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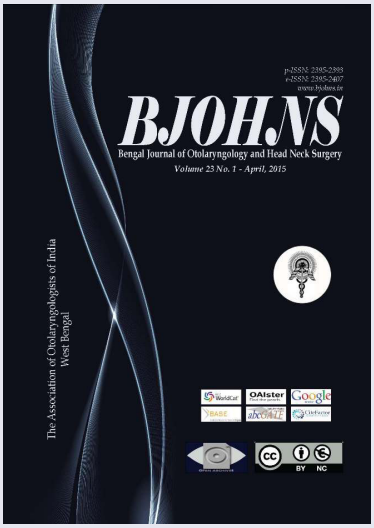

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From the Desk of the Editor

Dear Members,

The journal of the Association of Otolaryngologists of India, West Bengal has been publishing articles of very high standard for more than four decades. Our journal has constantly been nourished by eminent otolaryngologists as editors and contributors in its journey towards excellence.

The horizon of Otolaryngology has been constantly expanding during this period and the members of the fraternity are venturing into newer domains with more complex and meticulous manoeuvres to spread our wings beyond the confines of the ear, nose and throat. Certain technological modifications became inevitable to keep our journal relevant in the changing times.

It is time to make the world hear our voice and take notice of our achievements. We need to improve the visibility of our journal to establish an effective channel of communication with the rest of the world. So, we have decided to go online with our open access journal, which can be accessed freely at www.bjohns.in. Papers can now be submitted online and the authors can track the status of the editorial process all the time. You may contact the Editorial Secretary for technical support in case you need it. The accepted articles will be published free of charge. We ensure double blind peer review of all the submissions to maintain transparency and to ensure the high standard, which the journal stands for.

I requested the Executive Committee of AOI, West Bengal to consider modifying the title of the journal to highlight the unique identity of our journal in the multitude of academic publications, available on the web. I express my gratitude to the members of the Executive Committee of the AOI, West Bengal for their permission to continue the publication with a new title: Bengal Journal of Otolaryngology and Head Neck Surgery.

I, on behalf of the Editorial Board, hereby, present the new look Bengal Journal of Otolaryngology and Head Neck Surgery, which is available in print for the members of the AOI, WB and also in a digital version, which is open to the world. We plan to come out with three issues every year. Bengal Journal of Otolaryngology and Head Neck Surgery is now indexed with Google Schlolar, OCLC WorldCat, Academic Keys, abcGATE, etc. We are in the process of indexing our journal with other popular and prestigious databases also. The articles published during the last two years have been digitized and full-text versions are available in the Archive section of the journal website.

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With best wishes,

Dr Saumendra Nath Bandyopadhyay
Editor,
Bengal Journal of Otolaryngology and Head Neck Surgery

Universal Neonatal Hearing Screening - a Necessity and not a Choice

Saikat Samaddar,[1] Swagatam Banerjee,[1] Sanjoy Kumar Ghosh,[1] Subhra Bhattacharya,[2] Diptanshu Mukherjee,[1] Sirshak Dutta[1]

ABSTRACT

Introduction

Congenital deafness in a child is often missed. Several distraction tests have evolved over time to diagnose congenital deafness. However, these are of limited value in the era of Evoked Response Audiometry. The study was conducted to compare the result of universal neonatal hearing screening (UNHS) in high risk and non-high risk neonates using Otoacoustic Emission (OAE) and Brainstem Evoked Response Audiometry (BERA).

Materials And Methods

A study was conducted over a time period of three months at a tertiary care institute to screen all live neonates for congenital hearing impairment using OAE, followed up by BERA, if required.

Result

1182 neonates were screened for hearing impairment. 336 were in high risk group and the rest in non-high risk group. Nine neonates turned out to have abnormal BERA results (absence of wave V). Six of them were high risk babies and the rest three were non-high risk ones.

Discussion

33.33% of congenital deaf population detected by UNHS belong to the Non High Risk group. Studies across the world suggest at least 50% chance of missing out a congenital deaf child if Universal Neonatal Hearing Screening is not practiced.

Conclusion

In order to ensure that early detection and effective intervention are possible for all neonates with hearing impairment, UNHS should be performed. Three stage UNHS protocol using OAE and BERA showed that the implementation of UNHS for congenital childhood hearing loss for all neonates in India would be beneficial.

Keywords

Deafness; Infant, Newborn; Hearing Tests; Evoked Potentials, Auditory, Brain Stem; Audiometry, Evoked Response; Otoacoustic Emissions, Spontaneous

Development of hearing is usually completed by the first year of life. Usually, the mother of a congenitally deaf child begins to suspect early that her child is unable to hear. The mother's instinct senses this, and she usually tries to come to a conclusion with simple distraction tests such as ringing of loud bells, clapping of hands, etc. or other signs that the child is able to hear the sound. Such tests are however are not standardised scientifically and hence a negative result is not conclusive of deaf-mutism.

Distraction tests or behavioural audiology is of limited value in children less than 6 months. Before this age, infants have inadequate upper body and neck control to reinforce a positive result. Given this lack of inadequate response and problem in determining ear specific threshold information, several researches were conducted to develop objective measure of hearing taking advantage of known physiological responses. In 1977, Kemp[1] described Otoacoustic Emissions (OAE) as a means to determine cochlear outer hair cell function. These can be recorded with a small microphone placed

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in the ear canal just lateral to the tympanic membrane and confirm the integrity of the cochlea. Two types of evoked OAE are in use, the Transient Evoked Otoacoustic Emissions (TEOAEs) and Distortion Product Otoacoustic Emissions (DPOAEs). Automated Auditory Brainstem Response (AABR) is frequently used for newborn hearing screening as it provides accurate information in a fairly short space of time. It provides an electrophysiological measure of the auditory pathway along the auditory nerve. To administer the AABR test, electrodes are placed on the infant's forehead and the mastoid of the test ear to record the brain activity of the auditory brainstem in response to sound.

Globally, it has been estimated that 1.5 to 6 per 1000 newborns have congenital hearing impairment.[2] Presently, its diagnosis is markedly delayed. At this progressed age, rehabilitation procedures (like hearing aids, cochlear implant, speech therapy, psychological intervention for family) are unable to ensure complete development of speech, thus preventing the full participation of the deaf child in social living. This has brought in the concept of Neonatal Hearing Screening. Auropalpebral reflex, Moro reflex, combined head and limb movement and their relationship to acoustic stimulation formed the basis for screening for deafness in the early 1960s.[3] Nowadays, Neonatal Hearing Screening usually makes use of OAE and BERA. Early recommendations by Joint Committee of Infant Hearing[4] encouraged screening of neonates with high risk factors. Unfortunately, several estimates have suggested a proportionately significant number of children in non-high risk groups to have congenital hearing impairment. The present study compares the result of Universal Neonatal Hearing Screening in High Risk and Non-high Risk Neonates.

Materials And Methods:

The study was conducted between, 1st July, 2014 and 30th September, 2014 in a tertiary care hospital. All babies born in the institute within the study period and available for screening at 24 to 48 hours of birth on two specific days of the week were included in the study. Classification of the neonates as high risk group was performed using the Newborn Hearing Screening Programme (NHSP) Risk Factor Screening guidelines (Table I).[5] Presence of one or more risk factor(s) resulted in the newborn being placed in the high risk group.

Verbal explanation of the screening process was given to the mothers. Additionally, a leaflet describing the screening procedure was also made available. Before screening, proper inspection of the external auditory canal was done with an otoscope. Any vernix or fluid in the external auditory canal was cleaned. A three stage newborn hearing screening protocol was implemented.

All babies were initially screened for hearing by TEOAE equipment using neonatal probes. The result of the test was interpreted as "Valid Response or Pass" or an "Invalid Response or Refer." Babies having 'Refer' response were sent for second stage screening.

The Second Stage Screening was performed with TEOAE at 4 weeks interval from the first screening. Results were interpreted as in first stage. Babies having a 'Refer' response in the second stage were sent for the third stage screening immediately.

Brain Stem Evoked Response Audiometry (BERA) was done in the third stage of screening and an abnormal BERA result (absence of wave V) was taken as confirmation of congenital hearing loss.

Results:

The study was conducted on 1182 neonates after institutional delivery. 336 were High risk neonates and the rest non-high risk (Table II). Out of the total population available for first stage screening, 91 had 'Refer' result in TEOAE; 25 were from the high risk and 66 from the non-high risk group. Amongst these refer cases, 81 were available for second stage screening. 15 of them had a 'Refer' result in the second TEOAE screening with 10 babies in the high risk and 5 in the non-high risk group. These cases were followed up with BERA as a third stage screening. 9 turned out to have abnormal BERA result (absence of wave V); 6 of them were high risk babies and the rest 3 were non-high risk

ones (Table III).

Thus, to put it into perspective, in the non-high risk group, 1st stage TEOAE screening yielded 'Refer' result in 7.8% neonates which subsequently declined to 0.59% in the 2nd stage TEOAE screening, and was ultimately confirmed by BERA in 0.35% of the neonates. On the other hand, in the high risk group, 1st stage TEOAE screening yielded 7.40% 'Refer', declining to 2.97% in the 2nd stage TEOAE screening and was confirmed in 1.79% neonates by BERA.

Thus, almost equal percentage of neonates failed initial OAE screening. The second stage screening showed a significant improvement with 'Pass' results in both the groups although the proportion of 'Refer' results was more in the high risk group. 3 infants out of the total non-high risk population was confirmed to have hearing impairment in comparison to 6 from the high risk group. Thus, out of total 9 congenitally deaf children, 3 were in the non-high risk group showing that 33.33% of the congenitally deaf population as detected by UNHS in the study belonged to the non-high risk group (Fig. 1).

Table I: Newborn Hearing Screening Programme (NHSP) Risk Factor Screening guidelines

RISK FACTORS IN NEONATES	YES	NO
Confirmed or strongly suspected bacterial meningitis (any organism) or meningococcal septicaemia.		
Microtia/external ear canal atresia in one or both ears.		
Confirmed congenital infection due to Toxoplasmosis, Rubella, CMV or Herpes as determined by TORCH screen.		
A noticeable craniofacial anomaly.		
Confirmed syndrome relating to hearing loss.		
SCBU/ NICU > 48hrs with no clear response AOAEs both ears but clear response on AABR.		
Family history of hearing loss.		
Family history of hearing loss in parents or siblings.		
SCBU/NICU child who had IPPV > 5 days or who underwent Extra-Corporeal Membrane Oxygenation (ECMO).		
Jaundiced at exchange transfusion level?		
Developmental delay associated with a neurological disorder?		

Table II: Distribution According to Risk Group and Sex

SCREENED NEONATES	NON HIGH RISK	HIGH RISK	TOTAL
Male	398 (33.7%)	171 (14.5%)	569 (48.1%)
Female	448 (37.9%)	165 (14.0%)	613 (51.9%)
Total	846 (71.6%)	336 (28.4%)	1182 (100.0%)

Discussion:

Studies across the world suggest at least 50% chance[6,7] exists of missing out a congenitally deaf child if Universal Neonatal Hearing Screening is not practised. Globally it is estimated that 1.5 to 6 per 1000 newborns have congenital hearing impairment. However, there is a significant delay in diagnosis. Average age of diagnosis of congenital hearing impairment in United States is 18 months.[8] The Joint Committee of Infant Hearing (JCIH) has provided guidelines in 1994, 2000 and 2007. The standard recommendation is that the mean age of diagnosis of congenital hearing impairment in a child should be 3 months, and intervention should be done as early as six months.[9,10] In India, it is estimated that at least 4 per 1000 newborns have congenital hearing impairment.[11,12,13,14] India faces a stiff challenge in this field owing to its high birth rate, large number of births in rural India, lack of contact with developed healthcare facilities and lack of proper knowledge.

