

Laryngology Interesting case reports

Patient's are our best teachers

OTOLARYNGOLOGY ONLINE

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Laryngology Interesting case records

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Preface

This e book contains interesting case records of patients with disorders of larynx and neck. Best way to learn otolaryngology is to peruse case sheets of these patients and by examining them. No book is a substitute for a patient. Case materials documented in this book have been collected from the author's personal collection. Relevant discussion is provided at the end of each case record, substantiated with references and citations.

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Branchial fistula ¹

6 years old boy came with

C/o

Discharge from both sides of neck - 4 years

On examination:

Small opening seen along the anterior border of upper 1/3 of sternomastoid muscle.

Mucoid discharge could be seen extruding through this opening.

X-ray chest – Normal

Complete haemogram- Normal

Management:

Surgical exploration was done under general anesthesia: Fistulous tract was identified by passing proline through the opening seen in the neck



Proline thread could be seen being passed through the opening in the neck identifying the fistulous tract



Figure showing fistulous tract being completely exposed and removed



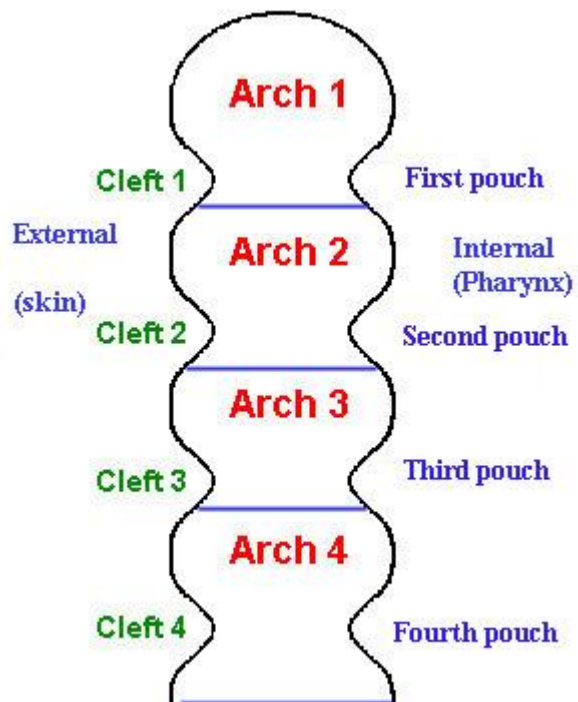
Fistulous tract after excision

Discussion:

This is one of the most common branchial arch anomalies. This anomaly is associated with the second branchial arch. The fistulous tract invariably opens at the anterior border of sternomastoid muscle, traverses between the carotid artery and vein to reach the palatine tonsil. The internal opening may be present at the level of palatine tonsil.

Embryology:

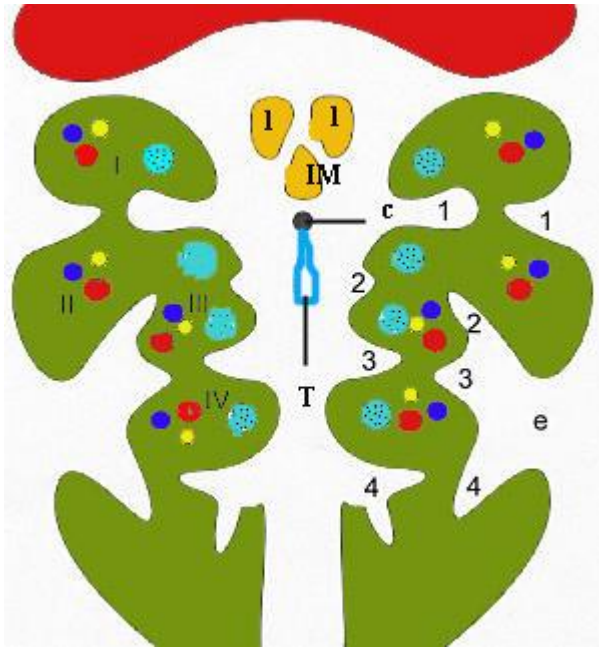
Branchial apparatus develop between the 3rd and 7th weeks of embryonic life. These structures are phylogenetically related to the gill slits of fish. To begin with there are 5 mesodermal arches separated by invaginations of ectoderm (clefts) and endoderm (pouches). Each of these arches has its own unique arterial and nervous supply. These structures eventually develop into muscles and connective tissue structures of neck.



Diagrammatic representation of embryology of branchial apparatus

Components of branchial apparatus:

1. Branchial arches
2. Branchial clefts
3. Branchial pouches
4. Their blood and nerve supplies



Diagrammatic representation of branchial apparatus. l: Lateral tubercle, IM: tuberculum impar, c: foramen cecum, T: thyroglossal duct, e: cervical sinus. The cartilages, nerves and blood vessels are marked accordingly.

Branchial arches:

The branchial arches are 6 in number. Each of these arches is made up of a core of mesodermal tissue covered on the outside by surface ectoderm, and on the inside by endoderm. Each of these arches has its own cartilaginous bar, muscular component, arterial, venous and nerve supplies. Each arch in addition to its nerve supply also receives branches from the nerve supplying the succeeding arch. Hence each arch receives a branch, called the post-trigeminal from the nerve of its own arch, and a second branch called the pre-trigeminal from the succeeding arch.

During development the second arch grows caudally to cover the third and fourth arches and the second, third, and fourth pharyngeal clefts eventually fusing with the lower neck. The enclosed II, III, and IV clefts are called as the cervical sinus. The buried clefts (cervical sinus) persist as cavities lined by ectoderm and gradually disappear with development. If this process does not occur for some reason then it gives rise to branchial cyst, sinus or fistula.

Table showing the various branchial arches and their nerve arrangement:

Arch	Post-trematic nerve	Pre-trematic nerve
First	Mandibular nerve	Chorda tympani branch of facial nerve
Second	Facial nerve	Tympanic branch of glossopharyngeal nerve
Third	Glossopharyngeal nerve	Pre trematic nerve not well defined
4 th , 5 th	Vagus and accessory nerves	
6 th	Vagus and accessory nerves	

Branchial anomalies: Include branchial cysts, sinuses, and fistulae. It is now considered that these anomalies are not variants of the same anomaly involving the branchial apparatus, but are entirely different in their pathogenesis.

Branchial cysts: also known as lateral cervical cysts usually present in the lateral portion of the neck deep to the sternomastoid at the junction of its upper 1/3 and lower 2/3. Some of these cysts may have a tract up to the posterior pillar of tonsil. These cysts are usually smooth, round, non-tender fluctuant mass. Males and females are equally affected. Secondary enlargement of these cysts is common during upper respiratory infections due to the enlargement of lymphoid tissue found lining the cyst wall. Patients usually present between the second and fourth decades of life. Depending on its size it could produce dyspnoea, dysphonia, dysphagia and cosmetic deformity.

To summarize:

Clinical features:

1. Continuous swelling
2. Intermittent swelling
3. Pain
4. Infection
5. Secondary infections



Figure showing a patient with branchial cyst

In rare circumstances abscess may occur in a branchial cyst leading to rupture of the contents and sinus formation.

Histology: These cysts are lined by respiratory or squamous epithelium. During episodes of infections inflammatory cells can be commonly seen. Lymphoid tissue may also be present beneath the lining epithelium.

Differential diagnosis:

Branchial cysts should be differentiated from cystic hygroma, lymph cyst, carotid body tumors, ectopic salivary glands, neurofibroma etc.

Theories of origin of branchial cyst: There are four known theories of origin of branchial cysts. Due to the complicated nature of the embryology of the neck none of these theories have been proven to be right.

1. **Branchial apparatus theory:** According to this theory, these cysts may represent the remains of the pharyngeal pouches or branchial clefts or a fusion of these two elements. When these cysts have an internal opening, it lies in the posterior pillar of the tonsillar fossa thus attributing its origin to the second branchial pouch. Fistulae and sinuses from the second pouch would necessarily pass between the external and internal carotid arteries.

An origin from the third or fourth pouches is unlikely since they have to pass over the hypoglossal nerve to reach the skin and would be severed by the upward movement of that nerve during development. A third arch tract should have its internal opening at the level of pyramidal fossa, while the fourth arch tract will have to open below this level. These openings have never been described so far. The fourth tract would have to pass below the subclavian artery on the right and aortic arch on the left side. Origin from these pouches has been discounted.

Origin from the first pouch is a distinct possibility, high branchial cysts have been described lying under the parotid gland with an internal opening between the cartilaginous and bony external auditory canal. The peak age incidence between the third and fourth decades is pretty late for a congenital lesion.

2. Cervical sinus theory: This theory postulates that branchial cysts represent the remains of cervical sinus of His which is formed by the second arch growing down to meet the fifth arch. If this theory is true then internal opening for these cysts is not possible.

3. Thymopharyngeal duct theory: This theory postulates that branchial cysts represent remains of original connection between the thymus and the third branchial pouch. This theory also assumes that the hyoid bone constituted the lower level of branchial derivatives. This is of course false, and a persistent thymic duct has never been described. No branchial cysts have ever been described deep to the thyroid gland making this theory unacceptable.

4. Inclusion theory: was described by King. He suggested that the cyst developed from the branchial apparatus and the cyst epithelium arose from lymph node epithelium. The following facts lend credence to this theory:

- a. Most branchial cysts have lymphoid tissue in their wall and are found in the parotid, pharynx as well as lateral neck.
- b. The peak age incidence is later than expected for a congenital lesion.
- c. Most branchial cysts have no internal opening, or at best a tract with ill-defined termination.

Histology: The branchial sinus and fistula are lined by stratified squamous epithelium, occasionally they could be lined by non-ciliated columnar epithelium. If it is lined by non-ciliated columnar epithelium, it can be safely assumed to be glandular metaplasia due to infection. This glandular tissue starts to secrete mucinous material filling up the cyst cavity. Some of the cysts contain straw colored fluid, which could have come only from the blood (transudate).

