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Pre-tracheal Cold Abscess - A case report

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Abstract

Background: Neck abscesses in the deep neck tissues are difficult to diagnose, localize, access, and manage. The anatomy of the neck is complex and contains several important vessels and nerves, as well as structures that are critical to the functioning of the airway and gastrointestinal system. Pre-tracheal tubercular abscess is a rare presentation of extra pulmonary tuberculosis even in TB- endemic areas

Case Presentation: A 15-year-old femalecamewith complaints of pain and swelling in neck since 1 month. Swelling present in midline neck, at the suprasternal notch. Soft to cystic in consistency, non-tender, fluctuant and compressible swelling. Patient was taken for Incision and Drainage, pus was aspirated and samples were collected and sent for microbiological tests, culture sensitivity, AFB staining and CBNAAT.

Discussion: FNAC is definitively useful tool in establishing diagnosis of tubercular lymphadenitis. FNAC has a high diagnostic accuracy in detecting tuberculosis with sensitivity of 93.1%and specificity of 100%. Patient completed the course of anti-tuberculous treatment under Category 1 for 6 months as per RNTCP-Guidelines for TB control in India. There was no recurrence or reactivation of the disease in follow up.

Conclusion: Atypical presentation of extrapulmonary tuberculosis in the head and neck region, often causes delay in its diagnosis. Early diagnosis and prompt initiation of the proper treatment can completely cure the disease. The occurrence of tuberculosis in the rarest of

the sites should be dealt with high degree of suspicion in endemic countries.

Keywords: Tuberculosis, Extra pulmonary tuberculosis, Pretracheal abscess.

Introduction

Neck abscesses in the deep neck tissues are difficult to diagnose, localize, access, and manage. The anatomy of the neck is complex and contains several important vessels and nerves, as well as structures that are critical to the functioning of the airway and gastrointestinal system. Potentially difficult to palpate or see from the outside, the affected tissues may be deep. The inflammation may spread to nearby structures, causing problems with the neurovascular system, the bones, or the airways.[1][2][3]

Though Mycobacterium tuberculosis infection can occur in almost all tissues of the body, pulmonary tuberculosis is by far, the most common type of infection representing approximately 80% of all cases of tuberculosis (TB).[4] However, Tuberculosis of other regions of the body, is also on the rise. Studies regarding theotorhinolaryngeal manifestations of TB, which are uncommon but important extra pulmonary forms of the disease, are sparse. Tuberculosis of the head and neck region comprises about 10% of all the cases of extra-pulmonary tuberculosis and cervical lymph nodes are the most commonly affected, followed by laryngeal tuberculosis, deep neck space abscess and tuberculous otitis media.[5][6]

Even in TB-endemic locations, pre-tracheal tubercular abscess is a rare form of extra pulmonary tuberculosis (WHO, 2014).[7]

The incidence of EPTB is increasing in India accounting for 20% of total TB burden in HIV negative individuals and 50% in HIV positive individuals.[7][8]

Tuberculosis (TB) is a major public health problem in the international community, the World Health Organization (WHO) estimated at 10.4 million cases in 2016.[6]Extra pulmonary tuberculosis (EPTB) does not exceed 15% of all TB patients reported for many years.[9][10]

The recent literature indicates that the incidence of abscesses deep in the neck space is on the decline because of the availability of more effective antibiotics for upper respiratory infection, but cases of deep neck abscess that do not respond to conventional antibiotic therapy are on the rise.

Such an abscess requires prompt diagnosis and early management in the form of aspiration or drainage of the abscess to achieve optimal results.[11]

Case Presentation

A 15-year-old female, resident of Saharanpur, Uttar Pradesh, came to ENT OPD at Maharishi Markandeshwar Institute of Medical Sciences and Research, with complaints of pain and swelling in neck since 1 month.

Patient came with complaints of pain in neck since 1 month, which was insidious in onset and non-progressive in nature, dull aching, non-radiating, no aggravating factors, relieved on taking painkillers.

Patient also complaints of swelling in the midline of neck since 1 month, which was spontaneous in onset and progressive in nature. Initially it was of the size of a peanut which increased to the size of a lemon approximately. Associated with nausea and loss of appetite.