UNHS implementation initiative should include:

- Development of screening protocol and screening method
- Staff training and monitoring

Table III: Result of Hearing Screening

	TEOAE 1 (NO. OF 'REFER' RESULTS)	TEOAE 2 (NO. OF 'REFER' RESULTS)	BERA (NO. OF ABSENCE OF WAVE V RESULTS)
Non-High Risk Neonate	**66 (7.80%)**	**5 (0.59%)**	**3 (0.35%)**
High Risk Neonate	**25 (7.40%)**	**10 (2.97%)**	**6 (1.79%)**
Total	**91 (7.70%)**	**15 (1.27%)**	**9 (0.76%)**

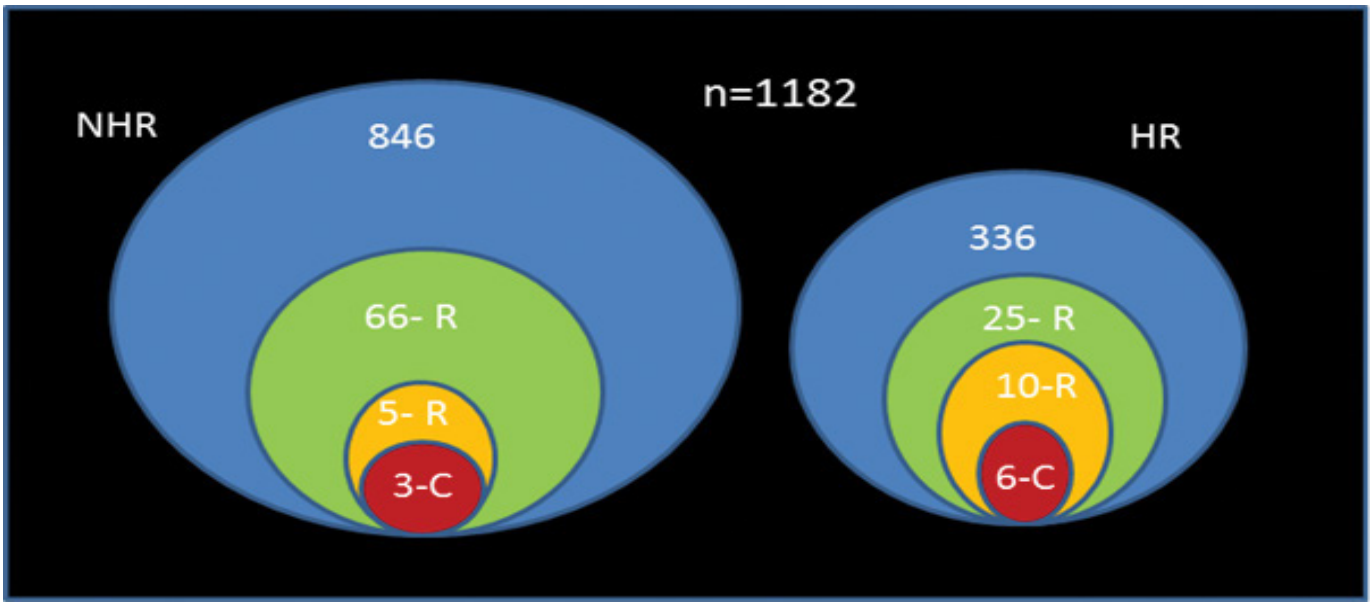

Fig. 1 Venn Diagram Showing Results of Hearing Screening **not to scale.*
NRH- non high risk group, HR- high risk group, R- refer in OAE, C- confirmation by BERA.

- Information to parents or guardians
- General hospital consent obtained at the time of admission should include universal neonatal hearing screening
- Implementation of UNHS by home visits and immunisation clinic visits
- Documentation of results in a standard prescribed format
- Assurance of a long term secure funding for the programme

Otoacoustic Emission as a screening tool[15,16,17,18,19] has been an excellent indicator of cochlear health. The instrument uses pre-programmed algorithms to receive, analyse and interpret the data in the form of a 'Valid Response or Pass' (Fig. 2) or a 'Invalid response or Refer' (suggestion to move on to the next set of tests). OAE is simple, quick, portable, noninvasive, highly sensitive, reproducible, cheap and has high compliance.

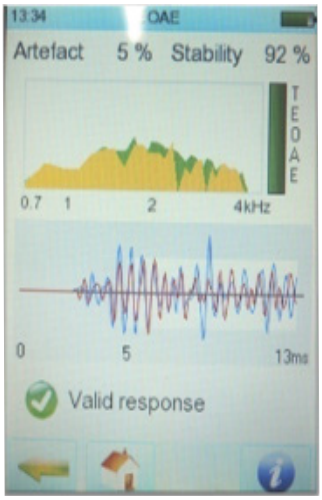

Fig. 2 Screenshot of OAE equipment showing 'Valid Response'

Like OAE, BERA is an indirect measure of hearing. It is highly specific and sensitive, but time consuming and costly. Thus it qualifies as an excellent confirmation tool (Fig. 3).[20,21]

Conclusion:

In order to ensure that early detection and effective intervention are possible for all newborns with hearing impairment, UNHS should be performed. UNHS is becoming the accepted standard of care in many developed countries. Our current 3 stage UNHS protocol using TEOAE and BERA showed that the implementation of UNHS for congenital childhood hearing loss among all newborns in India is accurate, feasible, effective and above all, necessary. Identification of all newborns with congenital hearing loss can become an attainable realistic goal in India. There is no reason why any child born in India should experience anything

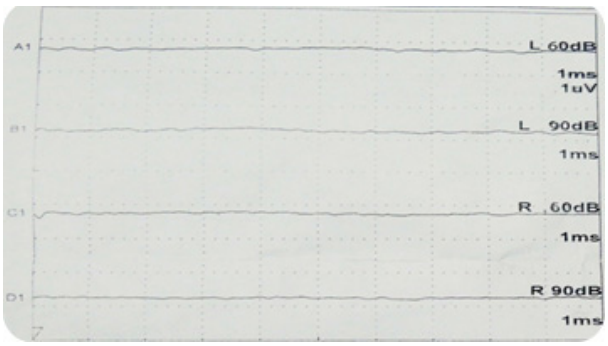

Fig. 3 Screenshot of OAE equipment showing 'Valid Response'

other than normal acquisition of communicating skills as a result of early and appropriate intervention when required. Thus, the implementation of a UNHS programme is strongly recommended from an Indian perspective.

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Adult Retropharyngeal Abscess

Saumendra Nath Bandyopadhyay,[1] Dwaipayan Mukherjee,[2] Diptanshu Mukherjee,[1] Swagatam Banerjee,[1] Shubhra Kanti Sen[3]

ABSTRACT

Introduction

The proportion of adults suffering from retropharyngeal abscess (RPA) has increased in comparison to children.

Materials and methods

Eight cases of adult retropharyngeal abscess were reviewed. The diagnostic criteria were radiological evidence of widening of pre-vertebral soft tissue shadow and presence of pus in the swelling.

Results

Sore throat, fever, muffled speech, painful swallow and stiffness of the neck were common presenting symptoms. Lateral X-ray of the neck was diagnostic. Commonest organism isolated was Streptococcus pyogenes. Airway obstruction was the commonest complication.

Discussion

Most of the patients had history of trauma prior to the development of RPA. CT scan has an important role in planning the management in addition to lateral X-ray of the neck. Transoral surgical drainage in association with antibiotics is the treatment of choice in abscesses confined to the retropharyngeal space.

Conclusion

Tuberculosis is no longer the commonest cause of adult retropharyngeal abscess. Sore throat or dysphagia, disproportionate to clinical findings in the throat should arouse suspicion of RPA. Early intervention with antibiotics reduces the chances of the development of complications.

Keywords

Retropharyngeal abscess, Deglutition disorders, Esophagus/Radiography

Retropharyngeal abscess (RPA) is described as uncommon but potentially lethal infection usually affecting the paediatric age group. More than 90% of cases occurred in children below the age of six years.[1] Availability of antibiotics and improvement in medical care has brought down the incidence of RPA over the years. Its clinical presentation and microbiology have also changed.[2] There has been a gradual shift in this disease from children below 6 years of age to older children and adults.[3,4] Numerous articles and textbooks of Otolaryngology and Emergency Medicine describe the presentation, management and complications of RPA in children. However, there has been a paucity of information on the subject in case of adults.[5] Eight cases of adult RPA were analysed for this article along with review of the available literature.

Materials and Methods

A retrospective review of eight cases of adult RPA admitted from 2007 to 2013 was performed. Diagnoses were based on the radiological evidence of widening of the prevertebral soft tissue shadow to at least more than the width of the corresponding cervical vertebra[6] and demonstration of pus, either drained surgically or aspirated by wide-bore needle aspiration. Age, sex, history, clinical presentation, methods of diagnosis,

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microbiology, treatment modalities, need for airway intervention, complications and outcome of the cases were reviewed.

Results

A total of eight adult patients who were admitted under the first author in a tertiary care hospital between 2007 and 2013 were reviewed. Five were males and three females. The mean age was 44 ± 15.9 years with a range of 18 to 72 years. During the same study period, a total of 13 paediatric RPA patients were encountered. Thus, the percentage of adults among RPA patients was about 38%.

Six patients presented with sore throat, fever, muffled speech, odynophagia without airway obstructive symptoms. Two patients had partial airway obstruction but its onset was preceded by symptoms of sore throat, dysphagia and neck pain for a few days.

Aetiologically, the RPA was divided into idiopathic (with no prodrome / precipitating illness), secondary to preceding illness or traumatic. Traumatic cases were sub-classified into foreign body ingestion or other trauma to neck and pharynx. Four of the patients in this series had history of previous trauma. Two cases were secondary to impaction of foreign body in the throat, one had undergone spinal surgery with screw-plate fixation of the cervical vertebrae (iatrogenic trauma)and one patient developed RPA following attempted suicide by hanging. Two of the abscesses were tubercular in nature. One patient had a history of upper respiratory tract infection while a definite cause could not be established for another patient.

The most common presenting signs were fever, torticollis, pharyngeal mucosal congestion and pharyngeal swelling. Lateral x-ray film of the neck showed widening of the pre-vertebral soft tissue space in all cases. CT scan was done in five cases. Treatment consisted of surgical drainage or aspiration in all cases and IV antibiotics. Tracheostomy was done in two cases which presented with difficulty in breathing. The single most common organism isolated was Streptococcus pyogenes followed by Klebsiella species. Antibiotics were chosen empirically in various combinations of ceftriaxone, co-amoxiclav, amikacin and metronidazole.

One case of tubercular RPA required repeated aspirations with wide bore needle and one patient with simultaneous involvement of the parapharyngeal space required external drainage.

Airway obstruction was the main complication observed in our patients. There was no death in our series.

Discussion

Retropharyngeal abscess (RPA) is usually described as a disease secondary to suppurative lymphadenitis in infants suffering from upper respiratory infection, pharyngitis and otitis media. Regression of retropharyngeal lymph nodes in children may account for the low incidence of RPA in adults.[7] Available studies have documented an overwhelming majority of the patients to be infants and reported the incidence of RPA upto 100% in children below the age of six years. [8,9,10,11]

The declining incidence of RPA was reported since 1970s but the proportion of affected adults was found to be on the rise.[3,4,5] A literature search from 1970 to 1995 produced reports on 51 cases of RPA in adults.47% of the RPAs, in a retrospective study between 1985 and 1996, were adults (n=19).[4] Our report on eight cases of RPA also underscores the prevalence of the disease in adults with them forming 38% of the total RPA patients. 64% of this series were males. The male predominance have also been reported in other studies.[4,5]

RPA in adults has traditionally been associated with tuberculosis of cervical spine.[12] Although tuberculosis is common in our country, only two of the eight adult RPAs (25%) in this series were tubercular in origin.

Recent reports suggest URTI,[3] trauma,[2] foreign body ingestion,[3,13] or odontogenic infection[13] as predisposing factors for RPA in adults. Goldenberg et al. (1997) found most of the RPAs in adults to be of idiopathic origin.[4] 50% of the patients in our series had history of some form of trauma prior to the development of RPA. None of the patients in this series was immunocompromised

due to HIV infection. Two patients had pre-existent diabetes.

Majority of patients presented with sore throat (100%), fever (88%), dysphagia (88%), torticollis (75%) and muffled speech (63%). The presenting symptoms were largely the same as those in the published literature.[4,5] Only 25% of the patients presented with symptoms of airway obstruction.

63% of the patients presented with a pharyngeal bulge but sometimes it is very difficult to examine the pharynx or there may not be any visible swelling at all on physical examination. Tannebaum (1996) reported a series, where only 37% of the adult RPAs had visible swelling on the posterior pharyngeal wall. Negative physical examination does not in any way rule out RPA.[5]

Lateral neck X-rays were taken in all cases and widening of the pre-vertebral soft tissue shadow was considered to be diagnostic (Fig. 1). Wholey et al. measured the normal RP diameter on lateral X-ray studies in 1954. He concluded that measurements greater than 7 mm at C2 and 14 mm (children) or 22 mm (adults) at C6 are abnormal and strongly support the diagnosis of RPA.[14] A lateral radiograph is considered diagnostic of a RPA, if the retro-pharyngeal space, measured from the posterior wall of the pharynx to the anterior border of the C2 is widened to more than the width of the cervical vertebra.