Management: These masses if present should be removed surgically for:

1. Confirming the diagnosis

2. Cosmetic reasons

3. To prevent infections

Surgical removal is performed using a transverse skin crease incision. The sternomastoid muscle is retracted. The cyst is mobilized and an attempt is made to identify the tract. Before surgery a careful examination should be performed to identify inner opening close to the posterior pillars of the tonsil.

Branchial sinus / fistula:

The mouth of the sinus should be encompassed in the incision, preferably elliptical. The tract if present will be sometimes as thick as a big artery. If possible effort should be made to canalize the fistula using proline, this will help in totally identifying the complete extent of the tract. The tract could pass between the internal carotid artery and internal jugular vein. It should be completely excised to prevent recurrence.

References:

1. Branchial anomalies by drtbalu [Internet]. [cited 2012 Jan 14];Available from: http://drtbalu.co.in/br_ana.html

Retropharyngeal abscess ¹

10 years old boy came with:

C/o

1. Pain while swallowing - 5 days

Pain was getting progressively more. He was not even able to swallow his saliva.

2. Fever - 3 days

On examination:

Reddish swelling seen in the posterior pharyngeal wall.

X-ray soft tissue neck lateral view: showed

1. Prevertebral shadow with gas bubbles seen
2. Straightening of spine (Ram rod spine) due to muscular spasm



Management:

The abscess was drained under local anesthesia with head positioned at a lower level to prevent aspiration. In majority of cases incision and drainage is done and the pus is immediately aspirated out using suction. The incision is made with 11 blade knife over the most prominent portion of the swelling. Usually I&D is done under local anaesthesia. In the case of infants it is preferable that the patient is held upside down while the surgery is being performed to prevent aspiration of pus into the lungs. When general anaesthesia is preferred a cuffed endotracheal tube must be used to minimize the hazard of aspiration of pus into the lungs. The patient must be put in Rose position (tonsillectomy position) while I&D is being done to reduce the threat of aspiration.

When the abscess points towards the neck then it should be opened through an incision over the neck, preferably along the posterior border of sternomastoid muscle. The dissection is carried out behind the great vessels of the neck and in front of the prevertebral muscles. The surgery is followed by a course of antibiotics mostly cephalosporin group. Clinamycin in dose of 600-900mg intravenously 8th hourly can be administered in adults. Injection penicillin G in doses of 24 million units per day as continuous infusion along with metronidazole injection in doses of 500mg three times a day can also be considered. Metronidazole is highly effective against anaerobes.

If tuberculosis is suspected to be the cause then surgery is deferred. Anti tuberculous treatment is initiated.

Discussion:

The commonest cause of retropharyngeal abscess in children is suppuration of retropharyngeal lymph node (Henle's node).

Retropharyngeal abscess is a collection of pus between the posterior pharyngeal wall and the fascia and muscles covering the cervical vertebrae. It occurs in two forms :

1. The acute primary retropharyngeal abscess which is common in infants, and
2. Chronic retropharyngeal abscess which is common in adults. These two types of abscesses differ in their etiology and management.

Acute primary retropharyngeal abscess: Is the more dangerous type occurring in infants. It is common between the age group of 3 months to 3 years. The predisposing factors are malnutrition, gastroenteritis, poor hygiene etc.

Etiology: Abscesses may follow general debilitating illnesses like scarlet fever, measles etc. Infections from tonsils, adenoid and naso pharynx may even lead to the formation of retropharyngeal abscess. Rarely foreign bodies like bone pieces and pins may also cause retropharyngeal abscess.

Pathology: The disease consists of suppurative lymphadenitis of the retropharyngeal nodes of Henle, situated on either side of midline between the posterior pharyngeal wall and the aponeurosis over the bodies of the second and third cervical vertebrae. These glands receive the lymphatics of the post nasal space, pharynx, nose, Eustachian tube and middle ear. These nodes atrophy between the 3rd and 5th year of life hence acute retropharyngeal abscess is uncommon in children above the age of 4.

The Henle's node when infected from the lymphatics, there is first adenitis, and then periadenitis and abscess formation occur. The suppuration is usually one sided, and most prominent in the oro pharynx. If not evacuated in time or when it does not rupture, pus may spread along the oesophagus or burst in different directions - towards the larynx, the angle to the jaw or even in to the external auditory canal. The pus is generally foul smelling yellow or whitish in color. It usually contains streptococci, and more rarely staphylococci and pneumococci.

Chronic retropharyngeal abscess: Is commonly known to occur in adults. This is usually caused by tuberculosis. The tuberculous foci occur in the bodies of the cervical vertebrae (Pott's disease) which later spread into the retropharyngeal space. Primary syphilis of the mouth and pharynx may also cause retropharyngeal abscess. This abscess usually is present in midline and is free to spread to either side also.

Symptoms: These patients have excruciating pain while swallowing (odynophagia). Young infants with retropharyngeal abscess will refuse feed, may have extensive drooling. In adults the head may be held straight. Torticollis is also common in these patients. These patients may have difficulty in breathing (stridor), in which case tracheostomy must be considered to secure the airway in the first place. Constitutional symptoms like fever / toxicity is very common in acute retropharyngeal abscess.

Investigations:

Complete blood count shows leucocytosis. Blood cultures can also be performed to ascertain the appropriate antibiotics to be used.

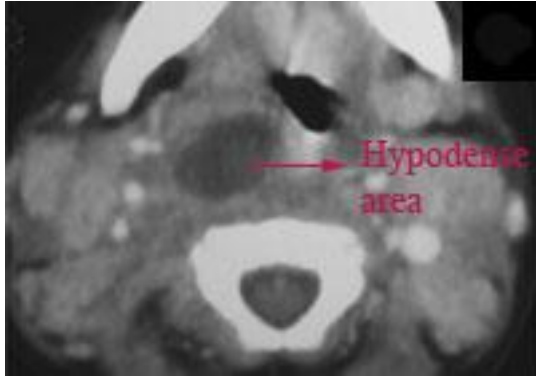
C reactive proteins are also found to be increased in these patients

X-ray soft tissue neck - A.P. and lateral views.

These pictures show prevertebral soft tissue widening. This can be ascertained by estimating the size of the prevertebral soft tissue which is normally half the size of the body of the corresponding vertebra. If the widening is more than half the body size of the corresponding vertebra then retropharyngeal abscess must be considered. The cervical spine is straightened with loss of the normal lordosis (Ram Rod spine). Above the prevertebral shadow air shadow is seen in almost all cases of retropharyngeal abscesses. This gas shadow is caused by entrapped air which occurs during breathing. Some bacteria esp. Clostridium is known to form gases which may be entrapped in the prevertebral space.

C.T. scan neck or MRI study of neck will also help in clinching the diagnosis. This must ideally be performed using intravenous contrast agents. It appears as a hypo dense lesion in the retropharyngeal space with ring enhancement. Other effects that could be seen are soft tissue swelling, and obliteration of normal fat planes.

C.T. scan is really helpful in differentiating cellulitis from abscess.



Axial CT Image showing retropharyngeal abscess

Complications:

1. Mediastinitis
2. Airway obstruction
3. Atlanto occipital dislocation
4. Jugular vein thrombosis
5. Cranial nerve deficits especially the lower three ones
6. Haemorrhage secondary to involvement of the carotid artery

Reference:

1. http://www.drtbalu.co.in/ret_abs.html

Hypertrophied lingual tonsil ¹

Presenting complaints:

34 years old female patient came with complaints of:

1. Pain in throat - 3 years (On and off)
2. Difficulty in swallowing - 3 years
3. Recurrent episodes of cough on and off – 2 years

History:

Patient gave previous history of undergoing tonsillectomy 6 years back.

On examination:

Throat: Lingual tonsils on both sides were found to be enlarged, reducing the space between the posterior third to tongue and uvula.



Image showing enlarged lingual tonsils

No cervical lymphadenopathy.

Clinical diagnosis: Hypertrophied lingual tonsils (compensatory following tonsillectomy)

Management:

Surgery is indicated if medical management fails. The causative factor should be sought and treated. Even though complete extirpation of lingual tonsil is difficult, even partial debulking of the mass would do the job.

Discussion:

This lingual component of Waldeyer's ring ² is composed of lymphoid follicles histologically similar to that of palatine tonsils. They are two in number situated just posterior to the circumvallate papillae of tongue, just anterior to the vallecula. The lingual tonsils are divided in midline by the median glossoepiglottic ligament. Lymphoid tissue in the lingual tonsil rests on the basement membrane of fibrous tissue which could be considered to be analogous to tonsillar capsule.

Lingual tonsil is lined by stratified squamous epithelium.

Blood supply of lingual tonsil:

Arterial:

1. Ascending pharyngeal artery
2. Dorsal branch of lingual artery

Venous:

Venous drainage of lingual tonsil is via the plexus present in the tongue base.

Innervation:

1. Glossopharyngeal nerve
2. Superior laryngeal branch of vagus nerve

Lymphatics:

Lymphatics drain into suprahyoid, submaxillary and upper deep cervical nodes.

Causes of lingual tonsil hypertrophy:

1. Compensatory hypertrophy following Adenotonsillectomy ³
2. GERD (common in children)
3. Chronic infections

These patients usually present with the following symptoms:

1. Pain and irritation in the throat
2. Sticky sensation in the throat
3. Dysphagia
4. Cough – Is usually caused due to irritation of epiglottis and posterior pharyngeal wall
5. Obstructive sleep apnoea
6. Muffled voice (Rhinolalia clausa)

Acute lingual tonsillitis usually improves with a course of antibiotics. Chronically inflamed lingual tonsils will have to be removed surgically.

References:

1. The lingual tonsil. A neglected symptomatic structure? Golding wood DJ [J Laryngol Otol.](#) 1989 Oct;103(10):922-5.
2. N Jesberg, Chronic hypertrophic lingual tonsillitis, Arch.otolaryngology.64 (1956) 3-13
3. D.G. Golding-Wood, H.B. Whittet, The lingual tonsil. A neglected symptomatic structure, J. Laryngol. Otol. 103 (1989) 922 – 925.

