopted in 74 (61.15%) patients (Sublabial endoscopic assisted approach in 70 patients while per nasal endoscopic resection done in 4 cases). Compared with the conventional surgery group, the endoscopic group had less intraoperative blood loss (mean 325 vs. 950 mL) and lesser operative time (mean 2 hrs. vs 3.5 hrs). Patients were discharged after 3-5 days (mean 4 days) and 5-9 days (mean 7 days) after the endoscopic and open surgical procedures respectively. Post operative complications were shown in Table-1. Nasal crusting was the most common complication in both the groups 72% vs. 69%. Post

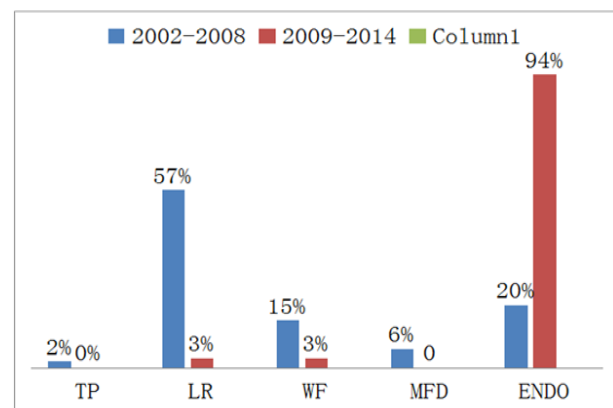


Figure-2. Different surgical approaches used for removal of tumor 2002-2008 & 2009-2014. T.P Transpalatal, LR-Lateral rhinotomy, WF-Weber Furgussons, MFD-Med facial degloving, ENDO-Endoscopic.

operative follow up ranges from one month to two years. 95 (78.5%) patients were living disease free, 9 (8%) had recurrence, while 17 (15%) patients were lost to follow up.

DISCUSSION : Juvenile nasopharyngeal angiofibroma is a rare tumour of the head and neck with very specific characteristics: adolescent males, pterygomaxillary fossa widening, specific and intense vascularisation. Although the use of non-surgical therapies is described in the literature, surgery is currently considered the ideal treatment for juvenile angiofibroma. Several factors are critical when choosing the surgical approach to JNA; adequate exposure of the tumor, ability to control bleeding, prevention of postoperative facial deformity and avoidance of interference with growth of the face⁵. Over the years the access route for the treatment of JNA has been modified with the aim of developing techniques with lower morbidity and lower incidence of recurrence. Recently, the endoscopic approach has emerged as a surgical option for treating these tumors⁷. In present study, surgery was done in all patients. Conventional surgery was utilized in 47 patients (41%) while endoscopic resection was adopted in 78(64.4%) patients. Conventional surgical approaches were also utilized by other surgeons for large angiofibromas and found them effective^{10,11}. Many surgeons analysed that patients who underwent lateral rhinotomy for the removal of stage I, II, III and IVa tumors can successfully be treated using the endoscopic approach^{12,13,14}. During the last decade, an endoscopic technique has been extensively adopted as a valid alternative to external approaches in the management of small-intermediate size juvenile angiofibromas⁹. The first surgical step when the surgeon approaches a JNA endoscopically is to expose the tumor as extensively as possible through a middle turbinectomy, ethmoidectomy, wide antrostomy and sphenoidotomy, and resection of the posterior third of the nasal septum, which enhances the exposure of the nasopharyngeal portion of the lesion. The posterior wall of the maxillary sinus has to be resected as far lateral as dictated by the lateral extension of the lesion into the pterygopalatine and/or infratemporal fossae. For JNA largely involving the infratemporal fossa, the surgeon can improve lateral exposure through a so-called Sturmann-Canfield maxillectomy, which provides resection of the anteromedial corner of the maxillary sinus⁹. An endoscopically assisted antral window approach through the anterior wall of the maxillary sinus, as proposed in the literature may be considered a possible alternative¹⁵. In present study endoscopic assisted sublabial approach or antral window approach was used for stage II, III and for IVa tumors in 74 patients while per nasal endoscopic resection done in 4 cases. Endoscopic assisted sublabial approach was found to be cosmetically good, minimally invasive and with less morbidity. Same approach was used by Khalifa for stage III tumors¹⁶. Mann used laser in endoscopic assisted sublabial approach and with the help of image-guided navigation system safely excised large

extracranial JNA with diminished blood loss and facial deformity¹². Nasal endoscopic surgery has disadvantage as it requires a bloodless operating field - because any amount of blood may prevent a good visualization and thus preclude the surgical approach. It is suggested that in limited lesions of angiofibroma, the option of a transnasal endoscopic approach could be cautiously considered by experienced surgeons¹⁷. Endoscopic surgery has a very important advantage, which is the fact that it preserves both the anatomy and physiology of the nose, and the prior tumor embolization contributes to a better identification of structures during surgery, without considerable hemorrhage, thus making the procedure easier. Pre-operative angiography and embolisation 24-72 hours preceding the operation is recommended to reduce peri-operative haemorrhage¹⁸. In present study 118 patients underwent preoperative embolization. Approximately 325 mL intraoperative blood loss seen in patients with endoscopic sinus surgery. This finding is almost similar to the observations by Nicolai¹⁹, Fyrmpas²⁰ and Gupta²¹. Other advantages include less surgical time, less hospitalization days, absence of visible scars, avoids complications such as epiphora, dysesthesia, trismus, and craniofacial deformities²². Patients were discharged from hospital after 4 days (mean), which is comparable to the other studies^{20,22,23}. In our study, postoperative nasal crusting was the most annoying problem in both the groups 72.34% vs 63.51% same observed by Tosun et al.¹¹ Recurrence rate reflects the advanced stage of the tumors. A major risk factor for recurrence was tumor involvement of the cranial base²⁴. In present study, recurrence seen in 9 patients (8%)³, were operated through conventional surgery and 6 through endoscopic approach. Mann et al in a retrospective study found a recurrence rate of 6.6% in 15 patients with stages I and II disease¹². Another study showed 10.5% (2/19) recurrence rate in the group of patients treated via traditional approaches¹⁸. The incidence of recurrence had no correlation with the age of the patient, duration of symptoms, peri-operative treatment or surgical approaches but strongly correlated with tumour stage^{22,25}.