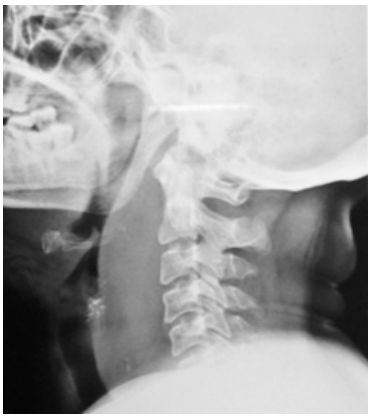

Fig.1. Lateral radiograph of neck showing widening of the prevertebral soft tissue shadow with loss of lordosis of the cervical spine

Other suggestive radiological signs include gas in the prevertebral tissue, air-fluid level (Fig. 2), evidence of a foreign body and loss of the normal curvature of the cervical spine (Fig. 1). Widening of the retropharyngeal space can be caused by retropharyngeal cellulitis or oedema or may even be an artefact due to over-flexion of the neck while filming.[4] A CT scan play an important role in differentiating retropharyngeal cellulitis from an abscess and in defining its extension across fascial planes of the neck (Fig. 3).[4,5]

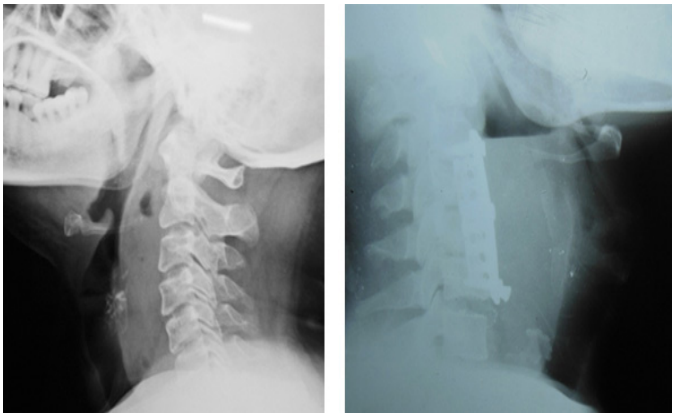

Fig. 2. Lateral radiograph of neck showing prevertebral gas shadow (left) and air-fluid level in another patient who had undergone plating and anterior fixation of C3-C6 (right)

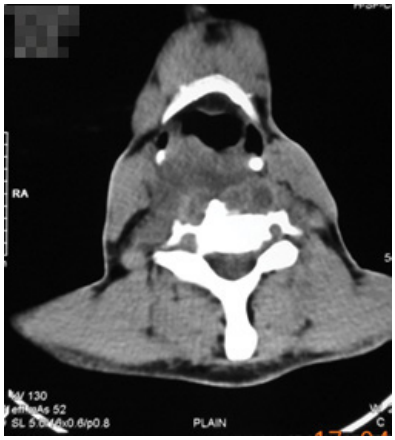

Fig. 3. A contrast enhanced CT scan showing an abscess involving the left retropharyngeal and parapharyngeal spaces with erosion of the vertebral body

Six of the RPAs were drained by transoral incision on the posterior pharyngeal bulge under general anaesthesia (Fig. 4). One patient of tubercular RPA underwent repeated aspiration through wide-bore needle. The lone case with associated parapharyngeal space involvement was drained through external approach. Criteria for external drainage should be clinical or radiological suspicion of spread of the abscess across fascial planes to include other deep neck compartments.[4]

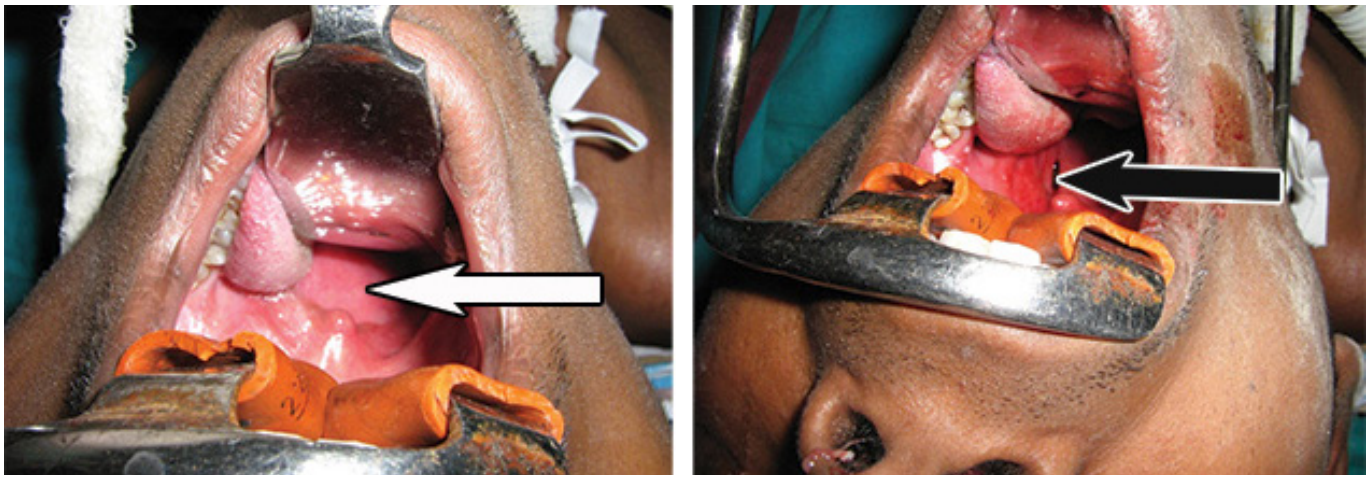

Fig. 4. Photograph showing a left sided pharyngeal bulge in a tracheostomised patient undergoing operation (white arrow on the left) and the incision line after evacuation of the abscess (black arrow on the right)

Pus drained from the RPAs was subjected to Gram and ZN staining and culture. Single most common organism isolated was Streptococcus pyogenes(3 out of 8) which was sensitive to Coamoxiclav (3 out of 3) and Ceftriaxone (2 out of 3). ZN stain detected presence of AFB in one sample. PCR confirmed tuberculosis in another case with negative culture. No growth was also reported in another sample. Other common organisms found in RPAs are Staphylococcus aureus, Klebsiella species and Haemophylusinfluenza.[2,3,4,5,13,15] All the cases of RPAs in this series were treated with empirical antibiotics in combinations. The culture sensitivity reports in our series suggest the choice of antibiotics in non-tubercular cases should include cephalosporin, amikacin, clindamycin and penicillin to cover various organisms including anaerobes.

None of the patients in this series died. Airway obstruction was the main complication observed in our patients which was relieved by tracheostomy.

Conclusion

Retropharyngeal abscess is usually associated with some form of trauma in adults, although tuberculosis needs to be excluded as a cause. Sore throat or dysphagia, disproportionate to pharyngeal findings in clinical examination should arouse suspicion of RPA. Early intervention with antibiotics reduces the chances of the development of complications. Airway obstruction is the commonest complication. Drainage of the abscess through the trans-oral approach is usually sufficient.

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Main Article

An Aetiopathological Study on Epistaxis in Adults and its Management

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ABSTRACT

Introduction

Epistaxis is a common clinical problem in ENT practice. Idiopathic aetiology is said to be the most common.

Aim of study

To find out whether idiopathic epistaxis is the most common cause of primary adulthood epistaxis and to formulate the best treatment protocol

Materials & Methods

A prospective study was conducted in a tertiary healthcare setup from August 2013 to August 2014. 100 patients of more than 16 years of age of both sexes were studied. Patients presenting with active nasal bleeding in ENT ER and OPD were included.

Results

Truly idiopathic epistaxis was encountered in 37% of the study population followed by 20% cases in association with grossly deviated septum with septal spur(s). Most of the cases were managed by resuscitation alone with or without anterior nasal packing. Conclusion: With advances in endoscopy & imaging techniques, cause of the epistaxis can most often be elicited and by sticking to a management protocol recurrence can be reduced.

Epistaxis is one of the commonest entities we come across in our day to day practice. History says it's a 2500 year old problem and each period of history describes a different aetiology for this problem. The term 'Epistaxis' was coined by William Cullen. Until the period of middle age, nasal bleeding was considered to be a natural means of purification of internal diseases. Hippocrates described a method to stop anterior nasal bleeding just by pinching the nose. He also stated that anterior plugging will stop bleeding from nose. By the first century BC, Scribonus Largus discovered the method of introducing rubber tube into the nose to stop bleeding and also secure the airway in the process. Egyptians used a special type of lichen grown in mummies "MUMIA" that had a haemostatic property for anterior nasal plugging. Morgagni predicted that endoscopy will play a major role in epistaxis management by 1761.

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Relevant anatomy

The nasal cavity is supplied by both the internal and the external carotid artery systems. The sphenopalatine artery and the greater palatine artery supply the posteroinferior part of the nasal cavity while the anterior and posterior ethmoidal arteries supply its superior part. Branches of the facial artery supply the anteroinferior part of the nasal cavity. The common sites of nasal bleeding are: (1) Kiesselbach plexus in the Little's area is the most common site of anterior nasal bleeding. (2)Woodruff's plexus, the venous plexus situated at the posterior end of the inferior turbinate, is often a major contributor to posterior epistaxis.

Classification of Epistaxis[1]

Epistaxis can be primary (no proven causal factor) or

secondary (proven causal factor), childhood (<16 years) or adulthood (>16 years), anterior (bleeding point anterior to pyriform aperture) or posterior (bleeding point posterior to pyriform aperture). Various aetiologies that have been put forward for epistaxis are weather (chronobiology), NSAIDs, alcohol, hypertension and septal deformity. Seventy to eighty percent of adulthood epistaxis is considered to be idiopathic where no proven causal factor can be determined.

Aims and Objectives

1. To identify whether primary epistaxis is the most common cause of adulthood epistaxis

2. To formulate the best management protocol in a tertiary healthcare setup for management of epistaxis in adults and prevention of its recurrence

Materials and Methods

A prospective study was conducted in the Emergency Department and the Department of ENT in our institution. Patients included in the study were those aged more than 16 years presenting with epistaxis without a known causal factor. The study period was from August 2013 to August 2014. The sample size was one hundred. Patients presenting with history of trauma, children below sixteen years of age and patients with a known proven cause of epistaxis (secondary epistaxis) were excluded from the study.

The patients, after signing a written informed consent, were subjected to detailed history taking and thorough clinical examination to come to a diagnosis. Patients were managed with or without nasal packing depending upon the situation. Vital signs were closely monitored. After resuscitation, proper clinical evaluation was done for detection of the cause of the nosebleed. The required investigations like complete haemogram and routine examination of urine, diagnostic nasal endoscopy and radiological investigations were carried out subsequently as indicated. In cases of epistaxis where a sinonasal tumour was subsequently detected, punch biopsy was done for histopathological confirmation. Special tests were done for systemic diseases, if indicated. Surgical management like endoscopic sinus surgery and open surgery were done according to the pathology. Management of epistaxis was done in a stepwise manner, starting from nose pinching, cauterization of visible bleeding points, anterior with or without posterior nasal packing and sphenopalatine artery ligation, if necessary (Fig.1). Although uncommon, it is essential to exclude systemic disorders as a cause of unexplained recurrent epistaxis.

Observations

74 of the patients in this series were males and 26 were females. Male to female ratio was 3:1. Incidence of nose bleeding was maximum in persons over 40 years of age (Fig. 2). Most of the incidents occurred between the months of November and February (Fig. 3). Out of 100 patients, 46 were hypertensive and 54 were normotensive. Moreover, among the 46 hypertensive patients, 18 were in the idiopathic group, 19 were on nonsteroidal antiinflammatory drugs (NSAID) and 9 patients had gross septal deviation (DNS) with septal spur (Fig. 4). Among 54 normotensive patients, 19 had idiopathic epistaxis, 24 had a definite secondary cause of epistaxis and 11 patients had gross septal deviation (Fig. 5).

Five patients had Juvenile nasopharyngeal angiofibroma. CECT scan of nasopharynx was done in those patients. All the patients were above the age of 16 years and less than 20 years of age. All went for surgical resection of the tumour either externally or under endoscopic guidance. One such patient had another bout of epistaxis and was diagnosed to have a recurrent growth. Transpalatal excision was done in that patient. Three patients were diagnosed to have sinonasal polyposis. Plain and CECT scan of paranasal sinuses were done, followed by endoscopic sinus surgery. Two patients had septal ulcers that were diagnosed by endoscopy and was treated by chemical cauterisation.