Lymphoma pyriform fossa

65 years old male patient presented with c/o

1. Sticky sensation in the throat - 6 months
2. Difficulty in swallowing - 2 months
3. Change in voice - 1 month
4. Breathlessness - 15 days

Sticky sensation was present on the right side of the throat. It was more for solids.

This sticky sensation gradually progressed to difficulty in swallowing

Change in voice started suddenly 1 month back.

Breathlessness started 15 days back. Initially it was more on exertion. Now it is so bad that even simple tasks make the patient feel breathless. It is always associated with noisy wheeze.

Patient was treated for pulmonary tuberculosis 15 years back.

Patient gave h/o fever which lasted for 10 days 8 months back.

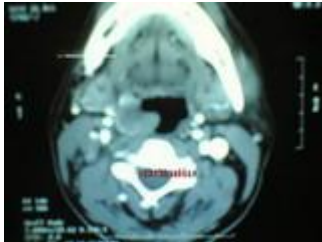
Laryngoscopic examination showed: A proliferative mass seen occupying the whole of right pyriform fossa. It was also found involving the epiglottis, arytenoid and aryepiglottic fold on the right side. Right vocal cord was found to be fixed.



Figure showing mass in the pyriform fossa

CT scan showed:

Mass seen involving the right pyriform fossa extending to involve the aryepiglottic fold and arytenoid cartilage on the right side.

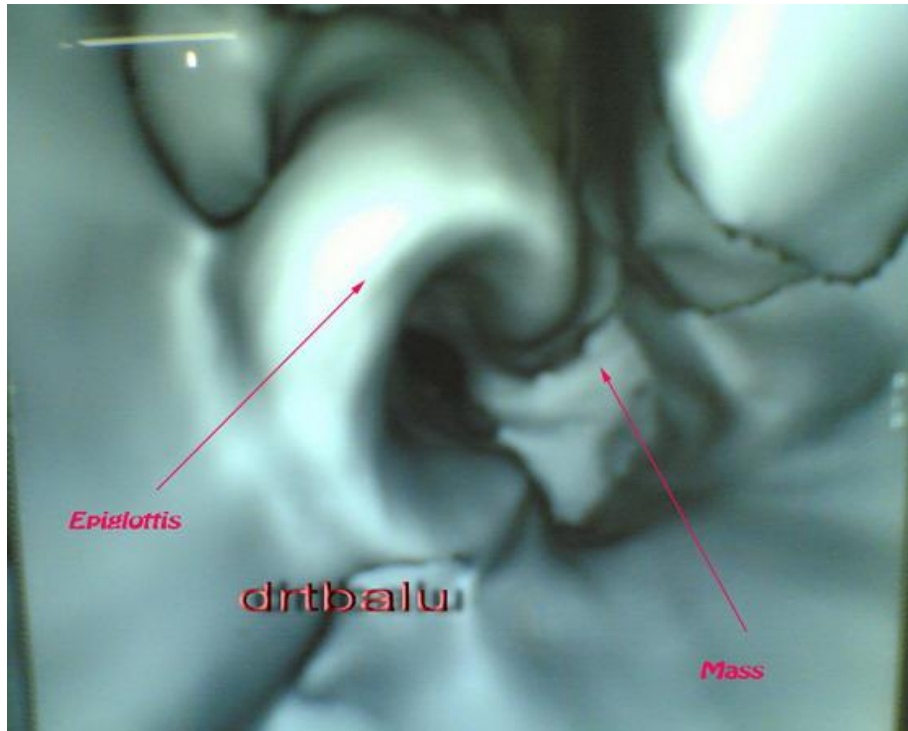


Axial CT image showing mass in the right pyriform fossa

Reformatted CT image showed:

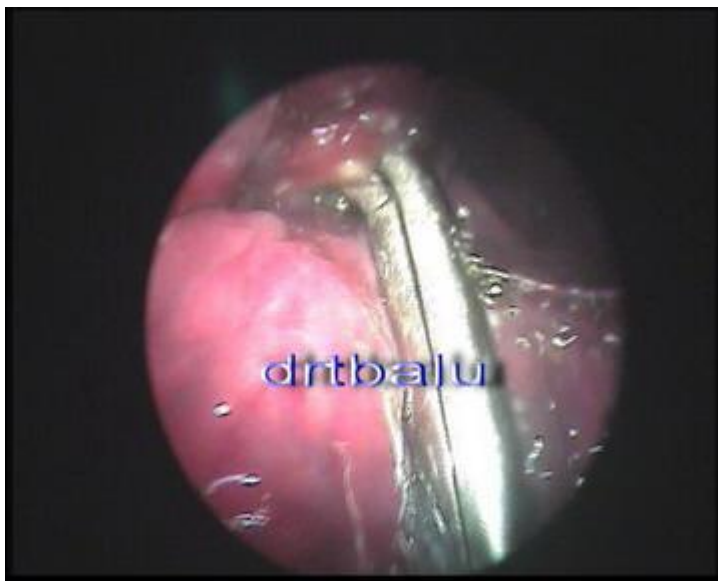
AP view showed the lower extent of the mass as shown below.





3D CT image showing mass in the pyriform fossa

Biopsy was taken from the pyriform fossa.



Biopsy was reported as Non Hodgkin's lymphoma.

Squamous cell carcinoma is the most common malignancy in this area. It is pretty rare for lymphoma to occur here.

This case is being reported for its rarity.

Whole body scan was performed. There was no evidence of hepatosplenomegaly. No other nodes were involved.

Patient was treated with full course of radiotherapy.

Large Vocal fold polyp

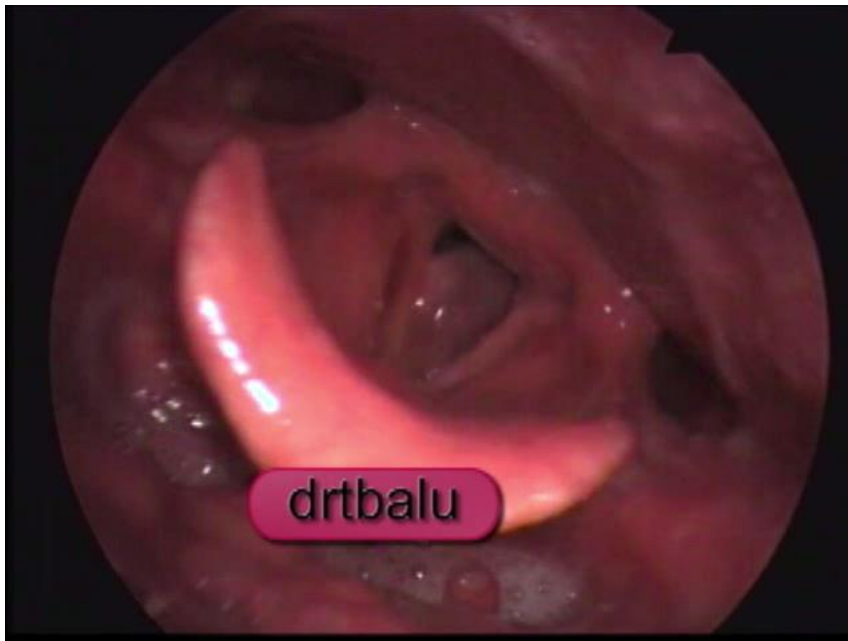
38 years old male patient came to the hospital with complaints of

1. Change in voice - 4 months
2. Breathlessness - 2 months

Breathless was more on exertion.

Patient was a chronic smoker for the past 15 years.

Videolaryngoscopic findings:



Video laryngoscopy showed globular pale polyp arising from the medial wall of the right vocal cord.

The polyp was so large that it occluded nearly 90% of the laryngeal inlet. This could be the reason for breathlessness.

X-ray chest: Normal

Routine blood investigations: Normal

Management:

1. Preliminary tracheostomy to secure airway
2. Microlaryngeal excision of the vocal fold polyp

Discussion:

Vocal fold polypi ¹ are benign, round, sessile / pedunculated lesions involving vocal folds. They may be unilateral / bilateral. Their external surface appears smooth. They commonly involve the free border of vocal fold and are mobile when they are pedicled.

These lesions are commonly seen in adults, during their most productive phase of life. It is during this phase of life voice abuse is very common. There is a slight female preponderance.

Factors predisposing development of vocal fold polyp:

1. Voice abuse / overuse
2. Chronic upper airway infections
3. Allergy
4. Smoking
5. GERD

Pathophysiology of vocal polyp ²:

Stage I: This stage is characterised by vascular trauma due to voice abuse / vocal fold trauma. This stage is also known as Reinke's oedema.

Stage II: During this stage traumatized blood vessel begins to bleed.

Stage III: Coagulation process kicks in during this stage. Fibrin exudation, thrombosis and capillary proliferation are features of this stage.

Stage IV: Stage of fibrosis and hyaline degeneration. In this stage fibrin exudation leads to fibrosis and degeneration

References:

1. Vocal Polyps: Clinical, Morphological, and Immunohistochemical Aspects Regina Helena Garcia Martins, †Julio Defav eri, † Mari a Aparec ida Cust o´ dio Domingues, and * Rafael de Albuquerque e Silva, * ySa˜o Paulo, Brazil Journal of voice volume 25 issue 1 January 2011.
2. Wu P, Liu T, Zheng M, Chen J. Expression of vascular permeability factor in human vocal cord polyps. Lin Chuang Er Bi Yan Hou Ke Za Zhi. 2006;20:839–841

Supra laryngeal cyst

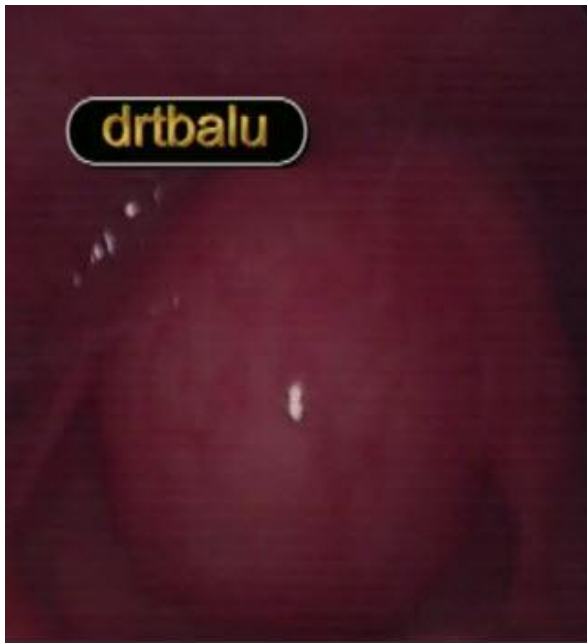
75 years old female came with complaints of difficulty in breathing - 1 year

She gave no h/o of change in voice / difficulty in swallowing.