CONCLUSION : The endoscopic assisted approach is, undoubtedly a sound alternative, as it is less aggressive for the patient, it causes less morbidity, minimum bleeding, less operative time and less postoperative complications. It is a safe and effective treatment modality due to the lack of external scars, minimal bone resection, low blood loss and low recurrence rate.

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Frequency of Kite String Cut Throat in Neck Injury

Faheem Ahmed Khan, Khalid A. Ashrafi, Itrat Jawaid, Wadood, Asif Abbasi

ABSTRACT: OBJECTIVE: The purpose of study was to evaluate and document frequency of kite string cut throat cases brought at trauma center of tertiary care hospital. **MATERIAL AND METHOD:** Twenty six cases of accidental cut throat injury were brought to trauma center of Abbasi Shaheed hospital in a period of one year. The various contribution factors were assessed and presented in the form of table and chart. **PLACE AND DURATION:** This study was done in Abbasi Shaheed Hospital from 1/9/2012 to 10/09/2013. **RESULT:** Twenty Six cases came with accidental cut throat and neck injuries were included in this study. Significant number of victims of cut throat due to kite string i.e 19 cases 73.07% with male predominates i.e.12 cases (63.15%). Highest number of incidence found between the ages of 21-30 years i.e. 8 cases (42.1%). Highest incidence of accidental cut throat was occurred in the month of July i.e. 9 cases (47.36%). Zone II of neck was the commonest involved site, 13 cases (68.42%) followed by zone III which was 4 cases (21.05%). **CONCLUSION:** The special string used in kite flying, which is coated with fine glass particles of metallic nature is responsible for a significant number of various degree cut throat injuries which may be life threatening.

KEY WORDS : Kite string (manja), Cut throat, Accidental injury.

INTRODUCTION : Cut throat may be defined as an "injury inflicted by cutting or stabbing with a sharp instrument"¹. These injuries may be open incised or incised looking injury in the neck due to sharp objects which may be superficial or penetrating in nature^{2,3}. WHO report revealed that 5 million people around the world die as a result cut throat injury. WHO report estimated that for an every death 10-20 injured victims gets hospitalized and 50-100 receives emergency care^{4,5}. For neck injuries, basic knowledge of the anatomy of the neck is essential for the assessment of injury and management⁶. Neck is divided into three zones. Zone I extends from thoracic outlet and clavicle to cricoid cartilage. Zone II extends from cricoid to angle of mandible. Zone III from angle of mandible to skull base^{7,8}. Risk of injuries are different in three zone^{3,9}. In Subcontinent of Indo-Pak, kite flying is a popular game. To fly the kite, a special string, coated with combination of ground glass¹⁰ and water soluble glue is used which is called Manja. Manja sharply cuts the skin and under lying structures when comes in contact. Every case of cut throat injury needs multidisciplinary approach. This requires otorhinolaryngologist, anesthetic and psychiatrist¹¹. Anesthetic secures compromised airway. Otorhinolaryngologist assesses the injuries and repairs the injury. Surgical repair of the injured tissue is the treatment option¹². After repair of the wound psychiatrist opinion plays a important role to overcome the trauma. Cut throat injuries and associated death are very common in our society¹³. Such incidence is increasing day by day. Unfortunately, limited study was done previously regarding cut throat injuries.

METHODOLOGY : This prospective study was conducted in department of E.N.T, Head and Neck

Surgery, Abbasi Shaheed Hospital and Karachi Medical and Dental College during the period of 1/9/2012 to 10/09/2013. During this period, total number of patients received with cut throat was 42 out of which 26 cases were selected. All patients who came with cut throat injury underwent complete examination and radio-imaging investigation (in selected cases). Repair of compromised airway and control of massive hemorrhage under general anesthesia after taking consent from patient and attendant, was the first priority. After assessment of the injury, repair of wound was done. Direct laryngoscopic examination was done. All events were recorded / noted in the predesign performa for the study. Relevant investigations were done where needed. Later on Psychiatry treatment was done.

INCLUSION CRITERIA: All patients who came with accidental cut throat included in this study.

EXCLUSION CRITERIA: Cases of cut throat other than accidental causes.

RESULTS : Total number of patients included in this study were 26. Table no. 1 shows comparison of accidental cut throat due to (kite string) manja and other cause. Cut throat due to kite string (manja) were 19 cases (73.07%) while other cause were 7 cases (26.92%). Pie chart 01 shows gender difference of cut throat due to kite string (manja). Male were 12 (63.15%) while females were 7 (36.84%). Male female ratio was 1.71:1. Bar chart shows incidence of cut throat due to kite string (manja), highest incidence of cut throat was noted between the ages of 21-30 years of age which was 8 cases (42.1%) followed by less than 10 years of age which was 6 (31.57%). No case was noted above the age of 61-years. Line graph shows number of cases according to month, maximum number

Cut throat due to kite string (manja)	19 (73.07%)
Cut throat other than kite string (manja)	7 (26.92%)

Table-1 : Accidental cut throat (n=26)

Zone I	2 (10.52%)
Zone II	13 (68.42%)
Zone III	4 (21.05%)

Table-2 : Zone involvement (n=19)

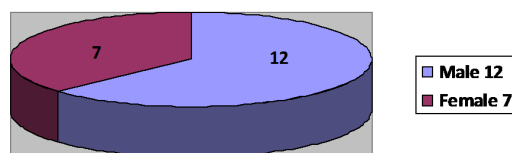
of patients was in July and August, 9 (47.36%) and 6 (31.57%) respectively. Table no. 2 shows injury according to zone of neck. Zone II of neck was the commonest involved site, 13 cases (68.42%) followed by zone III which was 4 cases (21.05%).

DISCUSSION : Cut throat injuries are life threatening because of air embolism due to breach airway, profuse bleeding due to damaged major vessel, respiratory distress which may result even in death¹⁴. Cut throat injury may be homicidal, suicidal and accidental in nature¹⁵. The cause of accidental cut throat injuries are kite flying, road traffic accident, sports/game etc. Kite flying is the popular game among children¹⁶ and adults. In kite flying, participants use string to fly their kite and this string is also used to cut the string of the other kite. For this purpose, abrasive material is used on the string of the kite to increase its ability to cut other string^{12,17}. Various injuries can occur from kite string (manja) like electrical injuries, falls that occur during game and or injuries caused to pedestrians or those riding motor cycles or bicycles^{18,19}. Kites are flown by razor sharp manja from roof tops to cut other kite string (manja). Now a days motorcycles have significantly increased in number. These people are high risk to injuries during kite flying. Injuries due to kite string (manja) depend upon the contact between the manja and human skin, it can lacerate the skin and the deep fascia of the neck and vital structures in which include carotid arteries, jugular veins, larynx and trachea. In our country, there is no wide study available about the cut injury due to kite flying. In this study, 26 patients came in emergency department with accidental cut throat injury. In accidental cut throat, kite string (manja) was the major cause of these injury 19 cases (73.07%), while other causes were 7 cases (26.92%). A large number of people every year have their cut throat by manja¹⁰. Road traffic accident is the major cause of accidental cut injury and mostly due to broken glass or sharp projection of the metallic part of the vehicle²⁰. Ozdemir et al. showed male predominates in accidental cut throat injury²¹.