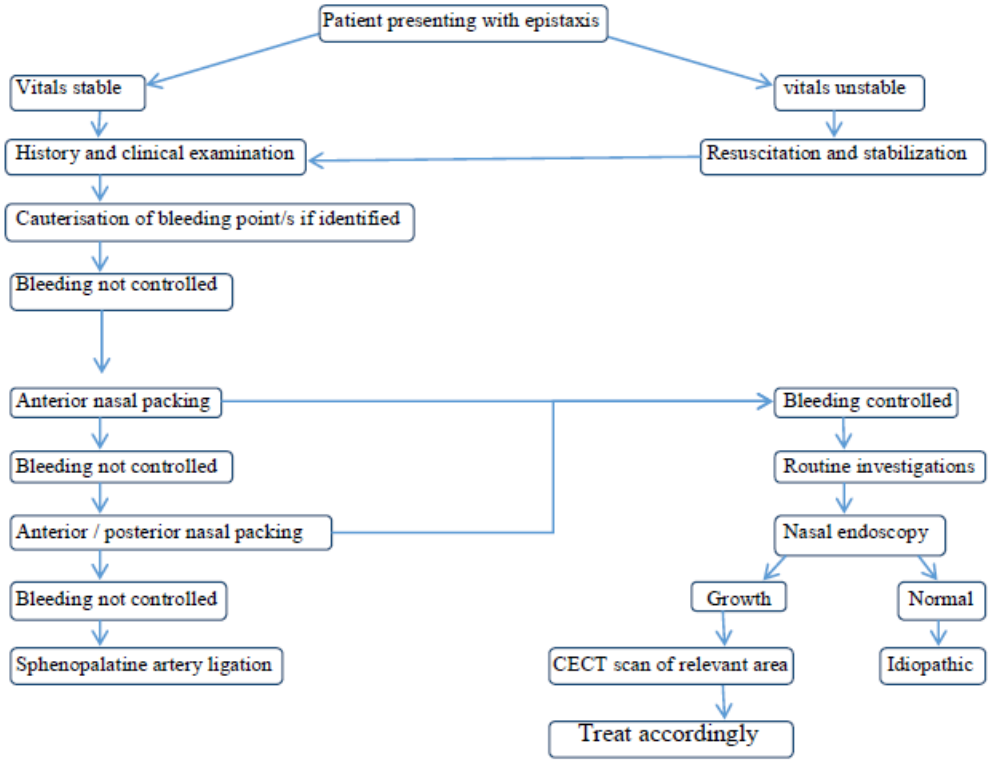

Fig. 1 Management algorithm of epistaxis in our setup

Two patients had rhinosporidiosis. Endoscopy guided excision and cauterization of the base was done. Table I shows various aetiologies of epistaxis from the group of patients who were provisionally grouped as idiopathic epistaxis. Table II outlines management options of such patients.

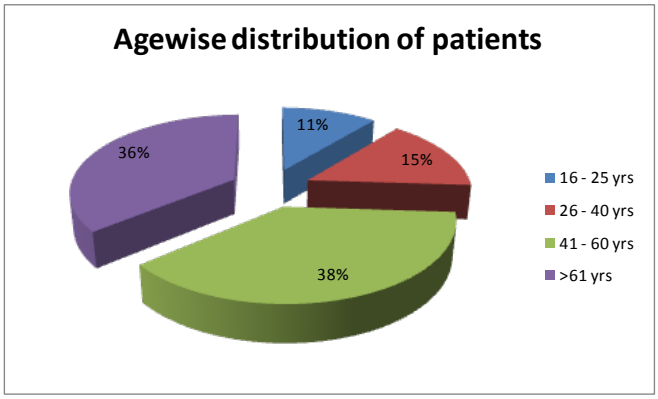

Fig. 2 Distribution of patients according to age

Discussion

Adult primary epistaxis is a variant that challenges ENT surgeons the most. A total of 100 patients having nasal bleeding without a known causal factor above the age of 16 years were included in our study. The present study had 76% males and 24% females. Males outnumbered females in our study. Petruson B et al. studied the frequency of epistaxis in an adult population sample and described that epistaxis was a more common presentation in the male population.[2] In our study, we got a similar finding. The incidence of epistaxis was more in the winter months from November to February (67%). Watkinson JC et al. in their study found similar seasonal incidence of epistaxis.[3] Nunez DA et al. studied relationship of weather with nose bleeding and opined that admissions were greatest in months of winter.[4] Thus, there is a strong relationship between

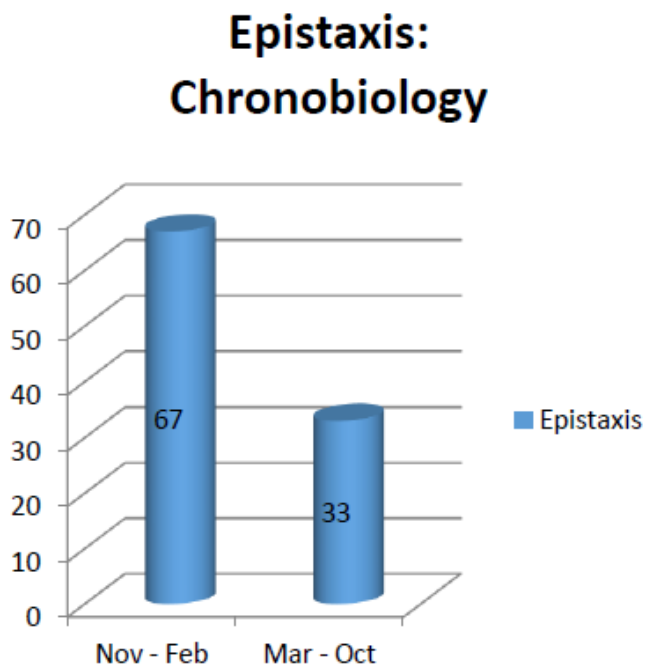

Fig. 3 Chronobiology of Epistaxis

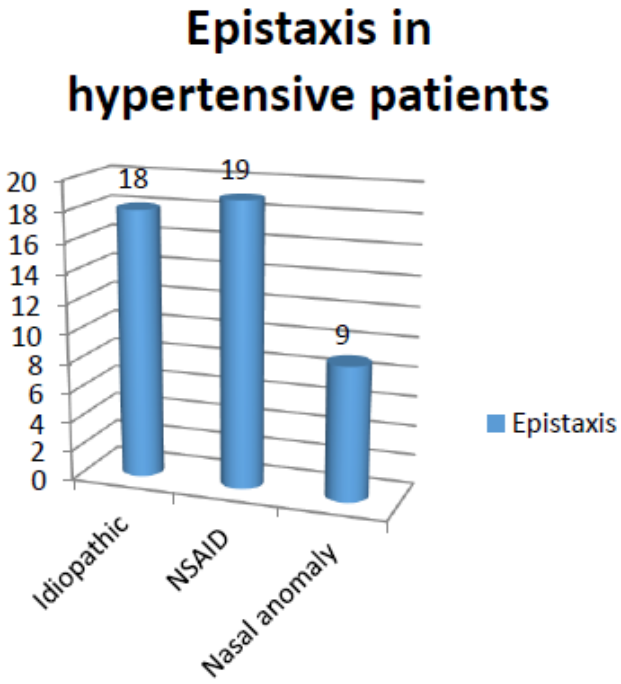

Fig. 4 Epistaxis in hypertensive patients and its causes

epistaxis and winter probably due to drying effect of nasal mucous membrane from exposure to cold air. Thus, chronobiology and its relation with epistaxis were proved.

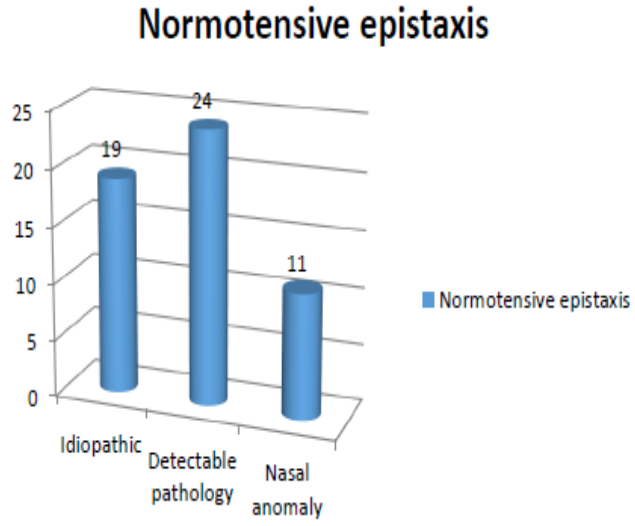

Fig. 5 Epistaxis in normotensive patients and its causes

Most of the patients were above the age of 40 years. According to the available medical literature, the commonest cause of adulthood epistaxis is idiopathic, which accounts for 70 to 80% of the cases. Mcgarry GW described the most common cause of adulthood epistaxis as idiopathic.[1] In our study, the most common cause of epistaxis was found to be secondary epistaxis. Idiopathic epistaxis accounted for only 37% of the cases. Among 100 patients, 46 were diagnosed to be hypertensive and the rest 54 were normotensive. Ecevit MC et al. in their study at university of Dokuzz showed that 56.7% epistaxis patients had elevated blood pressure. In our study, we found nearly 46 % were having elevated blood pressure. Although hypertension should always be considered as an associated finding in epistaxis, it should never be taken as the sole aetiology.[5] Lubianca et al. in their study proved the association between hypertension and epistaxis to be inconclusive.[6] This apparent elevation of blood pressure may be a result of anxiety associated with hospital admissions.[1]

Among hypertensive patients, 5 patients had

recurrent history of epistaxis. Among normotensive patients, 4 patients had recurrence. Lammens et al. in their study showed that 1/3rd of the patients attending ENT emergency were on anticoagulant therapy.[7] In our study, 19 (1/5th.) patients were taking anticoagulant medication for cardiological problems. Shergordoskey et al. described use of tricholoroacetic acid to stop anterior nasal bleeding. Chemical cautery of the bleeding point(s) detected by nasal endoscopy provide almost 90% control of symptoms.[8] Two patients with nasal septal ulcers, in this series, were treated with chemical cauterization and epistaxis was controlled effectively without any recurrence. Thus, endoscopy guided chemical cautery can also be described as an important management option to control mucosal bleeding points.

Table I: Aetiology of Epistaxis in study population

AETIOLOGY OF EPISTAXIS	PERCENTAGE
Idiopathic (cause could not be determined)	37
Gross DNS with septal spur	20
NSAID	19
Septal angioma	7
Nasopharyngeal angiofibroma	5
Sinonasal polyposis	3
Septal ulcers	2
Nasopharyngeal carcinoma	2
Rhinosporidiosis	2
Deranged liver function	2
Thrombocytopenia	1

Liu J et al. did a retrospective study on epistaxis and described the importance of endoscopy in patients presenting with epistaxis.[9] O'Leary and Weymuller also advocated rigid endoscopy as a tool for control of nosebleeds and had nearly 90% success rate.[10] We managed most of our patients by resuscitation alone or with anterior nasal packing.

Two male patients were HIV positive and had abnormal liver function. Deranged liver function was the cause of epistaxis in these patients. Hoff BV et al. noted that liver plays a major role in the clotting mechanism in our body and deranged liver function can lead to nasal bleeding.[11] It is important to rule out any liver function abnormality in idiopathic epistaxis.

Villock et al. in their study showed that endoscopy guided sphenopalatine artery cauterization in idiopathic recurrent epistaxis gave promising results and recurrence was minimal. It reduced the recurrence of epistaxis in nearly 98% patients.[12] Three of the 54 normotensive patients had history of recurrent epistaxis which were idiopathic in nature. Endoscopy assisted sphenopalatine artery ligation was done. There was no recurrence. Hence, in patients with idiopathic refractory epistaxis, endoscopic sphenopalatine artery ligation or cauterisation is a very important option of management. O'Reilly BJ et al. studied the association between epistaxis and septal deviation in adults. They described that there was no significant association between septal deviation and epistaxis but the study was only an observational non-experimental one.[13] Septal deviation or spur was associated with 20% of the patients of epistaxis in this study. Septoplasty was done in 6 patients. However, randomised controlled trials are necessary to establish

Table II: Management of Epistaxis in study population

MANAGEMENT	PERCENTAGE
Resuscitation	97%
Anterior nasal packing	48%
Anterior and posterior nasal packing	3%
Nasal endoscope guided surgeries	16%
Open surgeries	6%
Other systemic diseases managed	22%

the actual correlation between epistaxis and deviation of the nasal septum.

Conclusion

Epistaxis is one of the most common ENT emergencies and is associated with different aetiologies. Primary adulthood epistaxis is a challenge to ENT surgeons. Resuscitation and stabilisation of the patient is the first line of management. Diagnosis can be reliably made by endoscopy and radiological study. Contrary to the earlier belief that 70 – 80% of adult epistaxis is idiopathic, our study reveals that majority of cases of epistaxis not only have a definite cause but also have various options available for treatment. However, further multicentric population based studies are required to evaluate various aetiologies of epistaxis. With advances in science, use of nasal endoscopy and CT scan, ENT surgeons now have several options to look for the particular cause of epistaxis. Adherence to a strict protocol in the management of patients of epistaxis may lead us to definite aetiological diagnoses in a large section of patients. Thus, it is possible to avoid grouping most of the cases of epistaxis as idiopathic. Targeting the aetiological factors during treatment may help to further reduce the chances of recurrence.