On examination:

Patient was in mild stridor.

Laryngoscopy showed:



Cystic lesion arising from the aryepiglottic fold

CT scan neck:



CT scan neck showing a large lesion arising from aryepiglottic fold

Discussion:

Laryngeal cysts are of two types: true cysts and pseudocysts.

True cysts are lined by secretory type of epithelium. Pseudocysts are formed by degeneration of simple benign tumors. True cysts may be congenital / acquired in nature. Cysts involving larynx are common in infants and teens. It is rather rare in elderly. Retention cysts involving the larynx are common in adults. Retention cysts are caused by inflammatory obstruction to mucous gland ducts causing retention of secretion and enlargement.

Large cysts may extend through the thyrohyoid membrane and present itself as a neck swelling.

True supralaryngeal cysts can also be divided into two types:

Ductal cysts – These cysts are also known as retention cysts. These cysts are caused by inflammatory obstruction to mucous gland ducts.

Saccular cysts – arise due to obstruction to laryngeal saccule

Management:

Airway was secured by a preliminary tracheostomy.

Marsupialization of the cyst was performed using Microlaryngeal approach.

Mucoepidermoid carcinoma parotid an interesting case report

This is an interesting case report of mucoepidermoid carcinoma of parotid gland.

1. 58 years old male patient came with complaints of swelling and pain over left side of cheek of 3 months duration
2. There was no history of fever
3. No h/o enlargement in the size of the mass on eating

On examination:

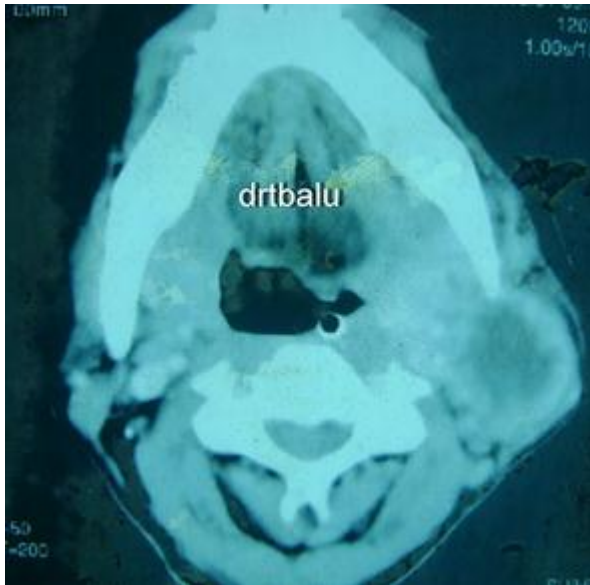
1. 7.5cms x 4.5 cms mass seen occupying the lower parotid region. The same mass could be seen extending up to the submandibular triangle.
2. The mass was variable in consistency and tender.
3. Facial nerve was normal on the left side.



Clinical photograph of the patient showing the lesion

CT scan:

CT image of parotid region shows a large cystic lesion occupying the lower pole of left parotid gland. The cyst was thickened with moderate degree of contrast enhancement. It was reported as possible inflammatory lesion.



FNAC: Reported as mucoepidermoid carcinoma

Management:

The patient was taken up for surgery. Under general anesthesia through a 'S' shaped incision the mass was exposed after dividing the masseter muscle. While the mass was being delivered it ruptured extruding straw colored fluid. The wall was found to be thickened. After removal of mass the deep lobe of parotid gland could be seen. The same was also removed. The wound was closed in layers after placing a drain.

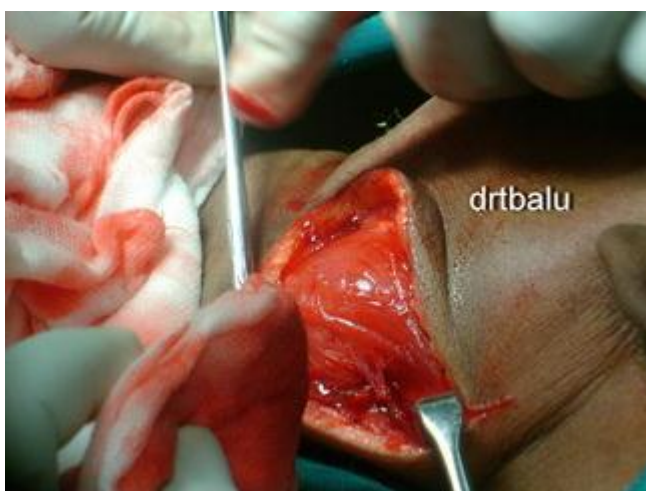


Image showing the mass being exposed

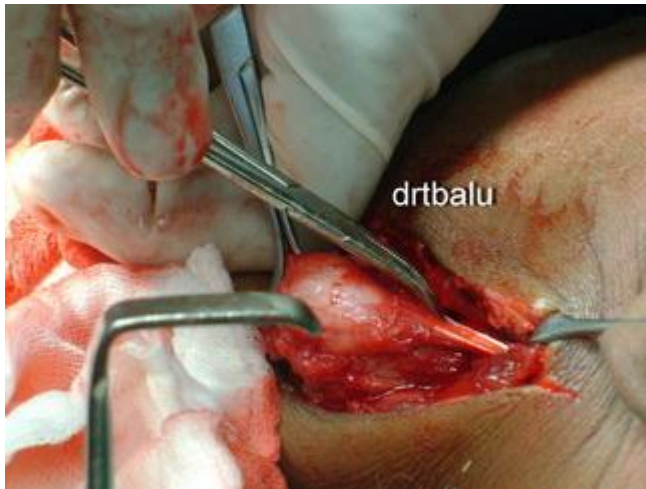


Image showing the mass being delivered

Histopathology report:

Mucoepidermoid carcinoma of parotid.

Discussion:

Mucoepidermoid carcinoma¹ as an entity was first described by Stewart in 1945. He considered this tumor to arise from the pluri-potent reserve cells of salivary gland ducts. These reserve cells have the potential to develop into squamous, columnar and mucoid cells. This tumor constitutes about 5% of all malignant salivary gland tumors. It is more common in the parotid gland. Usually these tumors are asymptomatic, but may cause pain when they become aggressive. These tumors usually do not involve the facial nerve and commonly is confined to the superficial lobe of parotid gland.

Causative factors of this tumor are not known. Exposure to radiation has always been suspected.

This tumor commonly arises in children and young adults and is rare in elderly. This case is being reported because it is a rarity in this age group. Mucoepidermoid carcinoma may become cystic because of the presence of mucoid cells which secrete mucous. There are two malignant lesions that are known to cause cystic lesions in the parotid gland. They are mucoepidermoid carcinoma and adenocystic carcinoma.

Mucoepidermoid carcinoma commonly involves minor salivary glands². It is also commonly seen involving palate. In 2% of cases submandibular and sublingual glands are involved.

Histological features ³:

These tumors are composed of squamous and mucoid cells arranged in cords, sheets or may show cystic configuration. These tumors are histologically classified into low, intermediate and high grade tumors depending on the differentiation. It is the proportion of these cells which determine the prognosis of the lesion. Depending on the proportion of immature cells mucoepidermoid carcinoma is classified into low, intermediate and high grade malignancy.

References:

1. Auclair PL, Ellis GL. Mucoepidermoid carcinoma. In: Ellis GL, Auclair PL, Gnepp DR, eds. *Surgical Pathology of the Salivary Glands*. Philadelphia: Saunders, 1991:269–98.
2. Ellis GL, Auclair PL. *Atlas of Tumor Pathology, Tumors of the Salivary Glands*, series 3, fascicle 17. Washington, DC: Armed Forces Institute of Pathology, 1996:155–75,353–5.
3. <http://drtbalu.wikidot.com/mucoepidermoid-carcinoma-parotid-an-interesting-case-report>

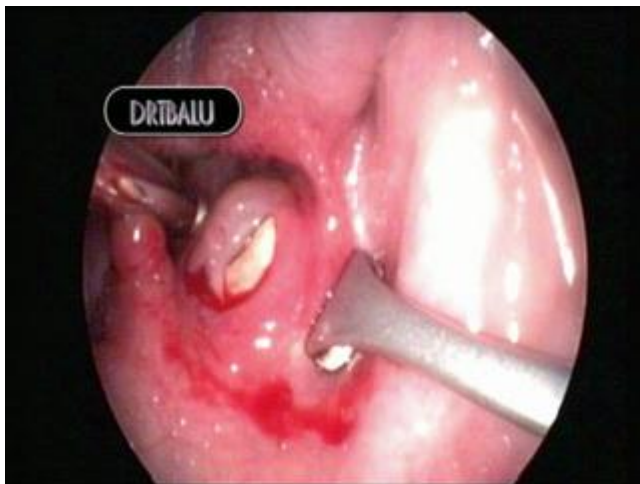
Tonsillolith an interesting case report

48 years old female patient came with complaints of:

1. Pain in the throat - 2 months
2. Foul breath - 6 months
3. Pain while swallowing - 2 months

She gave history of repeated attacks of tonsillar infections for the past 3 years.

On examination:



Tonsillolith could be seen in the right intratonsillar cleft. The upper pole of right tonsil was bulging.

Management:

Tonsillectomy is the management modality in these patients.

Discussion ¹:

Tonsillolith is a rare dystrophic calcification occurring in the tonsil as a result of chronic inflammation. Most commonly tonsilloliths are intratonsillar and are asymptomatic. They have been identified incidentally. Commonly patients with tonsillolith complain of foul

breath and throat pain. Throat pain is usually very intense during acts of swallowing. This condition is known as tonsil concretions or tonsillar stones.