Current study also showed male predominates in cut throat injury due to kite string (manja). 12 cases were male (63.15%) and female were 7 (36.84%). Male female ratio was 1.71:1. Highest incidence of cut throat due to kite string (manja) was noted between the ages of 21-30 years of age 8 cases (42.1%) followed by less than 10 years of age, 6 cases (31.57%). These were the most active group; no patient was above the age of 61-

Frequency of Kite String Cut Throat in Neck Injury

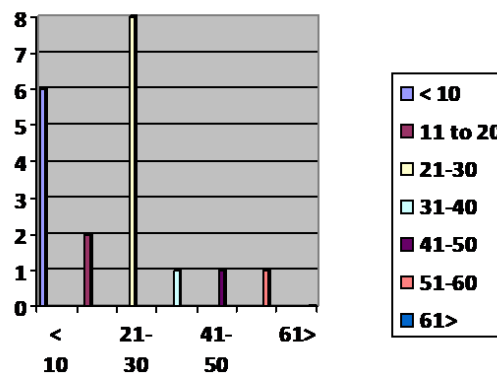
PIE CHART 01



GENDER

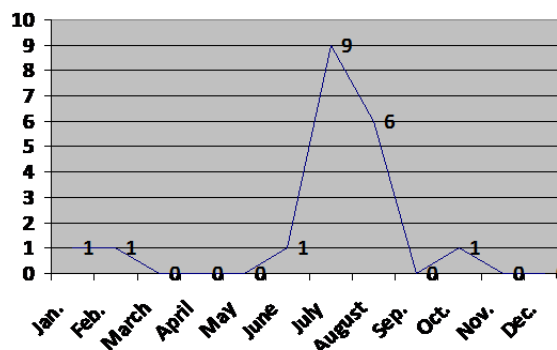
Cut throat due to Manja (n=19)

BAR CHART



AGE (n=19)

LINE GRAPH



Number of cases in each month (n=19)

years. Maximum number of patients came in the month of July 09 (47.36%) and August 06 (31.57%) respectively. This was the month of Holy Ramzan. In the month of Ramzam Mubarak, children and adults enjoy kite flying especially before the iftar time to spend their fasting period. So, number of incidence increased during this period. Neck zone II was the commonest involved and reported site in accidental cut throat/neck injury^{13,20}. Current study shows zone II injury in 68.42% cases with kite string neck injury, followed by Zone III which was 4 cases (21.05%). In zone I only 02 cases were reported (10.52%). In zone II vital structures are present, includes carotid and vertebral arteries, jugular veins, pharynx, larynx, oesophagus and trachea. Kite flying is a high risk activity. For kite flying manja is used. Manja is an abrasive material which is made up of glue, color and

is coated with powdered glass in order to fly the kite²². This manja claims many lives and severe life threatening injuries in Pakistan, Bangladesh and India¹². Severity of injuries depends on the abrasive material which is used on the string (manja) of the kite¹⁵. Kite flying is one of the popular games but it may cause lethal injuries. These injuries are preventable by increasing the awareness programs of its hazards and safety precautions like flying kite in safe location, avoid abrasive material in string (manja). Laws should be placed which prohibit the preparation and sale of kite string (manja). In Sao Paula, after implementation of law that prohibits the preparation and sale of manja, dramatic fall in the number of injuries related to kite flying in the metropolitan area of Campinas was noticed. If kite related injuries occur, early recognition, accurate evaluation and proper treatment may prevent the un-necessary complication.

CONCLUSION : Kite flying is the popular game especially in Indo-Pak region. But, this may cause lethal injuries. Kite flying should be banned in public places and awareness programmed should be started. Special care should be taken particularly during the month of Ramadan to prevent the lethal injuries.

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Patient's Satisfaction and Dissatisfaction in Outpatient Department of a Tertiary Care Hospital of Karachi, Pakistan

Imtiaz Ather Siddique, Muhammad Usman, **Aisha Jabeen, **Mahum Hafeez,
**Binish Ather, **Sohaib Tariq, **Ali Iftikhar

ABSTRACT: OBJECTIVE : To evaluate the level of patient's satisfaction in terms of waiting time to reach doctor, convenience to reach right place & right doctor and doctor's advice to the patient. **METHODOLOGY:** A prospective epidemiological study was designed with a randomly selected sample size of 1000 patients. A Performa was developed for the collection of data. Informed consent of the patients who were enrolled was taken. Study period was from 1st October 2012 to 1st January 2013. Venue was ENT OPD, JPMC from 8:30 am to 1:30 pm, 5 working days of the week. **RESULTS:** The mean age was 29.34 years, while standard deviation was 1.63 years. The minimum and maximum age was 0.25 and 85 years respectively. The females (655, 65.50%) numbered more than the males (345, 34.50%). Patient satisfaction rate for hospital facilities was 88.1% (881 subjects) while 11.9% (119 subjects) were not satisfied. The majority (970 subjects) did not seek assistance in reaching to the doctor while 30 were helped out. **CONCLUSION:** Majority of the patients were found to be satisfied with the healthcare facilities in a public sector hospital.

KEY WORDS : Patient's satisfaction, Public sector hospital, Tertiary care hospital, Out patient department, public health.