Acknowledgement

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Invited Article

Addressing Quality of Life Issues in Long Term Survivors of Head & Neck Cancer treated with Radiation Therapy

Bishan Basu[1]

ABSTRACT

The rapid advancement of curative treatment modalities has resulted in improvement of cure rates of head neck cancer leaving us with a larger number of long term survivors from the disease. Unfortunately, long term complications of therapy continue to hurt patients even after cure, compromising their quality of life. This is particularly true for the patients treated with primary radiation/chemo-radiation therapy, where so called organ preservation does not necessarily translate into preservation of organ function. Long term sequelae of treatment, particularly xerostomia and swallowing difficulties compromise the survivors' quality of life. More studies, particularly suited to our clinical scenario, are warranted to address the quality of life issues in these patients, so that better evidence-based guidelines may be developed for their benefit.

Keywords:
Head and Neck Neoplasms; Quality of Life; Xerostomia

The effectiveness of standard cancer treatments targeted at improving cure or extending survival rates in patients suffering from head and neck cancer is tempered by long-term patient morbidity manifested as side effects. These long-term sequelae of treatment interfere a great deal with both physical and psychological functions compromising the quality of life of the long-term survivors.

The World Health Organization (WHO) defines Quality of Life (QoL) as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment."[1] But, how can we apply this all-encompassing definition to address the quality of life issues in a long term survivor of head and neck cancer who has been treated with radiation therapy?

To elaborate it further, what are the most likely concerns of a patient who has suffered from head and neck malignancy, concerns which compromise his quality of life – a patient, whose disease is presently under control, who is under regular follow-up and who, though his disease is not hurting him anymore, is still suffering from the adverse reactions of his anti-cancer treatment?

Worldwide, there are approximately 560,000 new cases of head and neck cancer diagnosed and 300,000 deaths each year[2] and among them, as many as 57.5% are in Asia, especially in India.[3] Each year, over 200,000 new cases of head and neck malignancies are detected in India and here, it is the commonest malignancy.[4] Compared to

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malignancies of other sites like lung, patients suffering from cancers of the head and neck region tend to fare better. In one population-based study, 5-year survival for localised head and neck cancers ranged from 52.9% to 80.2% depending on the subsite - cancers of the lip, mouth, nasopharynx and larynx had a better prognosis; however, less than one-fourth of cancers were localised in the organ of origin at diagnosis. Those with regional spread of disease experienced a threefold increased risk of death, and those with distant metastasis experienced a six-fold excess risk.[5]

So, in India, we get a lot of new patients suffering from head and neck malignancies; and a fair portion of these new patients' disease would be controlled or cured to get us a large number of long-term survivors. As newer modalities of treatment come into play, probability of cure / long term control would increase further.

Treatment of head and neck malignancies include surgery, radiotherapy and chemotherapy; very often all three of them are used sequentially or in combination. Treatment is becoming increasingly complex, prolonged and toxic. Each improvement in treatment modality has resulted in improvement of survival rates. For example, addition of chemotherapy (concurrent chemoradiation) has resulted in 6% to 8% improvement in five-year survival and 3% improvement with altered fractionation (i.e., hyperfractionation or accelerated fractionation) schedules over the conventional radiation therapy protocol.[6]

In general, patients who have received radiation therapy tend to have a poorer quality of life score compared to the patients who have not.[7] The modalities mentioned above – i.e., altered fractionation and concurrent chemoradiation - to improve the results of radiation therapy - are substantially more toxic compared to the conventional therapy; therefore, these modalities can potentially deteriorate the long term survivors' QoL further. Though studies comparing long-term residual and late adverse effects are not very common, one study on acute toxicities showed that the relative risk for acute toxicity of concurrent chemoradiotherapy, as compared to conventional radiation therapy, may be 320 and accelerated radiation therapy (concomitant boost technique), if combined with concurrent chemotherapy, may result in a relative risk of 590. The study stratified risks as low (100-140), moderate (150-390), high (400-490) and extreme (>500).[8]

Studies show that almost all patients of head and neck malignancies have some general emotional and functional impairment due to their treatment; however, there are some treatment-specific problems which affect their quality of life. While surgically treated patients were more likely to suffer from long-standing pain and concerns about disfigurement, patients treated with radiation therapy (with or without concomitant chemotherapy) complain of dry mouth (xerostomia) and dysphagia.[9,10] Here, we are going to discuss two most common post-radiotherapy complications which usually affect the long-term survivors' quality of life.

Xerostomia

Xerostomia or dry mouth is a complex problem having both an objective as well as a subjective component. After radiation therapy, salivary flow decreases. But the relationship between this decreased salivary flow and patient-reported dry mouth is not always a linear one. While xerostomia is often defined as reduction of salivary flow to less than or equal to 25% of baseline, a better definition should address the subjective component as well. Oxford Textbook of Palliative Medicine defines xerostomia as "the subjective feeling of dryness of the mouth, not always accompanied by a detectable decrease in saliva flow."[11]

Patients treated with radiotherapy for head and neck cancer often suffer from xerostomia from the beginning of treatment – very often, this dry mouth continues and increases through the course of treatment and persists as permanent xerostomia. Radiation can affect one or both parotid glands and the submandibular salivary glands, resulting in a marked diminution in the normal salivary flow as a consequence of inflammation and degeneration of the acini and ducts, connective tissue and vascular components of the salivary glands. The

most important factor affecting salivary flow after a curative dose of radiotherapy is the volume of the major salivary glands irradiated, particularly the parotid as it is more radiosensitive than the other major salivary glands.

In addition to gross reduction of salivary outflow, irradiation of the salivary glands causes saliva to become more viscous and acidic, with a loss of organic and inorganic components. Production of the aqueous component of whole saliva is much more sharply depressed than that of the protein component, leading to a more predominant subjective dryness.[12]

Xerostomia may give rise to a myriad of symptoms as saliva is vital for normal oral function. Symptoms due to hyposalivation can profoundly decrease quality of life. Saliva plays an important role in moistening food to allow bolus formation. Even mild xerostomia can result in a significant decrease in the variety and types of food that patients can eat. Difficulty forming a food bolus makes deglutition difficult. Patients, therefore, avoid eating and this may compromise their nutrition. Saliva maintains oral flora, thus preventing the development of dental caries. It lubricates mucosal membranes allowing normal speech and swallowing. Finally, xerostomia results in mucosal irritation and pain.

Apart from flow rate measurements, the level of amylase seems to be the best indicator of salivary gland function during radiotherapy, whereas albumin and lactoferrin are good indicators of the inflammatory reactions often related to irradiation.[12] However, a self reported xerostomia-specific questionnaire may be the best tool to assess long term xerostomia in patients receiving radiation therapy for head and neck cancer. Two most popular patient-reported tools have been a six-item linear analog scale[13] and the eight-item University of Michigan XQ.[14] Additionally, all head and neck cancer related questionnaires have at least one item related to xerostomia.

As there is no proven efficacious treatment of xerostomia, prevention is the only option. Sparing at least a part of one parotid gland from exposure to radiation should be the goal, whenever feasible. This is possible, particularly but not exclusively, with Intensity Modulated Radiation Therapy (IMRT). Often, when treatment of unilateral neck node is sufficient, opposite side parotid gland may be spared by simpler conformal techniques. However, one should not be over-enthusiastic, as at least one study linked local recurrence to parotid sparing, demonstrating the importance of careful patient selection.[15] Radioprotectants like amifostine have also been used and found to be useful.

A randomised controlled trial tested the efficacy of amifostine in patients with head and neck cancer. The subjects received standard fractionated radiation with or without amifostine (Ethyol), administered at 200 mg per square metres as a 3-minute IV infusion 15 to 30 minutes before each fraction of radiation.[16] Patient eligibility criteria included that the radiation field encompassed at least 75% of both parotid glands. The incidence of acute xerostomia (90 days from the start of radiotherapy) and late xerostomia (9 to 12 months after radiotherapy) was significantly reduced in patients receiving amifostine. Whole saliva collection 1 year following radiation therapy showed better saliva production in the amifostine group.[16] At 2 year follow-up, patients treated with amifostine had lesser subjective feeling of dry mouth and had more meaningful unstimulated salivary flow.[17] But, the inconvenience of daily administration of the drug minutes before radiotherapy and the risk of potentially life-threatening adverse reactions like severe hypotension have limited the popularity of the drug.

Another way to prevent xerostomia was to surgically transplant one submandibular gland outside the radiation portal area. During the primary surgery, the contralateral submandibular gland was replanted in the submental region in selected patients, in whom submental region was supposed to be spared or shielded during post-operative radiation therapy. This approach prevented radiation-induced xerostomia in as many as 83% of study population after two years of radiation therapy.[18,19,20] However, in the largest study, it was seen that around thirty per cent of the study population underwent the procedure unnecessarily – i.e. either radiation therapy was not given or if given, submental

space could not be shielded.[21]

Once xerostomia develops, it is very difficult to treat. Muscarinic agonist sialogogues like pilocarpine has been used and was found to be beneficial. Pilocarpine, in a dose of 5 mg thrice daily, provides best benefits with acceptable adverse effects. Best results are produced when the drug was used for more than 8weeks.[22-26] A recent study showed that the benefit of pilocarpine was independent of the dose and technique of radiation therapy as well as the volume of salivary gland under radiotherapy.[27] This suggests that, in addition to residual undamaged major salivary gland parenchyma, pilocarpine might exert its main effect through its action on the minor salivary glands. Other adjunctives such as artificial saliva containing carboxymethylcellulose as a base are not helpful. Agents, which supposedly act directly on the salivary glands like anethole-trithione are not found be beneficial either. Proper counselling, psychological support and dietary advice to take of foods with high moisture content and the drinking of plenty of liquids with meals to facilitate mastication would work better.

Swallowing Difficulties (Dysphagia & Odynophagia)

A major proportion of patients treated with radiation therapy, particularly with concomitant chemoradiation therapy would suffer from long-term problems with their swallowing abilities.

Swallowing is a complex series of mechanical processes that can be broken down into several phases: oral, pharyngeal, and oesophageal. The oral phase can be described as having two separate components - the oral preparation phase and the oral transport phase. During the oral phase, the lips and tongue play a vital role in oral bolus preparation and bolus propulsion to the oropharynx. During the subsequent pharyngeal phase, the tongue acts as the driving force for the food bolus while a complex sequence of physiologic processes propels the bolus towards the oesophagus. The oesophageal phase begins at the cricopharyngeal juncture or upper oesophageal sphincter and ends at the gastroesophageal juncture or lower oesophageal sphincter. Oesophageal peristalsis carries the bolus to the stomach. Deficits in any one of these phases can result in significant levels of disability.

Various instrumental techniques have been used to study swallowing - including electromyography, manometry, scintigraphy, ultrasound, endoscopy, and videofluoroscopy. However, the gold standard for swallowing assessment is videofluoroscopy, also referred to as the modified barium swallow study.

But, to assess the swallowing difficulties in any long-term survivor of head and neck cancer, particularly those treated with radiation therapy, it should be remembered that the inefficient swallowing reported by the patient may be a perceptive difficulty. Particularly, xerostomia diminishes a patient's perception of swallowing abilities, regardless of preserved swallowing physiology.[28] On the other hand, the most severe complication of swallowing difficulties, i.e., aspiration is under-recognised as well as under-reported among survivors of head and neck cancer since the aspiration is usually silent in nature.[29]

Among patients who suffer from a 'true' disorder of swallowing, persistent oedema following radiation therapy and the development of fibrosis result in mechanical alterations in the deglutition process. Swallowing abnormalities can be seen in the oral preparation, oral, pharyngeal, and oesophageal phases. The most commonly identified swallowing abnormalities include decreased tongue base retraction, decreased laryngeal elevation, decreased epiglottic inversion, decreased pharyngeal wall motion and aspiration. Fortunately, in many cases, patients are able to tolerate oral diets with various modifications to prevent aspiration and improve the efficiency of swallowing.[30]

The prevalence of swallowing difficulties among long-term survivors of head and neck cancer is difficult to assess, as not many studies have yet addressed this issue. One study concluded that all patients had some degree of swallowing problems after 12 months of completion of radiation therapy, though this study did not assess the prevalence of swallowing disorder in the

study population before the initiation of therapy.[31] Once xerostomia is ruled out as the potential reason behind the swallowing difficulties, rehabilitative swallowing therapy works well.