Deposition of calcium salts (Calcium phosphate) occurs normally in the skeleton. When calcification occurs in soft tissues in an unorganized fashion it is known as heterotopic calcification. Calcium salts (Calcium phosphate) occurs normally in the skeleton. When calcification occurs in soft tissues in an unorganized fashion it is known as heterotopic calcification. This heterotopic calcification can be further subdivided into three categories:

Metastatic calcification: This calcification occurs in normal tissues due to deposition of calcium. This is the result of higher than normal levels of serum calcium as in the case of hyperparathyroidism or higher levels of serum phosphate as in patients with chronic renal failure. Metastatic calcification usually occurs bilaterally and symmetrically.

Idiopathic calcification: This condition refers to deposition of calcium in normal tissue despite normal serum levels of calcium and phosphate. Examples include chondrocalcinosis and phleboliths.

Dystrophic calcification: Is pathologic and usually occurs in degenerative and dead tissues. This calcification occurs despite normal serum calcium and phosphate levels.

Pathogenesis ²:

Largely remains unknown. It has been commonly attributed to be due to recurrent infections involving the tonsillar tissue. It can also occur due to obstruction to the largest tonsillar crypt (Crypta magna) causing inspissated secretions to accumulate within the crypt causing it to undergo calcification. Another possibility could be due to obstruction to the ducts of accessory salivary glands (Weber's glands) causing it to calcify. This obstruction is possible due to the formation of scar tissue following tonsillectomy or infection.

Histopathology:

Microscopic examination of the tonsillolith shows necrotic debris, ghost cells, calcifications and inflammatory cells.

Composition of tonsillolith:

Usually tonsillolith contains minerals like carbonates and phosphonates of calcium. Other minerals like magnesium, sodium, silica, potassium, ammonia have been reported.

Organisms found in tonsillolith ³:

Anaerobic bacteria identified in tonsilloliths belonged to the genera Eubacterium, Fusobacterium, Megasphaera, Porphyromonas, Prevotella, Selenomonas and Tannerella, these organism produce volatile sulfur compounds. Electron microscopy reveals cocci and rods on the surface and rods predominating inside the tonsilloliths. These are the probable causes of halitosis in these patients.

Studies reveal that they contain a high density of bacteria. These bacteria were polymicrobial in nature, and they are arranged in a stratified manner. These organism were metabolically highly active, hence oxygen consumption in top layers starved the bottom layer organism from their oxygen supply. Hence researches consider tonsillolith to be a biofilm ⁴.

References:

1. <https://sites.google.com/site/drtbalusotolaryngology/Home/laryngology/tonsillolith>
2. Hung CC, Lee JC, Kang BH, Lin YS. Giant tonsillolith. Otolaryngol Head Neck Surg 2007;137:676e7.
3. Tsuneishi M, Yamamoto T, Koikeguchi S, Tamaki N, Fukui K, Watanabe T. Composition of the bacterial flora in tonsilloliths. Microbes Infect 2006;8: 2384e9.
4. Stoodley P et al. Tonsillolith: not just a stone but a living biofilm. Otolaryngology — Head and Neck Surgery 2009; 141:316-321.

Hemangioma parotid gland in an adult an interesting case report

30 years old female patient presented with:

1. Swelling over right angle of jaw - 3 years - Gradual increase in size
2. No history of pain

On examination:

Soft globular swelling measuring 4 x 3 cms seen occupying the right angle of mandible. It was warm and compressible.

The skin over the swelling was free.

The swelling could be moved over underlying tissues.

Transillumination negative



Clinical photograph of the patient showing right sided parotid mass

Imaging:

Axial CT of the area showed radiolucent hypodense globular mass attached to the lower pole of the parotid gland.

Contrast CT showed contrast enhancement of the mass.



Axial CT scan of parotid region

FNAC:

Produced a bloody tap.

Management:

Patient was taken up for surgery and the mass was removed in toto.

Histopathology report:

Cavernous hemangioma of parotid gland

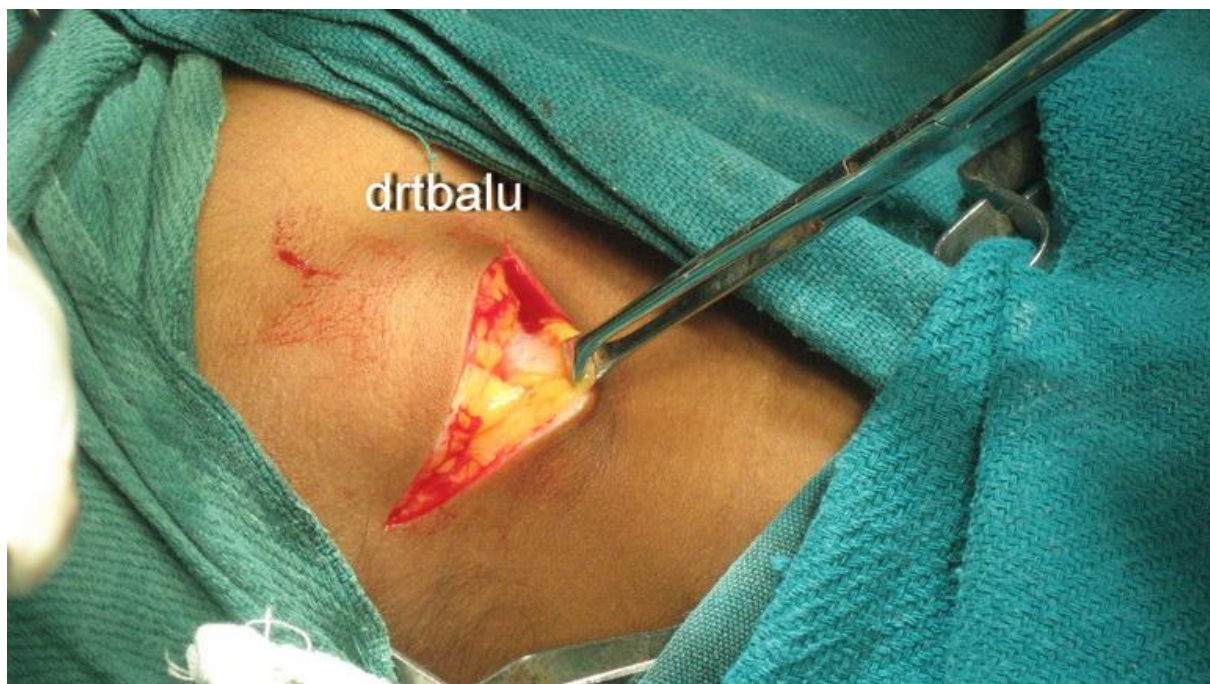


Figure showing the incision

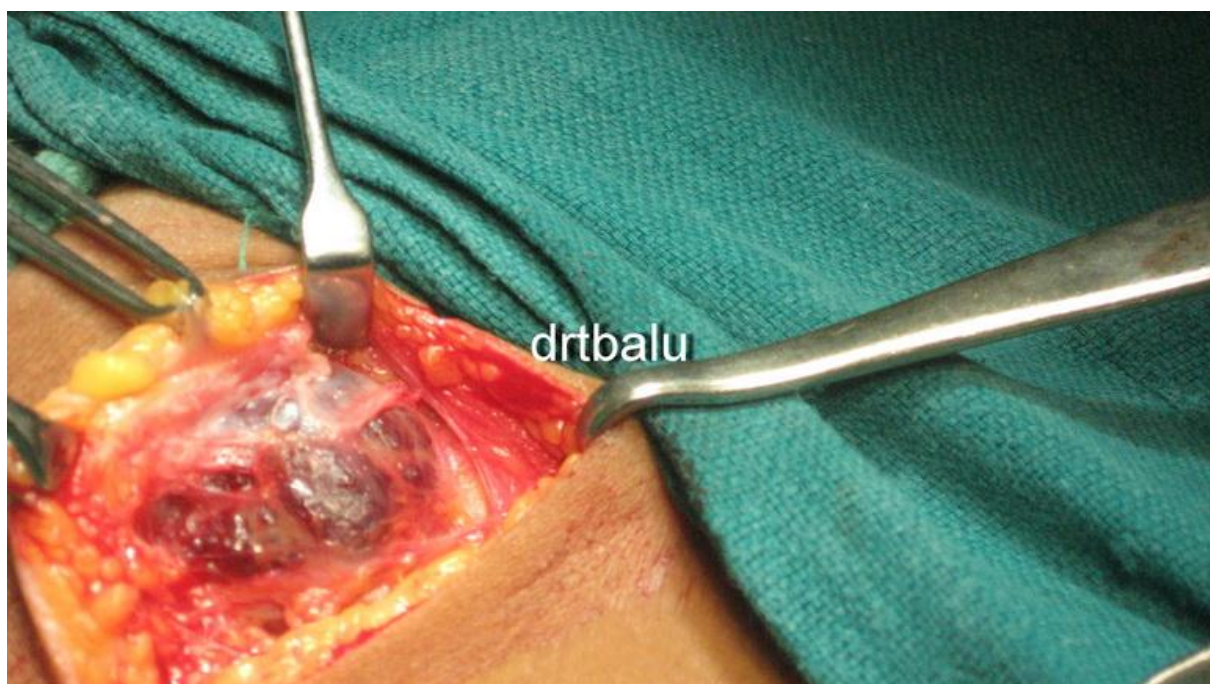


Figure showing mass being exposed

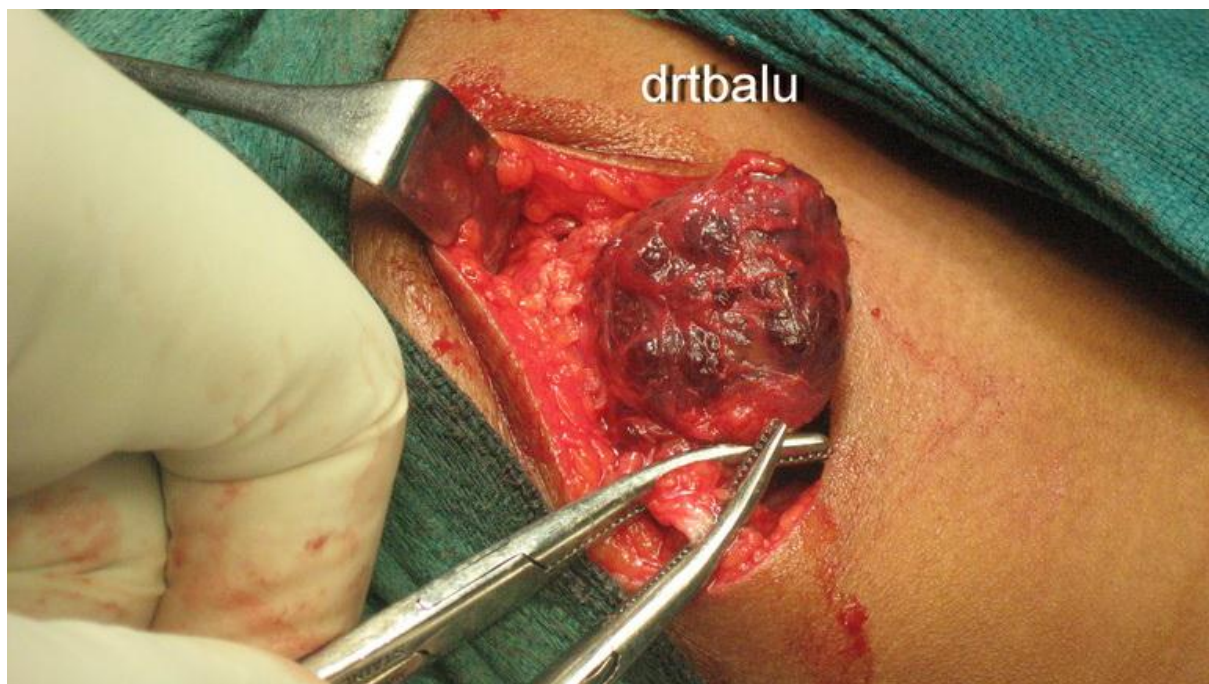


Figure showing mass being removed completely



Gross photograph of the specimen

Discussion:

Hemangioma of parotid gland is a rather common lesion in infants and children. It is rather rare in adults. Non epithelial tumors² involving salivary glands are rather rare. They constitute about 5% of all salivary gland tumors. In children of course they constitute more than 50% of all salivary gland tumors.

Histologically this mass is composed of solid masses of cells with capillary vascular spaces. Normal salivary gland tissues are usually replaced by the mass. These masses are usually soft, warm and compressible and do not transilluminate. A period of wait and watch is usually followed. Indications for surgical intervention include rapid increase in size, and pain.

There is still a raging controversy whether hemangioma could be a true tumor involving blood vessels or a vascular malformation (Hamartoma).

These masses usually become prominent when the head is bent forward or when the patient lies horizontally (This is classically known as Turkey wattle sign). Rarely multiple phleboliths can be seen within the mass.

Peel & Gnepp classified hemangioma of salivary glands as follows:

1. Benign hemangioendothelioma
2. Cavernous hemangioma
3. True capillary hemangioma (rare)

There is absolutely no role for sclerotherapy in these patients.

Role of imaging ³:

Imaging plays a vital role in the anatomical diagnosis. In contrast CT these tumors show enhancement. They may also appear lobular and may extend up to the level of overlying skin. Associated phleboliths are common.

References:

1. <http://drtbalu.wikidot.com/hemangioma-parotid-gland-in-an-adult-an-interesting-case-rep>
2. Peel RZ, Gnepp D R diseases of salivary glands. In: Barners 2 (Ed). Surgical pathology of head and neck. Vol 1. New York: Marcel Dekkerr, 1985: 535-552
3. James D Rabinor; Radiologic evaluation of the neck. RCNA 2000; 38:5:1035.

Tracheal stenosis and its management

20 years old male patient came with tracheostomy seeking decannulation.

Tracheostomy was performed 4 years back following tracheal stenosis.

He gave history of attempted suicide (organo phosphorous poisoning) following which he was on prolonged ventilatory support.

He developed tracheal stenosis as a sequelae to prolonged ventilatory support.

On examination:

The patient was on Fuller's tracheostomy tube. Otherwise he was healthy.

Video laryngoscopic examination showed:

1. Normal vocal cords
2. Total stenosis below the level of vocal cords

Imaging:

MRI scan taken showed:

Total stenosis was seen below the level of cricoid cartilage. Cricoid was anatomically normal.



Management ¹:

This patient was taken up for surgery. Under general anesthesia administered via the tracheostome the stenotic segment of trachea was exposed. The same was resected and lengthening of trachea was performed by Laryngeal drop method. End to end anastomosis of trachea was performed and Montgomery T tube was used as a stent.

Discussion:

Studies reveal that more than 90% of subglottic stenosis are of acquired type. Most common acquired type of subglottic stenosis is caused by prolonged intubation.

Probable causes of acquired subglottic stenosis:

1. Intubation: Factors like period of intubation, size of the tube, vibrations caused by ventilator, and infections during intubation are important
2. Laryngeal trauma due to surgery to airway like high tracheostomy, cricothyroidotomy, airway surgery for laryngeal papillomatosis, and prior surgery for subglottic stenosis
3. Accidental: Could be inhalational (thermal/caustic)

Trauma: Blunt or penetrating

4. Autoimmune

5. Infection

6. GERD: Is known to cause exacerbation of laryngo tracheal stenosis, restenosis after repair, or may be the sole cause of subglottic / tracheal stenosis in patients with no h/o intubation / tracheal injury.

Pathogenesis of subglottic stenosis ²:

Pathogenesis is not clearly understood. The most commonly accepted theory proposes that it results from wound healing in the areas of the airway that have undergone compression by the endotracheal tube or by its cuff resulting in necrosis of mucosa and underlying cartilage. Necrosis is caused by ischemia resulting from the pressure exerted by the cuff cutting off the blood supply to the underlying mucosa. This causes a disruption to the normal mucociliary clearance of secretions causing perichondritis of the underlying cartilage. The underlying cartilage may weaken, undergo necrosis causing tracheomalacia. Healing of this area can occur only by second intention.

Staging system of subglottic/tracheal stenosis:

Two staging systems are in use. They are Myer - Cotton staging system and McCaffrey system.

Myer-Cotton staging system: This system is useful to stage mature, firm, circumferential stenosis confined to subglottis. It classifies stenosis based on the relative reduction of the cross sectional subglottic area. This area can easily be determined by differing sized endotracheal tubes that could be used for intubating these patients. This system uses 4 grades to classify subglottic stenosis.

Grade I: Lesions causing less than 50% obstruction to the subglottic airway.

Grade II: Lesions causing subglottic obstruction between 51 - 70%

Grade III: Lesions causing 71 - 99% obstruction

Grade IV: Complete stenosis

McCaffrey system: This system classifies laryngotracheal stenosis based on the subsites involved and the length of the stenotic segment. This is also a 4 stage classification.

Stage I: Lesions are confined to the subglottis / trachea and are less than 1cm long

Stage II: Lesions belonging to this stage are isolated to subglottis and are greater than 1cm long

Stage III: Are subglottic / tracheal lesions without involvement of glottis

Stage IV: Stenosis with involvement of glottis

Endoscopic dilatation: Mild stenosis Cotton's Grade I and II can be treated with endoscopic dilatation / laser resection of the scar tissue. Endoscopic repair may fail in patients with:

1. Circumferential stenosis
2. Exposure and damage to cartilage tissue.
3. Scarring of posterior inlet of larynx
4. Arytenoid fixation
5. Vertical scar length of more than 1 cm

Endoscopic dilatation is contraindicated in patients with Grade III and Grade IV stenosis.

Anterior cricoid split: This procedure was originally used in an infant who had failed multiple extubations. This procedure was performed in lieu of tracheostomy. Later on this procedure was used to treat patients with congenital subglottic stenosis. Lesions responsive to this procedure are mild subglottic narrowing with extensive fibrosis and a normal cricoid, subglottic cysts.

Cotton's criteria for performing anterior cricoid split:

1. Extubation failure on two occasions
2. Patient should not be in assisted ventilation for 10 days prior to the procedure
3. No acute respiratory tract infection
4. No other airway pathology should be present other than subglottic stenosis

Shiann Yann Lee's technique:

This method of laryngotracheal reconstruction involves creation of a tracheal trough by splitting the anterior wall of trachea, lateralization of tracheal wall, followed by insertion of T tube in the tracheal trough. This is covered by skin anteriorly.

Advantages:

1. More conservative
2. Higher success rate

Selection criteria:

1. Pts with subglottic / tracheal benign stenosis
2. Pts with good laryngeal function / normal vocal cord mobility
3. Good pulmonary reserve
4. Fit to undergo the procedure under general anesthesia

Resection & anastomosis:

This method was popularized by Montgomery. He said that a tracheal gap of up to 3cms can be closed primarily without resorting to any release technique in a majority of patients. The crucial factor is that anastomosis should be performed without tension. Even if there is minimal tension, it can cause restenosis. Tension of anastomotic site can be avoided by performing tracheal release procedures.

1. <http://drtbalu.wikidot.com/tracheal-stenosis>
2. <http://www.scribd.com/doc/23648138/Tracheal-Stenosis-and-Its-Management#stats>

External Laryngocele ¹

40 years old male patient came with c/o:

Swelling left side of neck - 5 years duration.
Its increase in size was progressive.
Sometimes it showed fluctuations in its size.

No h/o change in voice

No h/o breathlessness.

No h/o difficulty in swallowing.

On examination:



Clinical photograph of the patient

This patient had soft swelling measuring about 6 x 5 cms just below the angle of the jaw.

The mass was soft and compressible. No gurgling sound was heard on compression.

It showed a dramatic increase in size on valsalva maneuver.