INTRODUCTION : Health plays a pivotal role in the performance of humans. Healthcare facilities to humans are provided by public and private sector across the globe. There is a wide contrast between the healthcare facilities in the developed and the developing countries. Pakistan, being a developing country with an estimated population of 185 Million¹, allocates 0.27%² of its GDP to the health sector. It has a patient to healthcare facility ratio of 0.6 beds/1000 population³. It has a total of 13,243 healthcare facilities⁴ and 107,537 number of beds⁴. There are 152,188 doctors⁴ and 77,683 nurses⁴ registered. One doctor is available for 1,206 patients⁵ while one bed is available to 1,665 patients⁵. Karachi, with a total estimated population of 13.1 Million⁶, ranks first in the country, constituting 7.24% of the country's population. Jinnah Post Graduate Medical Center (JPMC) is the premier health care facility in the public sector in Karachi, having bed strength of 1,185. 3,276 number of patients visit the Out Patient department (OPD) while 193 indoor patients are admitted daily. ENT OPD is one of the most attended OPDs amongst the other 32. ENT OPD has an average attendance of 172 patients/day (JPMC annual statistics January December 2012; unpublished). Patient's response towards health care facility is an important factor for planning and providing satisfactory facilities to them. Over the past decade, realization for the need to take account of patient's response for their hospital visit was felt. It is imperative for an efficient health care system to be molded in the light of patient's feedback⁷. Considering this data, ENT OPD was selected for this epidemiological prospective study for the evaluation

of public response, satisfaction/dissatisfaction towards healthcare facilities provided by the government to its citizens. There is no such study available yet. This is necessary for the future planning of such facilities to the citizens. The response of the public is essential for future health planning.

METHODOLOGY : A prospective epidemiological study was designed with a randomly selected sample size of 1000. A Performa was developed for the collection of data. Informed consent of the patients enrolled was taken. Study period was from 1st October 2012 to 1st January 2013. Venue was ENT OPD, JPMC from 8:30 am to 1:30 pm, 5 working days of the week. Only those subjects were taken into the study, who had already been examined by the doctor due to the objective of the study. There were no other inclusion/exclusion criteria of any kind. Venue: ENT OPD, JPMC Karachi, Pakistan. Duration: 1st October 2012 to 1st January 2013, 8:30 am-1:30 pm, 5 working days of the week.

RESULTS : The mean age was 29.34 years, while standard deviation was 1.63 years. The minimum and maximum age was 0.25 and 85 years respectively. Age was divided into 5 yearly groups. The maximum number of subjects 144 (14.40%) was from the group 16-20 years While minimum 1 (0.001%) was from 81-85 years. The second highest number of subjects 123 (12.30%) was amongst the age group of 21-25 years (Table 01). The females (655, 65.50%) numbered more than the males (345, 34.50%). The subjects were widely distributed throughout the 18 administrative towns of Karachi and the rest of Pakistan. Majority, 520 (52.0%) of the subjects were residents from areas of

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Age (in years)	Frequency	Percent
0-5	50	5
6-10	56	5.6
11-15	105	10.5
16-20	144	14.4
21-25	123	12.3
26-30	122	12.2
31-35	103	10.3
36-40	77	7.7
41-45	64	6.4
46-50	62	6.2
51-55	21	2.1
56-60	32	3.2
61-65	19	1.9
66-70	13	1.3
71-75	3	0.3
76-80	5	0.5
81-85	1	0.1

Table-1 : Patient

Time (In Minutes)	Frequency	Percent
0-5	152	15.2
6-10	84	8.4
11-15	88	8.8
16-20	62	6.2
21-25	15	1.5
26-30	198	19.8
31-35	3	.3
36-40	1	.1
41-45	17	1.7
46-50	1	.1
51-60	221	22.1
>60	158	15.8
Total	1000	100.0

Table 2. Time taken to Reach the Doctor.

Treatment Advised to Patients	Number Of Patients
Conservative	974
Surgical	26
Total	1000

Table 3. Treatment Advised To The Patients.

Mode of Referral	Number Of Patients
Self	749
Doctor	173
Hospital	78
Total	1000

Table 4. Mode of referral to the ENT OPD, JPMC.

Karachi predominantly populated with lower middle and lower class. A total of 391 (39.1%) were residents of areas populated with lower middle and upper middle class. Patients outside Karachi numbered 89 (8.9%). It was found that 281 (28.10%) were on their first visit to a public sector hospital while 719 (71.90%) subjects were on their subsequent visit. For 491 subjects, JPMC was the first public sector hospital to visit in their life. The time taken to reach the doctor was variable; with the highest number of subjects 221 (22.1%) and to wait for 60 minutes and the lowest 152 (15.2%) subjects had to wait for only 5 minutes (table 02). Satisfaction rate was 88.1% (881 subjects) while 11.9% (119 subjects) were not satisfied by the doctor. The majority (970 subjects) did not seek any assistance in reaching to the doctor while 30 were helped out. The

mode of treatment advised was surgical or conservative and referral from other public sector hospitals (table 03 and table 04). Before coming to hospital, majority (93.0%) did not know the name of any doctor working at ENT OPD, JPMC.

DISCUSSION : Documentation of patient's response towards health care system in developing countries is a new concept for improvement of health care planning in public sector hospitals. Our study is the first in Public sector hospitals of Pakistan, with a sample size of 1000 subjects. There is one study of almost similar objectives conducted in a major private sector hospital, Aga Khan University Hospital (AKUH)⁸. The sample size of their study is 316 subjects while our study has 1000 subjects i.e. more than 3 times. However, our study has females 65.50% and males 34.50% while the AKUH study had 66.8% males and 33.20% females. Over all our study has female domination and their study is male dominated. Our study has a mean age of 29.3 years with a standard deviation of 1.63 years. The mean age is 33.81 years in AKUH study. The time taken to reach the doctor was variable in our study with the highest number of 21.10% having to wait for 60 minutes and the lowest 15.20% had to wait for only 5 minutes. The satisfaction rate was 88.1% while dissatisfaction was 11.9%. The study conducted in AKUH demonstrated 30 minutes average waiting time to reach the doctor and their patients satisfaction rate was 61.8% of the respondents. AKUH is a finance oriented private healthcare facility while JPMC is a free-of-cost health institute. Our study in comparison is more recent. A public sector study⁹ conducted at civil hospital Karachi, with a sample size of 490 subjects, also indicates a mean waiting time for patients to reach the doctor as 47.7 +/- 15.29 minutes. Overall patients experience and satisfaction were fair to good. However, this study also explores other areas of patient satisfaction like cleanliness of the OPD environment, doctor's attitude and ethical behavior which we did not cover in our study. Another study¹⁰ has been carried out in India by Puri and Gupta in a tertiary care public sector hospital. The patients were interviewed while exiting from the OPD after examination by a doctor. Patient's satisfaction was recorded. However the sample size is also much less (240) than ours (1000). In this study the unsatisfied patients were much less (3.6/5) than the satisfied (4.7/5). But this study also does not comply with the other details as mentioned in our study. A German study¹¹ was conducted by Schmidt K. and colleagues. This study has a similarity of venue that is ENT OPD of a public sector hospital. The sample size is small i.e. 79 with the median age 56 years and it's a male dominance study and patient's response was mainly long duration of waiting time. However, this duration is not mentioned. The only thing that is comparable with our study is that our study in a developing country ENT OPD has a less waiting time. This study is silent on satisfaction/dissatisfaction of this study is silent.