It is very important that swallowing difficulties are recognized and treated early, as xerostomia in addition to swallowing difficulties, compromise nutrition of the patient. This is often aggravated by the fact that exposure to radiation can cause alteration of taste sensation, which may lead to aversion to food further compromising nutrition. Swallowing difficulties are best described by the patients and therefore, should best be assessed by patient-reported tools e.g. patient-reported outcome questionnaire. Unfortunately, commonly used head and neck quality of life measurement tools do not address this issue properly. Perhaps, we are in need for better assessment tools. M.D. Anderson Dysphagia Inventory and SWAL-QoL/SWAL-CARE are some of the experimental tools developed specifically for this purpose.[32-35] In addition to the patient's perspective on his swallowing difficulties, SWAL-QoL went one step further to include the care-givers' perspective. However, adaptation of these tools for the Indian socioeconomic and clinical scenario can be a challenge.

Quality of Life Issues

With our conventional clinical approach, it is most satisfying for us when we are able to cure a patient. But, not infrequently, the long term sequelae of cancer therapy can be really debilitating – often hurting more than the initial symptoms of the disease. Unfortunately, we are not always eager to take care of these long term problems. It is very uncommon to find a clinician who addresses the long term sequelae-related quality of life issues with the same eagerness as shown for curative therapy. But, we should better keep in mind that, whether from the disease itself or from the adverse effects of treatment, even after cure, it is the same patient who is still suffering. And it is hardly enough consolation for the patient to realize that though he is still suffering, his disease is cured.

At the beginning of therapy, the fear of cancer may so overwhelm the patient that the prospect of cure is really lucrative. Once acute toxicities subside, the patient may feel better and quality of life may improve. This is manifested in the studies where it is seen that patients' quality of life improves gradually after completion of therapy. Studies report that though quality of life is impaired on the initial days of therapy (e.g. at three months), it gradually improves afterwards (e.g. at one year).[36,37]

Though long term quality of life studies on survivors of head and neck cancer is not common, one such study has suggested a late decline in survivors' QOL scores at 10 years after treatment as compared with 1- and 2-year follow-up.[38] In studies where decline in QoL score were not seen, stabilization of QoL at one year was commonly reported with negligible improvement in treatment-related complications over the years.[39-48]

In judging the efficacy of treatment, extending survival does not always correlate with improvements in QoL. This is particularly true in context of curative treatment for head and neck cancer. Conversely, specific treatments may not necessarily prolong life, but may enhance its quality. In developed world, public and private organizations have brought attention to the need for research addressing the issues of cancer survivors. Efforts have been made for preparing proper guidelines to serve the long term cancer survivors [49], so that management of the long term complications may be evidence-driven. In fact, the Institute of Medicine, USA has stated clearly in their guidelines that : "Health care providers should use systematically developed evidence-based clinical practice guidelines, assessment tools, and screening instruments to help identify and manage late effects of cancer and its treatment. Existing guidelines should be refined and new evidence-based guidelines should be developed."[50]

In a developing country like ours - where patients suffering from head and neck cancer belong to a lower

socioeconomic status and long term complications almost always mean loss of job – need of such guidelines is still more.

Unfortunately, in our country, major attention is driven towards the curative treatment and supportive care is invariably neglected, though supportive treatment usually requires less funding and may be more cost-effective. But, before development of such guidelines specifically suited to our clinical scenario, more studies addressing the quality of life issues in long term survivors in our country are necessary.

However, even in teaching institutions, compared to studies on curative treatment, very little research work is done to address the quality of life issues. With the recent advancement of curative treatment modalities, the improved possibility of cure is leaving an increasing number of long term survivors left with long term sequelae of therapy. We are looking forward to more research work addressing the quality of life issues among these long term survivors. Particularly, the young generation of clinicians entering into their training on the treatment of head and neck cancer should take more interest into the matter.

The role of Patient Reported Outcome (PRO) questionnaires as tools of quality of life measurement can never be overemphasized. A number of such PROs have been developed. Overviews of such PROs and guidelines on their use for the purpose of clinical trials have also been published.[51-54] Translations as well as cross-cultural adaptations of such PROs and their validation studies can be a focus of research works in the coming years in the tertiary care teaching hospitals in our country. PROs should be used as tools to measure QoL only after such validation. Meanwhile, broad Qol tools like EORTC QLQ-C30 and HN35 may be used for the purpose of studies addressing quality of life issues.

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A Few Unusual Cases of Benign Laryngeal Lesions - Our Experience

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ABSTRACT

Introduction

Benign laryngeal lesions may have some uncommon presentations.

Aim of the Study

The aim was to identify unusual benign vocal cord lesions and review their management and follow up.

Materials And Methods

The records of the patients presenting with different benign vocal cord lesions were reviewed retrospectively. Confirmed cases of vocal cord paralysis and malignancy were excluded from the study. Nine cases were imcluded in this study. Clinical findings, investigation reports, treatment and outcome were analysed.

Results

Most of the patients were from 18 years to 52 years (66%). Most common presenting feature was hoarseness of voice (89%) followed by respiratory distress (33%) . Microlaryngeal surgeries were done in 7 patients (78%) and 2 patients (22%) were managed conservatively.

Conclusion

Diagnosis of benign vocal cord lesions may sometimes be difficult. Careful history, attention to the anatomy and the probable variations in presentation of the benign lesions of larynx, thorough clinical examination and different diagnostic tools are essential for satisfactory management.

Keywords:

Vocal Cords, Laryngeal diseases, Voice Disorders, Candidiasis, Nerve Sheath Neoplasm, Papilloma, Polyps, Keratosis, Treatment Outcome.

Voice is a very important part of our personal and professional life. Voice disorders in different professionals like teachers, management groups, salesmen, tele-marketers, singers, orators, politicians, artists etc. and also of general population need to be meticulously assessed as people are becoming more exacting in their expectations of the treatment outcome. Data on the prevalence of voice disorders is scarce. Voice disorders not only impair communication but have important effects on public health, especially for professional voice users whose voice is very important for their work. It is reported that 29.9% of the general population suffers at least one voice disorder in their lifetime, 6% has a current voice disorder, and 7.2% misses one or more work days due to such diseases.[1] In addition to health care costs related to the treatment and loss of work/ productivity, benign voice disorders impair patients' quality of life.[2] There has been an ideological shift in healthcare from 'curing' disease to 'minimizing the impact of illness on everyday activities.' [3]

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Aims and objectives

To identify and study unusual benign vocal cord lesions and their management and to review relevant available literature.

Materials and methods

The records of all patients presenting to the Department of E.N.T. with different types of benign vocal cord lesions from 01/06/2013 to 30/11/2014 were reviewed retrospectively. Confirmed cases of vocal cord paralysis and malignancy were excluded from the study. History and findings of clinical examination were assessed including the findings of indirect laryngoscopy, fibreoptic laryngoscopy, direct laryngoscopy, microlaryngoscopy and video stroboscopy. Preoperative and postoperative voice recordings had been done in all cases. All surgically resected tissues had been subjected to histopathological examination. Patients had been followed up after one week, two weeks and eight weeks following surgery.

Results

Out of nine patients four were male and five were female. Age ranged from 8 years to 69 years. Hoarseness was observed in eight patients, alteration of voice in one. Acute stridor was seen in three patients for which emergency tracheostomy had to be done. Decannulation was done in all three patients in follow up. Microlaryngeal surgeries were done in seven patients and two patients were managed conservatively. Improvement of voice quality was noticed in all patients.

Most of the patients were from 18 years to 45 years (66%) (Table 1). Four patients (44%) were in the age group of 30 years to 45 years and 2 patients (22%) were in the age group of 15 years to 30 years. Out of 9 patients4 patients (44%) were male, 5 patients (56%) were female, the male:female ratio being 4:5. Most common presenting feature was hoarseness of voice (89%) followed by respiratory distress (33%) (Table II). Microlaryngeal surgery was done in 7 patients (78%), among which 3 patients required emergency tracheostomy (33%) to relieve the stridor at presentation. 2 patients (22%) were managed conservatively (Table III). Four of the patients in this series were housewives, one student, one clerk, one tutor, one civil supervisor and one hawker. On histological examination, one case each of vocal cord candidiasis (Figs. 1 and 2), vocal cord nerve sheath tumor (schwannoma) (Figs. 3 and 4), recurrent laryngeal papillomatosis , vocal cord polyp with haemorrhage, bilateral vocal cord keratosis, haemangiomatous polyp of vocal cord and anterior commissure vocal polyp were seen (Table IV).

Table I: Age distribution of patients (n=9)

AGE GROUP	NO. OF PATIENTS	PERCENTAGE
Upto 15 yrs	1	11
>15 yrs - 30 yrs	2	22
>30 yrs - 45 yrs	4	44
>45 yrs - 60 yrs	1	11
>60 yrs	1	11

Table II: Clinical presentation of patients (n=9)

PRESENTING FEATURES	PRESENT	ABSENT	%AGE
Hoarseness of voice	8	1	89
Respiratory distress	3	6	33
Foreign body sensation	1	8	11
Alteration of voice	1	8	11
Itchy throat	1	8	11
Haemoptysis (occasional)	1	8	11

Discussion

In our study, female predominance was observed with male:female ratio being 4:5, which is opposite

of the results of various other studies but may not be statistically significant due to small number of cases in our series.4,5 The majority of patients (66%) were found to fall into the age range of 15 years to 45 years at the time of presentation. It is known that individuals in younger age group are more ambitious, active and use their vocal skills maximally. This is in accordance with various other studies which show a higher incidence of benign lesions of the larynx younger patients.4,5,6

Table III: Age distribution of patients (n=9)

MANAGEMENT PROCEDURE	NUMBER	PERCENTAGE
Microlaryngeal surgery	4	44.44
Tracheostomy followed by Microlaryngeal surgery	3	33.33
Conservative	2	22.22

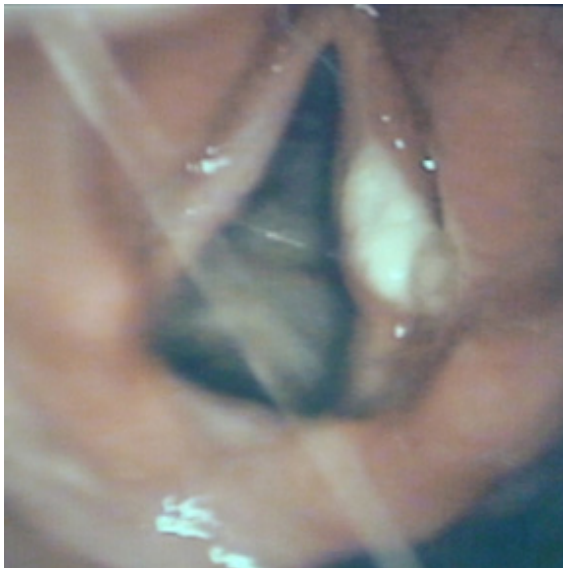

Fig. 1 Candidiasis of vocal cord looking like keratosis

A very interesting observation was that housewives formed 44 % of the study population. The system of joint families and the large number of children in each family probably accounts for such common occurrence in females due to voice strain. This observation is similar to those of Baitha et al.[7]

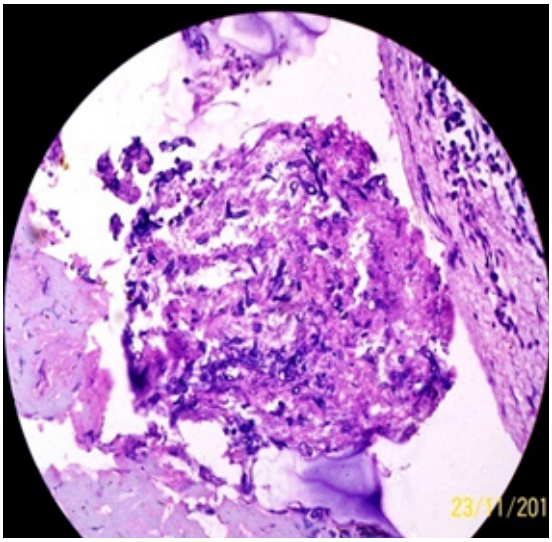

Fig. 2 HP photograph (H&E,40X) showing multiple spores and yeast-like organisms with slender pseudohyphae suggestive of mucosal laryngeal candidiasis.