Investigations:



Xray soft tissue neck lateral view



CT scan axial view of neck:

Showed air filled sac in the neck extending from the interior of larynx. Probable diagnosis "External laryngocele"

Discussion:

Laryngoceles are air filled sacs usually in continuity with laryngeal air column. This was first described by Virchow in 1863. These masses were said to be intimately related to the laryngeal ventricle. Usually they are in continuity with the ventricle. It is of three types:

1. Internal laryngocele - Confined to the interior of larynx
2. External laryngocele - This laryngocele prolapses through a rent in the thyrohyoid membrane and presents usually as a neck mass
3. Combined laryngocele - Both internal and external components of the laryngocele are seen in this type

These patients usually present with:

1. Hoarseness of voice
2. Breathlessness
3. Cough
4. Mass in the neck

The laryngoceles must be differentiated from saccular cysts; which is filled with mucous, and don't communicate with the laryngeal lumen. These saccular cysts are common in infants while laryngoceles are common in adults.

Differences between laryngocele and saccular cyst

Laryngocele	Saccular cyst
Filled with air	Filled with mucous
Common in adults	common in children
Sac communicates with laryngeal cavity	Sac does not communicate with laryngeal cavity

References:

1. <http://drtbalu.wikidot.com/external-laryngocele>

A case of secondary tuberculosis of tonsil ¹

50 years old male patient came with complaints of:

1. Sore throat - 2 months
2. Painful swallowing - 2 months (odynophagia)

History:

1. Loss of weight and loss of appetite +
2. H/O left ear pain - 1 month
3. H/O cough - 1 month

He gave no history of haemoptysis, evening rise in temperature.

Personal history:

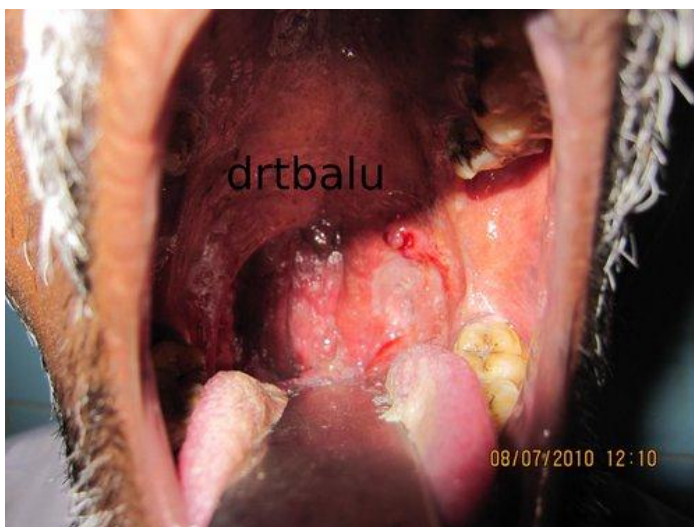
He is a known smoker and alcoholic.

On examination:

Patient is ill built.

Oral cavity:

Ulcerative lesion seen in the left tonsil. Anterior and posterior pillars are found to be eroded.



Clinical photograph of the patient showing lesion in the left tonsil

Examination of neck:

Showed enlarged and tender palpable jugulodigastric node on the left side. It was mobile.

Differential diagnosis:

1. Carcinoma tonsil
2. Tuberculosis, Syphilis, Leprosy of tonsil.

Investigation:

Biopsy from the lesion was taken.

Histopathology report:

Section studied shows granulomatous lesion showing areas of caseous necrosis.

Epithelial giant cells and Langhan's giant cells seen.

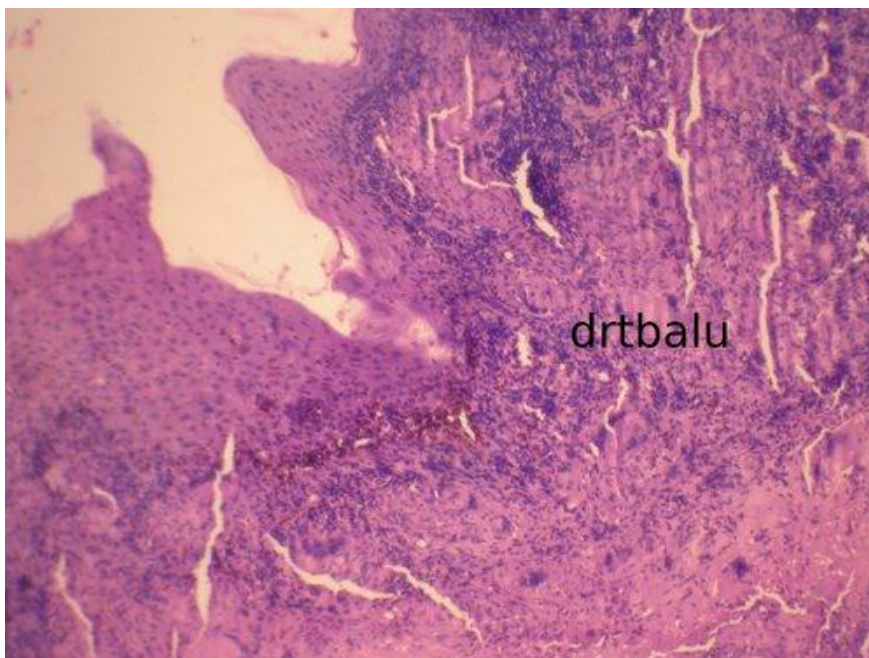


Figure showing histopathology of biopsied specimen.



X ray chest showing miliary mottling

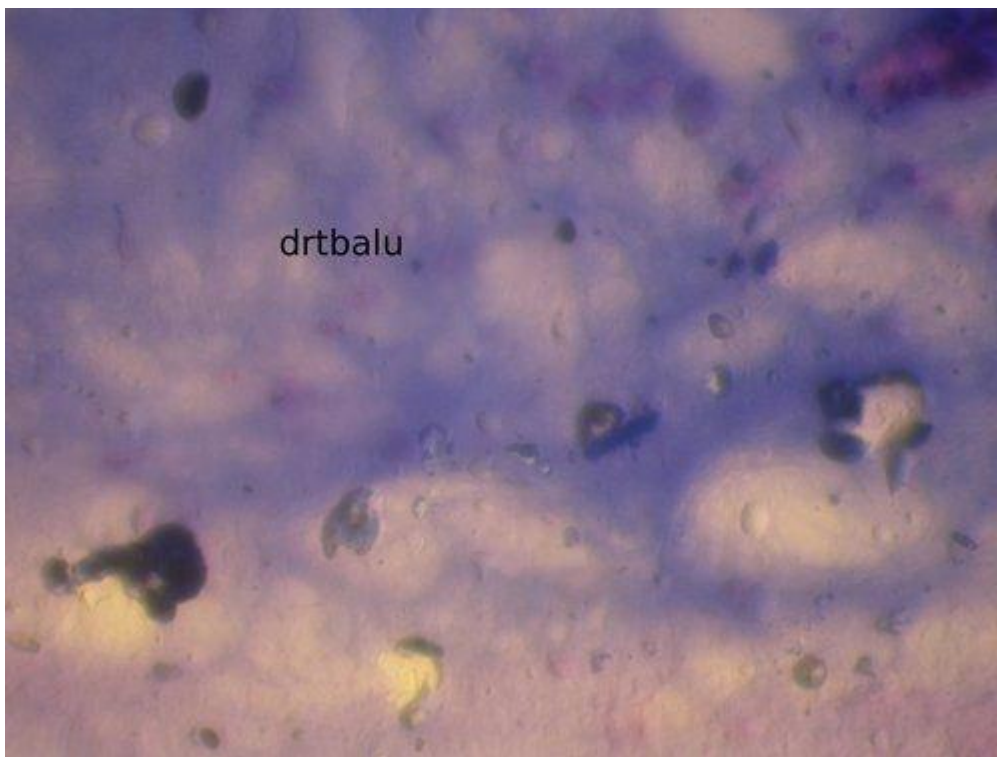


Figure demonstrating AFB in sputum.

Discussion:

Tuberculosis involving the tonsil is very rare. These days it is still rare because of better milk processing techniques like pasteurization which eradicates the bovine strain of tuberculosis. Even though tonsils are situated in an exposed area where infected material like sputum and food stuffs come into contact this lesion is rare because of the following features:

1. Antiseptic and cleansing action of saliva (first and foremost)
2. Presence of saprophytic organisms in the oral cavity which prevents growth of tubercle bacilli
3. The stratified squamous epithelial lining of the tonsil also offers some degree of protection

Tuberculosis of tonsils may be:

Primary - Due to ingestion of infected milk (Bovine strain)

Secondary - Due to pulmonary infection. The coughed out infected sputum finds its way to the throat to involve the tonsils.

Diagnosis of tuberculosis of tonsil is not straight forward. It needs high degree of suspicion.

Pointers for the diagnosis of tuberculosis tonsil:

1. Asymmetric enlargement of tonsil
2. Tonsillar enlargement without exudate
3. Obliteration of crypts
4. Painful deglutition
5. Presence of enlarged mobile jugulodigastric nodes

Management:

Patient was started on anti TB medications.

References:

1. Secondary Tuberculosis of Tonsil case report and literature review - Online Journal of Otolaryngology - ScopeMed.org - Free Journal Management System [Internet]. [cited 2012 Jan 16]; Available from: <http://www.scopemed.org/?mno=12425>

Interesting case report of Torus palatinus ¹

20 years old male patient came with swelling over the hard palate area on the left side - 15 years.

History:

No history of pain over the swelling.