A study was carried out in an O.P.D of a public sector hospital in Maharashtra state of India with a sample size of 450 patients¹². The health care system and socio cultural background of India and Pakistan are very much identical. The mean maximum number of patient in this study was in the group of 49 years and above while our study had a lesser mean age 29.34 years. This study is also a female dominant (61%) like ours (65.50%). In this study 39.12% patients had to wait less than 30 minutes before consulting a doctor while in our study it was 60 minutes (21.1%) and lowest less than 5 minutes (15.20%). This Indian study was found 92% patients satisfied. While our study had 88.1% satisfactory rate and 11.9% dissatisfied. On comparing the literature with our objective of study we found that our study is the latest of all mentioned. No other study in literature which has relevance is missed. The sample size (1000 subjects) is the highest amongst all the reviewed studies in Pakistan, neighboring country India and other developed nations.

CONCLUSION : Majority of the patients were found to be satisfied with the healthcare facilities in a public sector hospital. We have explored the waiting time to consult the doctor and the satisfaction of the examined patient. However, there are few more avenues yet to be explored on this issue like patients response on the registration desk attitude, cleanliness and hygiene of the waiting and examination area of the OPD, attitude, professionalism and ethical privacy of the doctor patient relationship. This needs to be explored with a bigger sample size to be more indicative of society's response to public healthcare system.

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A Giant Submandibular Gland Carcinoma Ex-Pleomorphic Adenoma

Ejaz Ahmed, Anjum Khawar

ABSTRACT: Pleomorphic adenoma(PA) is the most common benign tumor of salivary glands. It has malignant potential if recurrent or left untreated. There are three subtypes of malignant PA: carcinoma ex-pleomorphic adenoma, true malignant mixed tumor and metastasizing pleomorphic adenoma. We report a case of large carcinoma ex-pleomorphic adenoma arising from the right submandibular salivary gland in a 70 years old male. The lesion measured ~32×38×29 cm (AP×T×CC) and weighed 7.6 kg. This case report emphasizes that if pleomorphic adenoma left untreated, it can transform into carcinoma ex pleomorphic adenoma. To the best of our knowledge this case of carcinoma ex pleomorphic adenoma of submandibular gland is one of the largest ever reported regionally.

KEY WORDS : Salivary gland tumors, Pleomorphic adenoma, Carcinoma ex pleomorphic adenoma.

INTRODUCTION : Salivary gland tumors are rare and make up to 3% of head and neck tumors¹. The most common salivary gland tumor is pleomorphic adenoma (PA). This is also referred to as “benign mixed tumors.” They represent 60 to 80% of all benign tumors in major salivary glands and 40 to 70% of minor salivary gland tumors². These tumors are painless and slow-growing. Failure to seek early treatment can result in gross facial deformity. They are also reported to occur in the main bronchus, larynx, pharynx, trachea, lacrimal gland, nasal tract and maxillary sinus, although less frequently. Lymphadenopathy and nerve compression are generally less prevalent. Pleomorphic adenoma may become malignant if left untreated. Carcinoma ex-pleomorphic adenoma (CXPA) constitutes 3.6-4% of all salivary gland tumors and 12% of all malignant salivary gland tumors^{3,4}. The exact etiology associated with malignant transformation is unclear; however exposure to radiation is thought to be a factor. We report a case of large carcinoma ex-pleomorphic adenoma arising from right submandibular salivary gland in a 70 years old man.

CASE REPORT : A 70-years-old male presented to our Otorhinolaryngology-Head and Neck Surgery department seeking medical attention for a large swelling on the right side of his jaw (Fig-1). The swelling was painless gradually increased in size over 6 years. He noticed the swelling while shaving; he visited a local hospital where an incisional biopsy was done. Histology report showed net of epithelial and myoepithelial cells, numerous ducts with no evidence of malignancy. Size noted then was 6×4 ×2.5 cm. He ignored his swelling and did not get any treatment. In 2012, he presented to CMH hospital Rawalpindi where a FNAC was performed which showed hyperchromic and pleomorphic nuclei with deranged N/C ratio. Size noted was 11.3×9.8×9.6 cm. In November 2013 he presented in our OPD with these

reports. The patient was otherwise healthy with no significant past medical history.

On examination, the weight of the swelling made the patient's head tilt to the right. The swelling was multinodular, non-tender, hard and mobile with a size of 32×38×29 cm (AP×T×CC). Movement of the tumor mass could be elicited and palpated bimanually both intraorally (in the region of the right submandibular salivary gland) and extraorally. Cervical lymph nodes were not palpable. There was no neuronal or functional deficit in the contiguous areas.

FNAC was performed; results showed pleomorphic cells with hyperchromatic nuclei and scanty cytoplasm with highly atypical cells. Axial and coronal views of the computed tomography (CT) scan revealed a well-defined heterogeneous soft tissue density mass in right side of neck anterosuperiorly extending into right submandibular region medially. Caudally this mass was abutting the adjusting surface of tongue however the fat planes of tongue were intact. Underlying bone appeared unremarkable. The mass was causing compression on the right masseter, sternocleidomastoid and strap muscles. It was adjacent to the carotid and jugular vessels however no filling defect was seen (Fig-2). A provisional diagnosis of carcinoma ex-pleomorphic adenoma was made and the patient was prepared for explorative and excisional biopsy under general anesthesia. The mass was excised and sent for histopathological examination. Weight of the excised specimen was 7.6 kg (Fig-3). Primary closure was done in a layer-wise manner with drain attached which was later removed. The histological examination was confirmatory for carcinoma ex-pleomorphic adenoma.