Histologically proved fungal infections of the larynx are rare and nearly 40 such cases have been reported in literature so far. Isolated laryngeal candidiasis in an immunocompetent patient is infrequently recognised and is poorly documented.[8] Incidence of neurogenic laryngeal tumors is also rare, all of which are histologically proved schwannomas and account for approximately 0.1% of all benign tumors of the larynx.[9] The true vocal cord is usually involved with fewer than 10 such reported cases in literature.[10]

The incidence of recurrent respiratory papillomatosis is 4.3 per 100,000 people in the United States, 3.4 per 100,000 in India.[11] Prevalence of microvascular benign vocal cord lesions in professional voice users is 3.5%.[12]

Table IV: Histopathology reports of biopsy specimen (n=7)

DIAGNOSIS	NO. OF PATIENTS
Vocal cord candidiasis	1
Vocal cord schwannoma	1
Recurrent laryngeal papillomatosis	1
Vocal cord polyp with haemorrhage	1
Vocal cord keratosis(B/L)	1
Haemangiomatous polyp of vocal cord	1
Vocal cord polyp (near anterior commissure)	1

Bilateral vocal cord keratosis cases are not very rare but the necessity for emergency tracheostomy required for relief of stridor in such cases is rare in literature.[13]

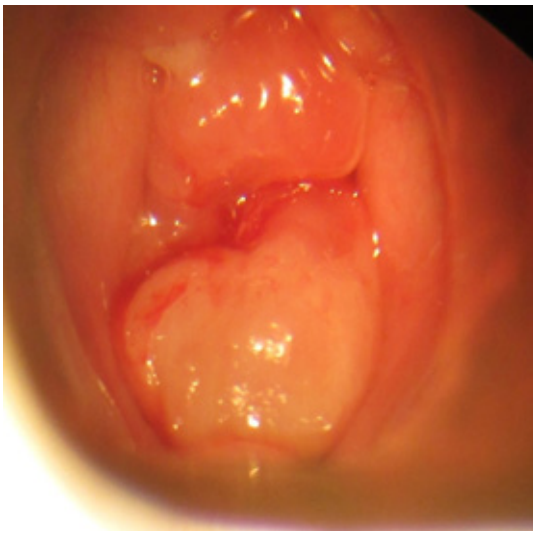

Fig. 3 Globular swelling of vocal cord

Incidence of vocal cord haemangioma is 1–2 % of benign vocal cord lesions in different literature.[14] Incidence of bilateral Reinke's oedema is 3-4 % cases

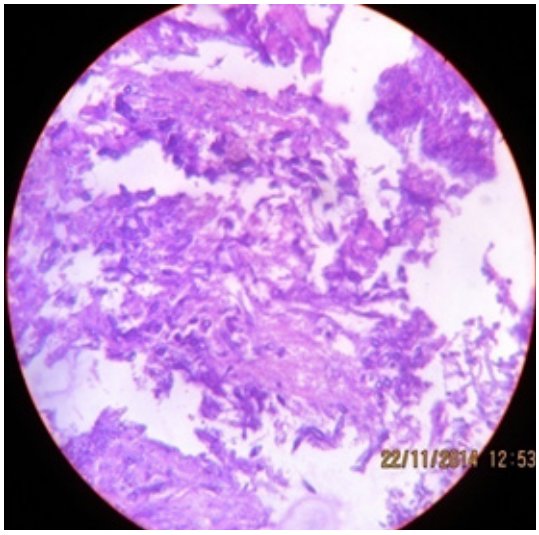

Fig. 4 Nerve sheath cells - Schwannoma of vocal cord (H&E,40X)

of all benign vocal cord lesions.[15] Commonest site of origin of vocal polyps are in the free margin of vocal cords in 70% cases and anterior commissure only in 15% cases.[16] In our series, we found it to originate near the anterior commissure.

Conclusion

Unusual benign laryngeal lesions still elude us in our day to day practice. The laryngologist needs to be vigilant to diagnose such a condition and treat it effectively. Benign vocal cord lesions sometimes mimic malignancy. They may even be large enough to occlude the laryngeal airway to such an extent that emergency tracheostomy may be necessary. Careful history, adequate anatomical knowledge about the larynx and the characteristics of benign lesions, thorough clinical examination and different diagnostic tools may help in adequate management of such cases for best results.

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A Complicated Case of Foreign Body Oesophagus in an Infant

Arvind Kumar Verma[1], Ruma Guha[1], Chiranjib Das[1], Saumendra Nath Bandyopadhyay[2]

ABSTRACT

Introduction

A case of a one year child with accidental ingestion of a safety pin is reported.

Case Report

A broken safety pin with missing clip was found impacted in the upper oesophagus with both ends pointing upwards. It was removed by rigid oesophagoscopy.

Discussion

Sharp foreign bodies have increased risk of complication.

Conclusion

Improvisations are often required in the surgical technique to tackle difficult situations.

Keywords

Foreign Bodies, Esophagoscopy, X-Rays, Child

Ingestion of foreign bodies is common primarily in children, psychiatric patients, alcoholics and elderly people who use dentures.[1,2,3] Selivanov *et al*. reported that, in most cases of foreign body ingestion, the most common foreign bodies ingested were coins, bones, food debris, safety pins and razor blades.[4]

We report a case of a one year child presenting to us with accidental ingestion of a safety pin. Rarity, technical difficulty in removing the foreign body, complications associated with the delay in diagnosis and treatment, migration of the foreign body extraluminally, site, shape and position of the sharp end of a safety pin makes this case interesting and worth reporting. The case was difficult because the protected end of the safety pin was broken which made both the ends of the foreign body sharp. Also, the ends of the safety pin were wide apart and pointing upwards.

Case Presentation

A one year old male child presented to the emergency with suspected ingestion of some foreign body four hours back followed by continuous dribbling of saliva, refusal of feeds and incessant cry. Patient was very irritable and unable to take even sips of water. X-Ray neck, chest and upper abdomen. Postero-anterior and lateral views revealed a wide open safety pin, with missing clip, in upper part of neck. Both the sharp ends were pointing upward. X-ray neck, chest and abdomen in a single film was repeated to exclude the presence of the clip of the safety pin inside the body from the nasopharynx to the abdomen. His chest examination revealed bilateral equal air entry with added sounds from upper airway probably because of aspiration of excess secretions in the oral cavity and the oropharynx.

Patient was prepared and emergency oesophagoscopy was done under general anaesthesia. As both the ends

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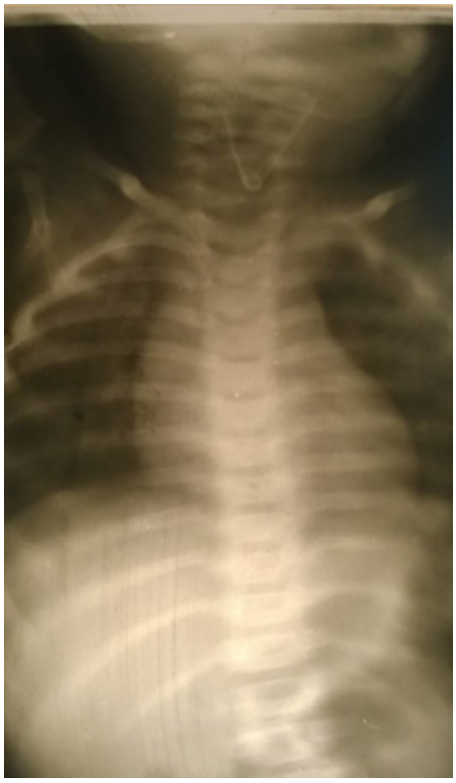

Fig. 1 X-ray neck postero-anterior view showing metallic foreign body

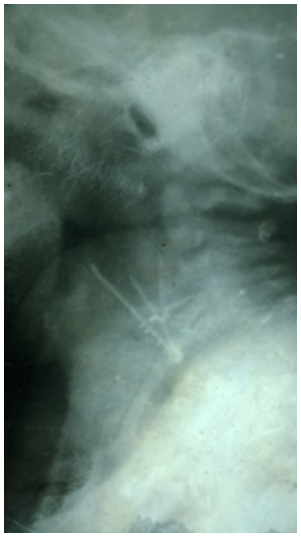

Fig. 2 X-Ray neck lateral view confirms FB to be in food passage

were sharp, there was a definite risk of penetration of the oesophageal wall during attempted removal. So, instead of pulling the foreign body up with a foreign body holding forceps, the oesophagoscope was gently negotiated up to one end of the safety pin to bring it inside the lumen of the oesophagoscope.

After one sharp end could be secured against the barrel of the oesophagoscope, the disimpaction of the other end was comparatively safer and the other tip was also drawn inside the barrel of the oesophagoscope. Withdrawal of the oesophagoscope was done slowly, taking care not to lose the foreign body, as part of the broken safety pin remained inside the barrel of the oesophagoscope. Post-operative period was uneventful and patient was allowed oral feed after six hours and discharged on following day. Patient was doing well on

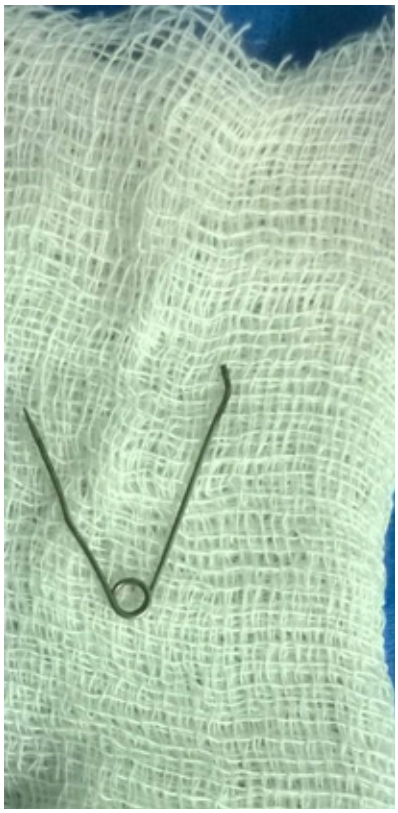

Fig. 3 The broken safety pin after removal

follow up visit after seven days.

Discussion

Foreign body oesophagus is common in paediatric population but ingestion of such a foreign body in a child of one year is quite uncommon in our practice. The common site of impaction of accidentally ingested foreign bodies is the cricopharynx.[5] In this case, the foreign body was impacted in the upper part of the oesophagus and its tips were projecting upwards. This patient presented with dysphagia which is a common symptom of foreign body oesophagus. Radiographs of the neck (postero-anterior and lateral views) are usually done to confirm the position of the foreign body, especially whether it is in the oesophagus or the respiratory tract. In this case, the radiograph revealed the foreign body to be in the upper aerodigestive tract at the level of the C3-C7 vertebrae. A sharp foreign body has increased risk of complications[6,7] and a broken and open safety pin with its pointed ends upwards is a relatively difficult case. Rigid oesophagoscopy is the preferred modality in our institution to remove sharp foreign bodies from the upper digestive tract.

Conclusion

Foreign body ingestion in the paediatric population is common. Effort should be made by attending physicians to enquire into the details of events relating to ingestion of foreign body in order to arrive at an early and timely diagnosis to enable prompt treatment so as to prevent any complication. Broken foreign bodies necessitate a careful and thorough search to avoid retention of the missing part inside the body. Sharp foreign bodies pose an increased risk of oesophageal perforation and improvisations are often required in the surgical technique to tackle difficult situations.

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Case Report

Retropharyngeal Hematoma Secondary to Minor Blunt Trauma Neck : A Rare Case Report

Dipten Paul,[1] Shubhrakanti Sen,[1] Avishek Palai,[1] Monoj Mukherjee[1]

ABSTRACT

Introduction

Traumatic retropharyngeal hematoma is rare, but can be lethal, if not identified and managed promptly. It is clinically important because of the close proximity of the retropharyngeal space to the upper airway.

Case Report

A case of upper airway obstruction in a 75 year old man due to a large retropharyngeal hematoma following minor injury to neck is presented. Progressive dysphagia, hoarseness and dyspnoea developed over time. Emergency tracheostomy and subsequent surgical drainage was performed.

Conclusion

Retropharyngeal hematoma is a rare but potentially lethal problem that can be faced in an emergency department. Clinicians should be alert to the potential occurrence of this cause of acute or delayed airway collapse. Thus, an awareness of the possibility of airway obstruction secondary to massive hematoma formation after an asymptomatic interval is needed.

Keywords:

Hematoma, Tracheostomy, Hoarseness, Deglutition disorders/etiology, Dyspnea

Traumatic retropharyngeal hematoma is rare but may cause life-threatening airway compromise. Relatively few cases of airway obstruction due to minor traumatic retropharyngeal hematoma has been reported in literature.[1] This potentially fatal condition necessitates prompt diagnosis and treatment. Airway compromise may develop insidiously, usually several hours after the trauma. Thus hospitalisation with close monitoring is essential, preferably in intensive care units.[2]

Management starts with securing and maintaining the patient's airway. Diagnosis rests upon clinical examination and radiological studies. Treatment depends upon the size of the hematoma as well as the clinical course of the patient.[3] Intubation may be difficult due to distorted anatomy. Surgical airway management is often necessary as part of resuscitative measures.[2] Treatment is mostly conservative but large hematomas may require drainage.[4]

This study presents a unique case of a massive retropharyngeal hematoma following a minor blunt trauma presenting with severe stridor which was managed in a tertiary care hospital.