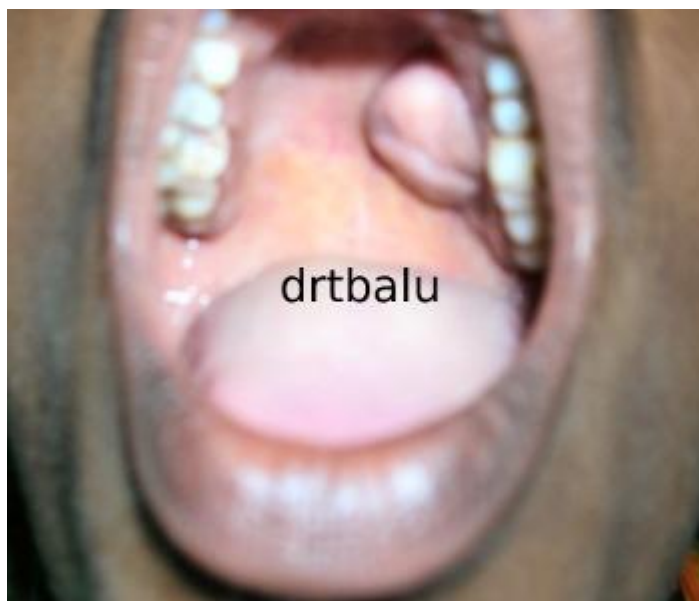
Swelling progressively increased in size during the past 15 years.

On examination:

Globular swelling seen over the left side of hard palate.

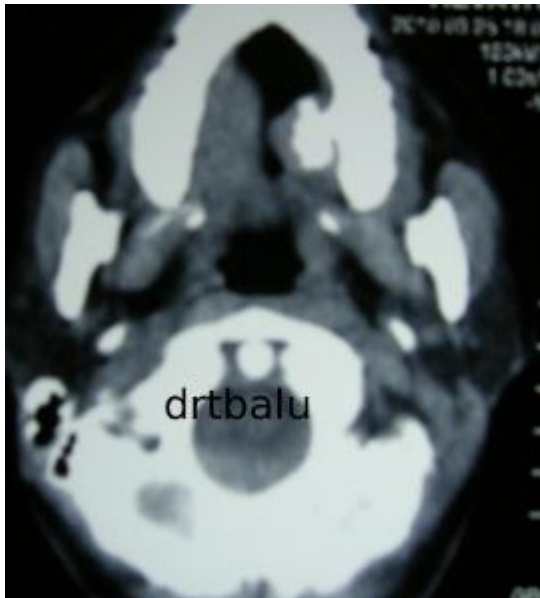
Bony hard in nature.

No tenderness.



Clinical photograph of the patient showing the mass in the palate

Imaging:



CT scan axial view showing torus palatinus

Discussion:

The word “tori” is derived from the latin word torus which means “to stand out” / “lump”.

Synonyms: Exostosis of oral cavity, Buccal exostosis.

Definition:

Torus palatinus is a sessile nodule of bone occuring commonly in midline of hard palate. It can also occur over the lingual surface of the maxilla (torus mandibularis). Torus mandibularis is a bony protruberance located on the lingual aspect of the mandible (commonly between the canine and premolar areas). These are bony masses, begining their development during early teens and gradually progresses to adult hood. These masses are slow growing and painless.

These masses are usually self limiting, rarely they may cause periodontal diseases. Periodontal disease is usually caused by the mass forcing food towards the teeth while being chewed instead of away from it. Too large torus may interfere with dentures.

Etiology:

1. Masticatory hyperfunction
2. Genetic factors (common in females)
3. Environmental factors
4. Multifactorial

Age of occurrence:

It is very rare during the first decade of life. Its increase in size occur during the second and third decades of life. According to Bruce et al the average age of presentation of tori is 34. Since there is very little literature available on this subject very little knowledge regarding age of occurrence is available.

Classification:

Oral exostosis was first classified by Haugen. He classified oral cavity exostosis according to their sizes as small, medium and large.

1. Less than 2 mm in their largest diameter – small
2. 2 – 4 mm in their largest diameter – medium
3. More than 4 mm in their largest diameter

According to Haugen majority of oral cavity exostosis belonged to the small and medium categories.

Reichart in his modification of Haugen's classification suggested few changes:

Grade I – Tori up to 3 mm in their largest dimension

Grade II – Tori up to 6 mm in their largest dimension

Grade III – Tori above 6 mm belong to this group

Shapes:

Torus palatinus occur in varying shapes. It can be flat, nodular, lobular or spindle shaped. Small tori are invariably nodular and they are the most common variety encountered. Lobular shapes are pretty rare.

Indications for surgical removal:

1. The mucosa over torus is ulcerated
2. When it interferes with placement of dentures
3. When there is associated periodontal disorder
4. Where torus can be used as graft material
5. Phonatory disturbances
6. Sensitivity of the overlying mucosal layer
7. Disturbances involving masticatory apparatus
8. Esthetic reasons

References:

1. <http://drtbalu.wikidot.com/torus-tubaris>

An interesting case of parapharyngeal mass with retropharyngeal extension ¹

25 years old male came with c/o:

1. Fullness in the throat - 5 years
2. Difficulty in swallowing - 2 years
3. Breathlessness on and off accompanied by noisy breathing - 6 months

Past history:

Previous history of surgery in the neck ++ - 6 years back

Biopsy report from the mass excised during previous surgery - Swannoma

On examination:

Swelling on the left side of the neck just below the angle of the mandible. It measured about 5 x 3 cms. ²

The skin over the swelling was not warm and was pincheable. The mass could be moved in its vertical axis.

Its mobility in the horizontal axis was somewhat restricted.

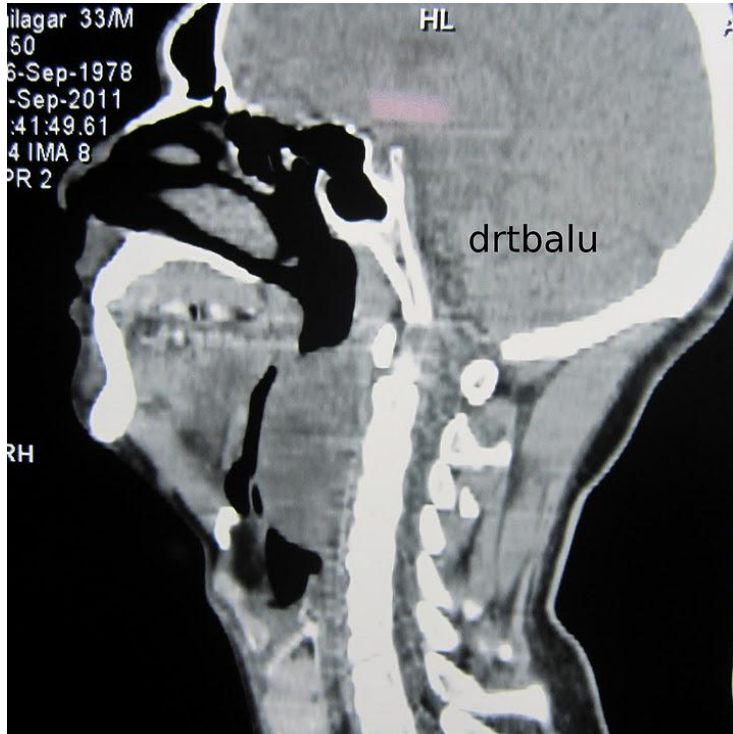
A linear scar could be seen over the neck mass measuring 6 cms could be a previous skin incision. Intraoral examination showed a large mass occupying the retropharyngeal wall crossing the midline.

This swelling could be seen pushing the left tonsil anteriorly and downwards. The upper border of the Swelling could be seen just below the choana. The lower margin of the tumor could be seen reaching the laryngeal inlet.

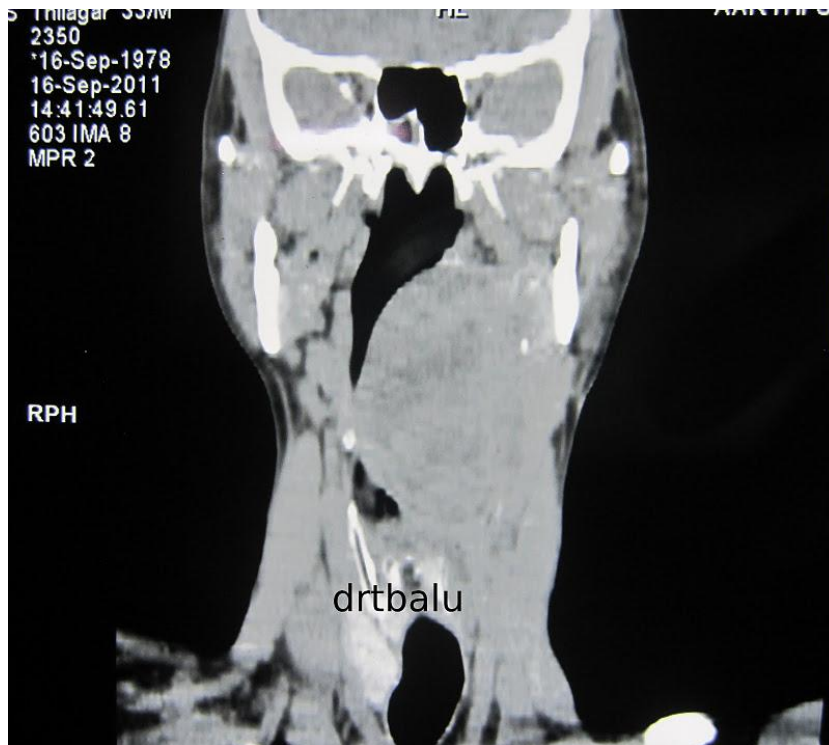
Imaging:



Axial CT showing soft tissue mass involving parapharyngeal and retropharyngeal spaces



CT scan head and neck lateral view showing soft tissue mass in the posterior pharyngeal wall



CT head and neck anteroposterior view showing soft tissue mass arising from parapharyngeal space extending medially partially occluding airway

Management:

Preliminary tracheostomy.

Ryles tube insertion.

Removal of mass via mandibular swing approach.



Mass after removal

References:

1. <http://drtbalu.wikidot.com/an-interesting-case-of-parapharyngeal-mass-with-retropharyng>
2. 1.
MANDIBULAR SWING APPROACH FOR A RECURRENT
PARAPHARYNGEAL TUMOR - Online Journal of Otolaryngology -
ScopeMed.org - Free Journal Management System [Internet]. [cited 2012 Jan
16];Available from: <http://www.scopemed.org/?mno=12407>