DISCUSSION : Pleomorphic adenoma (PA) is one of the most common benign tumors of the salivary gland. PA usually grows slowly and is painless. There are three subtypes of malignant PA: carcinoma ex-pleomorphic adenoma (CXPA); carcinosarcoma (true malignant mixed tumor) and metastasizing

pleomorphic adenoma. The most common subtype of malignant PA is CXPA which develops in primary or recurrent PA. PA can transform into CXPA over time as it enlarges. Rate of occurrence seems to increase in the period during which PA is left untreated. Furthermore, multiple recurrences may play a role in the malignant transformation of the PA⁵. CXPA is most frequently seen in the parotid gland (67%); the submandibular gland is involved in 15% of the cases. The sublingual gland is involved in only 1% of cases. Malignant transformation of PA occurs in 5 to 25% untreated patients, generally after 15-20 years and warning symptoms are present in majority of the cases³. FNAC has inadequate sensitivity in detecting malignant nature of PA. Clinical picture and histopathology establish the diagnosis of CXPA. A case report discusses a large CXPA that transformed from PA developed in 17 years⁶. In this case PA transformed into CXPA over a period of 5 years. The deformity caused social withdrawal and fear of surgery made the patient decline treatment. CXPA is a rare, aggressive, poorly understood malignancy. In CXPA, an epithelial malignancy develops in association with a primary or recurrent benign pleomorphic adenoma. CXPA is very difficult to identify before surgery because the clinical presentation mimics that of pleomorphic adenomas. Generally malignant transformation can be suspected with a sudden increase in size accompanied by local signs of malignancy such as pain, ulceration, spontaneous bleeding and superficial or deep tissue invasion. The clinical characteristics of malignant transformation have been reported in the literature as¹ a long history of PA², advanced age³, location in a major salivary gland⁴ and history of rapid growth associated with pain or ulceration⁷. In one of the major studies involving 6982 primary salivary gland tumors in a Chinese population PA was the most common tumor (69%) of which only 20% were located in minor salivary glands⁸. They have been reported to be as large as 28×20×16 cm in the parotid



Figure-1: Clinical presentation, front and profile view of tumor mass.

gland⁹. Gupta et al reported weights of PAs ranging from 1 kg to 27 kg¹⁰. The occurrence of very large PAs in the submandibular gland are rare and reports of 8×6×4 cm have been documented¹⁰. In our case site of CXPA is unusual i.e. submandibular gland with change from PA to CXPA in 5 year. It measured 32×38×29 cm (AP×T×CC) and weighed 7.6 kg. Age in our case patient was 65 years at time of first presentation but at the time of surgery it was 70 years. Tumor resection is the solitary option in CXPA. Facial palsy, salivary fistula, and Frey syndrome have been reported as complications of tumor resection. Reporting a case of this nature has significance as delayed intervention allows for rapid tumor growth, poor aesthetics, psychological trauma and a possible threat to life especially with change into malignant tumor. The expanding mass could further distort the anatomy thus displacing vital structures and making the dissection more challenging. The best method of prevention and treatment of CXPA is early detection and radical removal of all major salivary glands tumor.

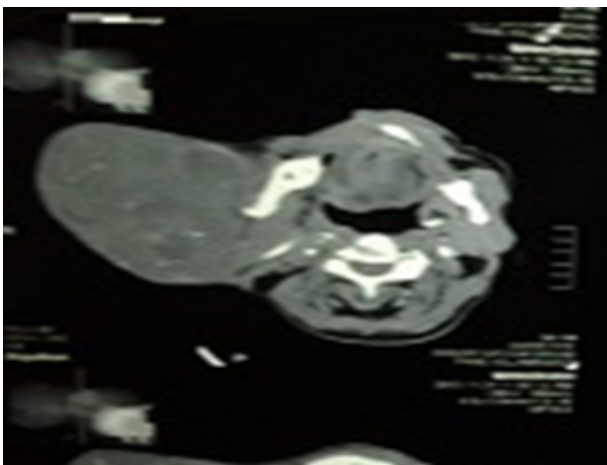


Figure-2: Axial CT scan.



Figure-3: Excised tumor.

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Papillary Carcinoma of Thyroid in a Thyroglossal Cyst

Uzma Tanveer, Shakil Aqil

ABSTRACT: Thyroglossal duct cyst is located in the midline of the neck. The papillary carcinoma of thyroid gland within thyroglossal duct cyst is extremely rare condition. A 27 year old female presented with anterior midline neck swelling, diagnosed as case of thyroglossal duct cyst & underwent sistrunk procedure & her histopathology showed papillary carcinoma of thyroid. She was advised thyroid scintigraphy which showed no cold areas of thyroid uptake and she was managed with close follow up considering sistrunk procedure to be adequate.

KEY WORDS : Thyroglossal duct cyst, papillary carcinoma of thyroid.

INTRODUCTION : Thyroglossal duct cyst (TGDC) is the most common midline congenital neck mass accounting for 70% of the congenital neck anomalies¹. The cyst occurs along the residual tract left by the thyroid gland after descent from the foramen cecum at the tongue base to its final position in the visceral space. About 90 % of the patients presents before 10 years of age while rest of them presents in young adulthood^{2,3}. Seventy percent of the midline masses diagnosed during childhood & 7% in adults as TGDC⁴. Papillary carcinoma of thyroid is seen in only 1% of patients presenting with TGDC⁵. Definitive surgical management is Sistrunk procedure in which there is not only excision of cyst but also the path's tract and its branches are removed. The strong association between the tract and the hyoid bone requires simultaneous removal of the central portion of the hyoid bone to ensure complete removal of the tract. We describe a case of papillary carcinoma in a thyroglossal duct cyst.

CASE: The patient is a 27 year old female who came as an outpatient with history of painless anterior midline neck mass for one and half years with no other

symptoms. The physical examination revealed 4 x 3 cm, smooth, well-defined, painless cystic nodule at the level of hyoid bone which moved with deglutination and protrusion of tongue. The thyroid gland and neck nodes were not palpable. CT-Neck showed ill defined heterogeneous partially cystic structure below the submandibular glands and anteroinferior to the hyoid bone showing some high attenuation material representing complicated thyroglossal cyst. The patient underwent surgery under general anesthesia with a diagnosis of a TGD cyst. The mass was resected by standard sistrunk procedure. The cyst was approximately 3 x 2 x 2 cm & the duct stretched as far as the hyoid bone & the base of the tongue. The cyst & its canal were excised together with the hyoid bone corpus as far as the base of the tongue. The pathological examination of gross specimen revealed cystic cavity filled with gelatinous material along with a solid area measuring 1 x 0.8 cm. Histopathological sections demonstrated cystic tissue lined by stratified columnar ciliated epithelium with focal squamous metaplasia. Thyroid tissue was present and it showed focus of papillary carcinoma characterized by papillary