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Case Report

A 75 year old man fell down a staircase and suffered a minor trauma to his neck. He was able to resume his daily activities immediately. After few hours, he insidiously developed a pain in the neck which was gradually progressive and increased in severity with deglutition. He then developed progressive dysphagia both to solids

and liquids. After about 6 hours, he started experiencing some difficulty in breathing for which he attended our institution.

On general survey, it was found that the patient was anxious, alert and agitated. There was inspiratory stridor with tachypnea, tachycardia and mild cyanosis. On examination of the neck, there was no evidence of any external injury or tenderness. There was hoarseness of voice and rigid 70° fibreopticlaryngoscopy revealed only a bulged posterior pharyngeal wall. The patient had no known bleeding disorder and was not on anticoagulant therapy.

A lateral skiagram of soft tissue neck revealed significant widening of the pre-vertebral shadow which had pushed the airway anteriorly. The radiological evidence of pre-vertebral collection from the level of C1 vertebra extending into the mediastinum and a small round radioopaque structure, possibly a fractured bony fragment from the cervical vertebra, was significant (Fig. 1). Emergency tracheostomy with insertion of a cuffed tracheostomy tube was done. Intraoperatively, posterior wall of trachea was found excessively bulged. Patient was shifted to ICU and put on appropriate intravenous fluids, broad spectrum intravenous antibiotics and parenteral hydrocortisone.

ECG revealed an old inferior wall ischemia. Echocardiography and Chest X-ray were also performed. Complete blood count & arterial blood gas (ABG) analysis were performed and serum electrolytes were serially monitored. Prothrombin time (PT), activated partial Thromboplastin time (aPTT) and bleeding time (BT) were also normal. Neurosurgery and Cardiology consultation were done.

After stabilisation of the patient, Contrast-enhanced computed tomography (CECT) scan of the neck was performed the next day. There was evidence of large retropharyngeal hematoma, measuring approximately 11 cm X 2.4 cm X 4 cm in size and causing severe compression of the adjacent airway (Figs. 2 and 3). The hematoma was drained via an intraoral incision and drainage but no active bleeding point was identified. Large amount of blood clots were sucked out. Finally,

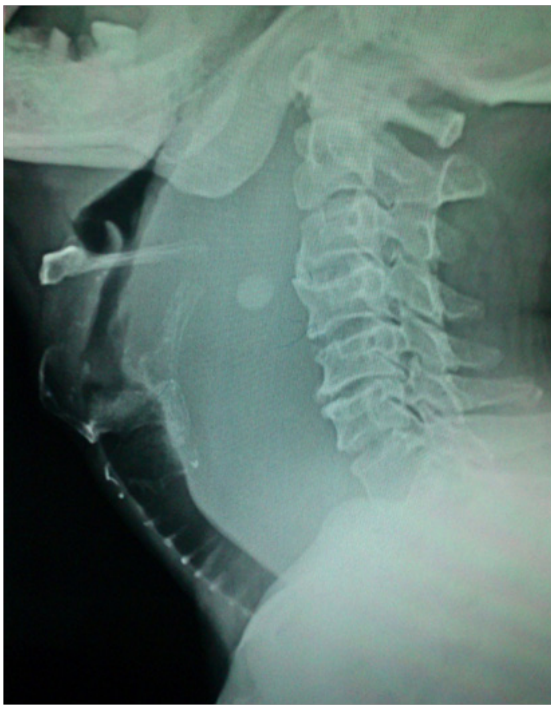

Fig. 1 X-ray soft tissue neck (lateral view) showing significant widening of prevertebral space with evidence of huge collection. Airway is pushed anteriorly.

a Ryle's tube was inserted under vision. Edema and swelling of the posterior pharyngeal wall subsided over next 3 days. Then, Ryle's tube feeding was started. Unfortunately, on the10th post-operative day, the patient succumbed to his cardiac comorbidity.

Discussion

Retropharyngeal hematoma, although extremely uncommon, is a well-known complication of cervical trauma, neck surgery, deep neck infections, foreign bodies, great vessel trauma, carotid aneurysm and hemorrhagic parathyroid adenoma. In addition, violent neck and body movements caused by coughing, vomiting or muscular exercise have also been reported as etiologies.[3,5,6]

It can occur spontaneously in patients with bleeding disorders.[7] Three such cases were reported in patients taking anticoagulants by Owens et al.[8]

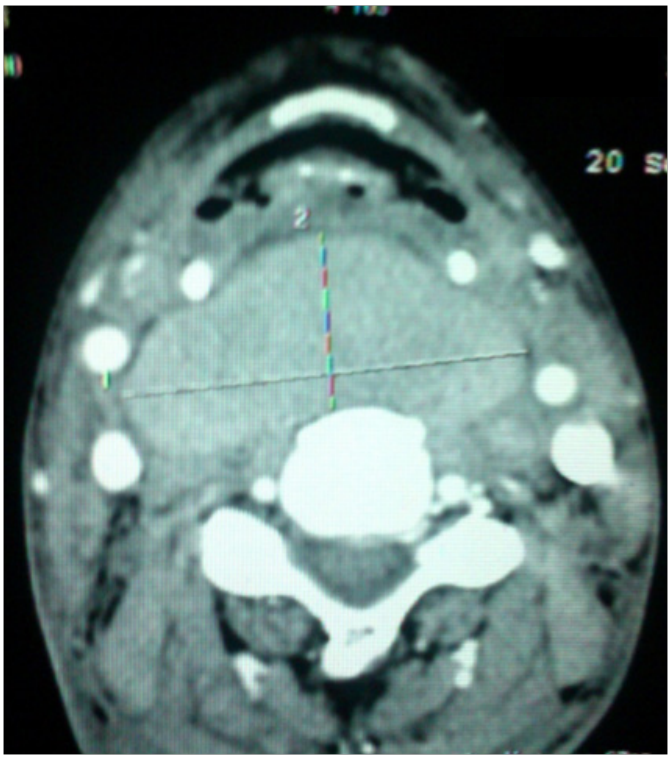

Fig. 2 CECT scan neck (axial cut) showing retropharyngeal hematoma compressing the adjacent airway.

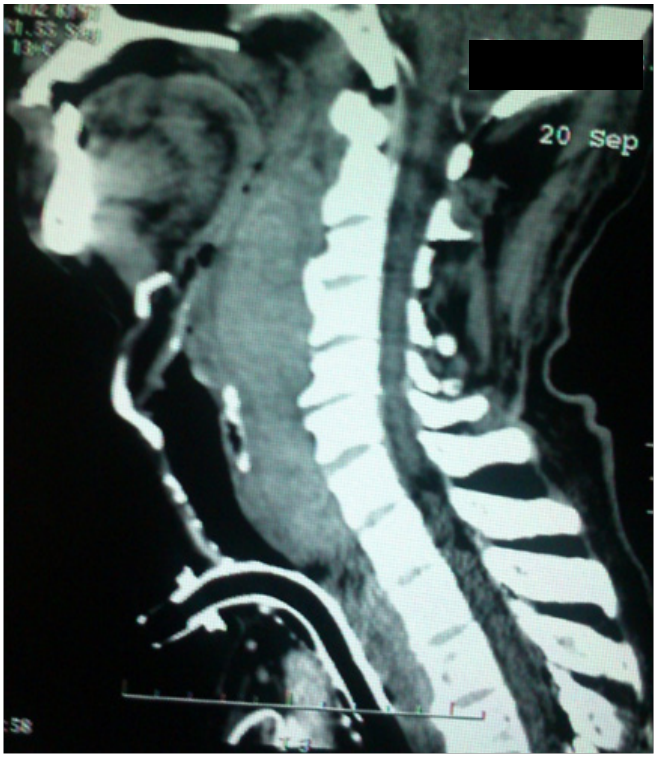

Fig. 3 CECT scan neck (sagittal cut) showing large retropharyngeal hematoma and its extent. Tracheostomy tube is in situ.

Traumatic retropharyngeal hematoma is thought to be due to the rupture of the small anterior branches of the vertebral arteries during hyperextension injury, which can be isolated or associated with cervical spine or occipital condyle fractures. Tearing of longus coli muscles or the anterior longitudinal ligament is another cause.[7,9]

Elderly patients have multiple risk factors for ligamentous injury, fractures and hematoma formation, including laxity of connective tissue, presence of degenerative osteophytes, ankylosing spondylitis and pharmacologic anticoagulation.[5,10]

Minor bleeding in the retropharyngeal space will thus usually stop spontaneously in young patients, while the bleeding may continue in elderly patients.[9] Consequently, apparently minor trauma causing hyperextension injury of the neck may be associated with retropharyngeal hematoma in elderly patients.[1,5]

Knowledge of the anatomy of the various fascial planes in the neck is essential to understand the clinical implication. The fascial planes can be divided into three layers: the superficial, middle, and the deep divisions (with the carotid sheath formed by all three). The retropharyngeal space is located anterior to the alar layer of the prevertebral fascia and extends from the base of the skull to the superior mediastinum up to the level of the tracheal bifurcation at T_4. Here, the alar layer of the prevertebral fascia merges with the anterior border of the retropharyngeal space, the middle visceral layer of the deep cervical fascia. The retropharyngeal space is posterior to the nasopharynx, oropharynx, hypopharynx, larynx, and trachea. Laterally, the space is continuous with the parapharyngeal space and bound by the carotid sheath. It contains lymph nodes and connective tissue and is a potential space for blood or pus to accumulate

and compromise the airway.[1,3,5]

Massive bleeding in the retropharyngeal space affects the pharynx, larynx, esophagus, and trachea. The amount of bleeding is directly related to the severity of signs and symptoms such as inspiratory stridor, dyspnea, hoarseness, neck pain, dysphagia, and odynophagia, which usually appear several hours after the trauma.[3,5]

The local increase in volume causes dysphagia and salivation. A compression of the arytenoid cartilages can also occur, closing the vocal cords and thus obstructing the airway. A lateral neck skiagram or a cervical CT image may show marked widening of the prevertebral space confirming the clinical diagnosis of retropharyngeal hematoma. Usually a CT scan is sufficient to make the diagnosis, but occasionally, an MRI is needed to differentiate blood from pus.[1]

Management of retropharyngeal hematoma starts with the maintenance and protection of the airway from obstruction. Many authors advocate tracheotomy as the procedure of choice for maintaining the airway. Some consider retropharyngeal hematoma as a relative contraindication to endotracheal intubation because of the potential for perforation of the retropharyngeal bulge during the procedure.[11] Once the airway is secured, two options are available: drainage or observation.[10]

Some authors advocate observation and prescribe drainage for those hematomas that do not resorb. These authors cite that many hematomas have been reported to decrease over a 2-3 week period. Patients with small, non-expanding hematomas can be treated conservatively with cervical spine immobilization.[7]

In case of rapid expansion of the hematoma or secondary bacterial infection of the retropharyngeal hematoma, surgical drainage may be emergently needed to relieve the tracheal compression.[1,3]

Two routes of drainage have been described - transoral aspiration and external drainage. Surgical drainage is essential for large hematomas, especially for those expanding rapidly.[10] We drained the hematoma intraorally under local anaesthesia.

Moitra et al reported one case after minor trauma due to an anterior longitudinal ligament injury and a minor vascular injury around the injured ligament.[12] Shaw et al, reported another case following a cervical hyperextension injury in an elderly man. A bleeding vessel in a small tear in the anterior spinous ligament was identified and cauterised.[13] Iizuka et al reported a case of a 30 year old female presenting 4 hours after a motor vehicle accident with severe dyspnea and neck swelling. As extravasation of contrast agent was observed on emergency CECT scan, emergency angiography was performed and hemorrhage from the right thyrocervical artery was diagnosed.[14] All of the above cases had been managed successfully.

Conclusion

Although rarely encountered, retropharyngeal hematoma is a serious problem that can be faced in an emergency department. Retropharyngeal hematoma with life-threatening airway compromise can develop hours or days after an apparently minor injury. The elderly appears to be especially at risk. Clinicians should be alert to the potential occurrence of this cause of acute or delayed airway compromise. However, rapidly securing the airway in these patients may be hazardous due to the presence of concomitant cervical spinal or head injuries.

It may also be considered as a cause of stridor with history of minor trauma to neck, especially in the elderly. Thus, an awareness of the possibility of airway obstruction secondary to massive hematoma formation after an asymptomatic interval is essential.

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