Fig-1: papillary carcinoma of thyroid in thyroglossal duct cyst

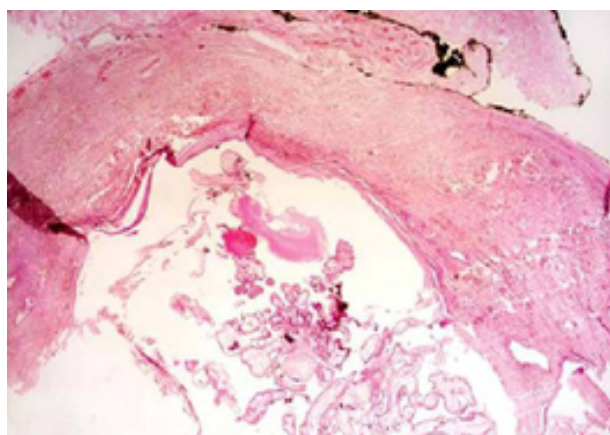


Fig-1: papillary carcinoma of thyroid in thyroglossal duct cyst

architecture with fibrovascular cores surrounded by tumor cells with nuclear crowding, clearing and grooving. size of the tumor was 9 x 8 mm and tumor was 1mm away from the closest margin. Patient was advised thyroid scintigraphy in which there was no cold area of thyroid gland seen.

DISCUSSION: TGDC may form anywhere along the during descent of the primordial thyroid gland from the foramen caecum. Normally it disappears but it may persist & form a cyst in posterior one third of the tongue or in the anterior part of the neck, usually just inferior to the hyoid bone. Most of the patients are asymptomatic. TGDC develops as a painless, progressively enlarging movable mass. Carcinoma is found in 1% of the patients operated for TGDC. In the two publications, 12 & 14 cases of thyroglossal duct carcinoma were reported over a period of 45 and 25 years respectively^{6,7}. The most common histological type of thyroglossal duct cyst carcinoma (TGDC) is papillary carcinoma (80%). Mixed follicular papillary carcinoma (8%), squamous cell carcinoma (6%), follicular carcinoma (3%), Adenocarcinoma & various unclassified tumors (3%) forms the other possibilities. Now it is accepted that TGDC arises from the thyroid tissue remnants located in the cyst itself⁷. TGDC appears more often in children than in adults but carcinoma of the thyroglossal duct remnant appears more frequently in adults with less than ten cases reported in children⁷. The treatment of TGDC is sistrunk procedure in which not only the cyst but central portion of hyoid and base of the tongue is also excised. The diagnosis of carcinoma of thyroid within TGDC is often made postoperatively on histopathological findings. Treatment options are considered according to the risk such as age, tumor diameter, nodal metastasis. Patel et al did not recommend other treatment in low risk patients (those below 45, with tumor diameter <4cm and no sign of extensive metastasis⁸). However Weiss & Orlich, in their study found 11.4% TGD cyst carcinoma & microscopic carcinoma foci in the thyroid gland. They recommended total thyroidectomy following the histopathological diagnosis of papillary carcinoma in the cyst, even when the gland seems normal in the initial surgery⁶. Col S. Kakkar in his report mentioned sistrunk procedure to be adequate for papillary carcinoma of TGDC as its prognosis is as good as papillary carcinoma of thyroid. However if there is abnormal up take on scan or there is cystic wall

invasion by carcinoma or if thyroglossal duct cyst carcinoma is greater than 1.5cm a near/total thyroidectomy is indicated followed by thyroid stimulating hormone (TSH) suppression therapy¹⁰. Our patient was 27 years old & thus categorized as low risk. Patel & Chu also rejected the use of thyroidectomy when pathological findings were not present in the preoperative ultrasonography and biochemical examinations and when additional clinical pathological findings were absent⁹. The prognosis of the cancer of the thyroglossal duct does not differ from that of the thyroid cancer. The surgical excision of the thyroglossal duct remnant consists in a Sistrunk procedure. We removed the thyroglossal duct, including the cyst, the middle part of the hyoid bone and the rest of the duct which was extending up to the base of the tongue. Post-operative radioiodine scan was normal & there was no thyroid gland enlargement or lymphadenopathy thus we considered Sistrunk procedure to be adequate. However we discussed this case in our MDM and oncologist suggested that total thyroidectomy as papillary carcinoma had close margin or a close follow up with Ultrasound scan. But patient refused for surgery and agreed for close follow up. If during follow up, lymph node enlargement or thyroid changes are observed, total thyroidectomy and radical neck dissection would have to be considered.

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Foreign Body Bronchus in Adult Presenting as Pneumothorax

Navneet Agarwal*, Ritu Agarwal**, Vishal Saraswat***

ABSTRACT: Aspiration of foreign body is relatively uncommon in adults. Foreign body aspiration presenting with pneumothorax is even rarer and pose an interesting dilemma both in diagnosis and management. Bronchoscopy with Venturi type injector can increase the pneumothorax which may be life threatening. We present a rare case of foreign body aspiration in an adult female presented with sign and symptom of pneumothorax. Clinical record and literature reviewed.

KEY WORDS : Foreign body, Bronchus, Adult, Pneumothorax.

INTRODUCTION : Aspiration of foreign bodies is a common phenomenon in children, however, it is comparatively rare in adults. A high index of suspicion is required for correct diagnosis of the condition. Only 77 cases of foreign body aspiration over a period of 20 years has been reported¹. The patients of tracheobronchial foreign body with pneumothorax pose a dilemma and challenge, both in diagnosis and management. Mild to moderate pneumothorax may not be even evident on plain radiograms. The classic finding of pneumothorax is to look for peripheral lung margin with lucency between lung margin and chest wall. Mediastinal shift may be seen in massive and tension pneumothorax². During bronchoscopy under general anaesthesia using Venturi type injector for positive pressure ventilation, great care has to be taken since the positive pressure during ventilation can increase the pneumothorax and there is a high risk of progression to tension pneumothorax^{2,3}. Tension pneumothorax is life threatening as it can cause massive collapse of the lung parenchyma and the increased pressure can affect the cardiovascular structures including tamponade of the mediastinal structures and kinking of the vessels at the point of entry in thorax.

CASE REPORT : A 35 year old female presented to the ENT department with complaints of coughing and chest pain on right side since six months and difficulty in breathing since 6 days. X-ray chest showed a sail shaped opacity silhouetting the right cardiac border and medial half of the dome of diaphragm along with curvilinear zone of hyperlucency extending costophrenically in mid and upper lung fields (Fig-1). ECG was normal. CT scan of thorax showed hyperattenuating intraluminal lesion in right lower lobe and collapse consolidation of postero basal segment of right lower lobe with mucous impaction in dilated bronchus with positive CT arteriogram (Fig-2). Sub pleural bullae in right upper and mid zone and free intraluminal air were also seen (Fig-3). A diagnosis of foreign body bronchus was made. Attempts to remove

the foreign body with flexible bronchoscope were not successful. A 7mm rigid bronchoscope was introduced under general anesthesia. All preparations were made for intercostal drainage tube insertion. Tension pneumothorax develop intra-operatively because of positive pressure mechanical ventilation. Foreign body (supari) was seen in right bronchus and after numerous attempts dislodged and removed in pieces (Fig-4). Post-operative recovery was uneventful and patient was discharged in satisfactory condition. No intercostals tube insertion was required.

DISCUSSION : Gustav Killian reported the first case of bronchoscopic removal of foreign body from the trachea in 1897⁴. Zavala and Rhodes demonstrated the use of flexible bronchoscope to remove the foreign body in artificial lungs and animals⁵. Foreign body inhalation is very common in the part of Western Rajasthan because of the rampant habit of chewing betel nut. People go to sleep with the betel nut in their mouth and accidentally inhale it. The sudden choking and bouts of coughing are forgotten after a few months and so long standing forgotten foreign bodies in tracheobronchial tree are common. Factors predisposing to foreign body inhalation includes dental and medical problems (60%), neurological problems (19%), excessive alcohol or sedative intake (10%)⁶. No such predisposing factor was seen in our case. The majority of cases of foreign body aspiration are seen in children between 1-2 years⁷. Foreign bodies in adults are even more uncommon. Moura et al¹ saw only 76 cases of F.B aspiration in adults over a period of 20 years. Tracheobronchial foreign body presenting with pneumothorax are very rare. Retrospective analysis of 76 patients of tracheobronchial foreign bodies in our institute over a period of 2 years (Jan2005-Dec2006) did not reveal a single case presenting with pneumothorax. Liancai et al evaluated 343 cases of tracheobronchial foreign bodies and found that the most common radiological findings included obstructive emphysema (62%), mediastinal shift (55%), pneumonia (26%), atelectasis (18%). No case of



Fig-1: Plain X-ray chest showing collapsed (Rt) lung.



Fig-2: CT scan chest show hyperattenuating intraluminal foreign body and collapsed consolidation of right lower lobe.

pneumothorax was seen in this series⁸. Kim et al observed no case of pneumothorax in their radiological finding of 180 cases of tracheobronchial foreign bodies⁹. Dannelidis et al found no case of pneumothorax in a review of 90 cases of endobronchial foreign bodies¹⁰. Agarwal et al reported a case of subcutaneous emphysema due to smooth foreign body bronchus¹¹. The imaging studies include lateral view of soft tissue of the neck, Chest radiographs (P-A View & lateral view). Radiopaque foreign bodies are easy to diagnose but with radiolucent foreign bodies, secondary radiographic signs such as obstructive emphysema, atelectasis, pneumonia, mediastinal shift help in diagnosing the foreign bodies. C T scan has been used to demonstrate the radiolucent foreign bodies. In addition to demonstrating the other features such as collapse etc., the CT scan can demonstrate the intraluminal foreign body¹¹. CT scan should be considered if radiographs are not conclusive in cases

of occult foreign bodies¹¹. However, any pathology such as neoplasm, mucous plug etc which can obstruct the lumen of bronchus can mimic the foreign body. In our case, the CT scan was of immense help not only in localizing the foreign body but also in demonstrating the collapse and pneumothorax. MRI has been advocated for diagnosis of the foreign bodies specially peanuts but their cost is prohibitive¹²⁻¹⁴. Treatment is removal by bronchoscopy. Loo et al used flexible bronchoscope and only if they were unable to remove the foreign body with the flexible bronchoscope, they use rigid bronchoscope. They were able to remove the foreign body with flexible bronchoscope in 3 cases (50%). Rest 3 (50%) were removed with rigid bronchoscopy⁴. Rigid bronchoscopy is the gold standard for removal of the foreign bodies. It has the advantage of a larger working channel and use of variety of rigid forceps. The rigid forceps allow a better grip, pulling as well as rotating the foreign body especially in an impacted

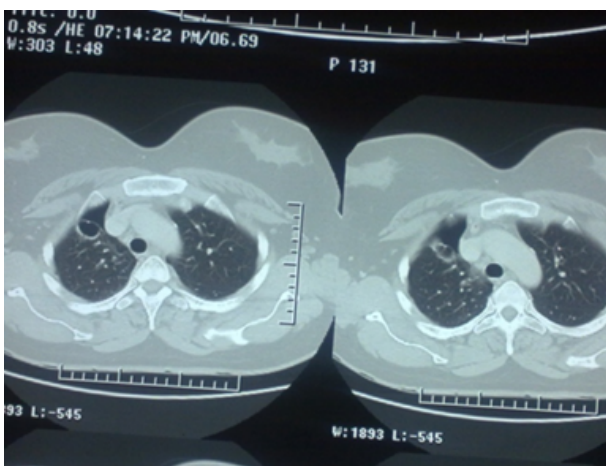


Fig-3: CT scan chest with sub pleural bullae in right upper and mid zone.



Fig-4: Foreign body removed in pieces by rigid bronchoscopy.

one. Limper and Prakash noted a higher success rate with rigid bronchoscopy (98%) as compared to Flexible bronchoscopy (60%)⁶. Advantages of flexible bronchoscopy are that it can be done under local anaesthesia, in cases where foreign bodies are located too distally and so are out of reach of rigid bronchoscope and in cases of cervical instability. Pneumothorax in our case can be explained by the presence of the multiple bullae in the lung parenchyma which may have ruptured during the violent bouts of coughing. The obstruction of the bronchus creates an ball valve mechanism which allows for ingress of air but no egress during exhalation causing increase in the pressure in the alveoli. This may have caused some of the weakened bullae to leak. Not all pneumothorax require specific therapy. Small asymptomatic or mildly symptomatic cases may resorb spontaneously. Chest tube drainage is only required in cases of large pneumothorax.

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