Not associated with vomiting, fever, recurrent upper respiratory tract infection, difficulty in breathing, swallowing, voice change, neck movements. No history

of cough, weight loss, night sweats, pain in back or abdomen.

Past history

Patient had history of Pott's Spine Tb at L4, L5 in 2019 and completed course of ATT for 18 months period after consultation with Orthopedics department.

No history of Pulmonary Tb/Diabetes/Asthma/COPD.

Family History

No significant family history.

Personal History

Appetite was reduced; Bowel and Bladder Habits were normal, Sleep cycle normal, No history of smoking/alcoholism.

On Examination

Patient was conscious and well oriented to time, place and person.GCS 15/15, No pallor, icterus, cyanosis, clubbing, lymphadenopathy, edema.Saturation was 97% on Room Air, Blood pressure 110/70mmhg, Pulse 80/minute.

On Local Examination ofNeck

No scar mark, Laryngeal crepitus present, No Palpable lymphadenopathy.

Swelling present in midline neck, approx. 3*4cm, at the suprasternal notch, round in shape with well-defined margins, soft to cystic in consistency, non-tender, no localized rise in temperature, skin contour normal, no tracheal deviation, no visible pulsation, fluctuation was present, swelling was compressible but non-reducible, non-translucent, no murmur/bruit. Neck mobility normal.

Oral Cavity, Oropharynx, Nose, Ear examination were normal. Indirect Laryngoscopy was normal.

Ultrasound Neck: suggestive of encapsulated heterogenous collection seen inferior to thyroid in pretracheal region, present about 6mm deep to subcutaneous plane as shown in Figure 1. The collection appears thick and mobile internal echoes were seen within it. Measures approx. 4.5(craniocaudal) x 2.8(antero-posterior) cm.

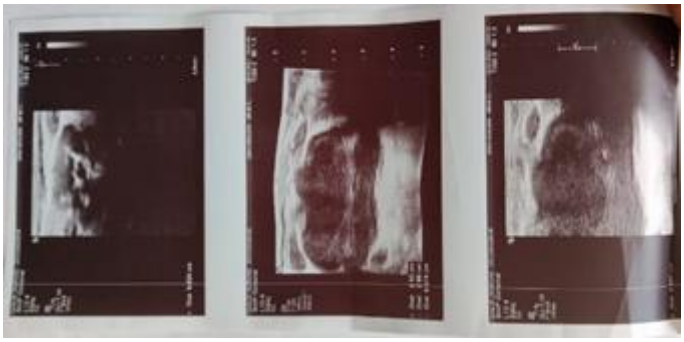

Figure 1: Ultrasound neck showing heterogenous collection in pre-tracheal region.

Bilateral lobes of thyroid and isthmus appeared normal in size, shape, outline, echotexture and normal vascularity.Bilateral submandibular and parotid glands were normal. Major neck vessels normal.Few sub centimetric lymph nodes were seen in bilateral cervical region.

Blood investigations revealedHb: 12.6gm%, TLC: $10.0*10^3$, Polymorphs 80%, Lymphocytes 13%, Eosinophils 02%, Monocytes 05%, Viral markers for HIV, HbsAg and HCV were negative.

FNAC showed pus with necrotic debris with lymphocytic infiltrate and giant cells.

Management

Patient was taken for Incision and Drainage under general anaesthesia after taking consent from the parents.Under Aseptic precautions, patient was painted and drapped. Horizontal skin incision of approx. 3 cm was given 2 finger breadths above suprasternal notch, over the swelling.Skin, subcutaneous tissues, fat dissected using blade and artery forceps.Approx. 20-25ml of whitish, milky pus was aspirated and samples were collected and sent for microbiological tests, culture

sensitivity, AFB staining and CBNAAT.Wound wash was given with saline and betadine and betadine-soaked gauge dressing done at Incision and Drainage site. Dressing was done twice daily.

Pus for culture sensitivity and AFB staining was negative. Mycobacterium tuberculosis was detected on CBNAAT. Patient was started on ATT.

Granulation tissue was seen on 5th post-operative day and no pus was seen on 7th post-operative day as shown in figure 2 and 3. Suturing of the wound was done on 10th post-operative day as shown in figure 4.

Figure 2: Post-operative day 5 of Incision and Drainage, Granulating tissue.

Figure 3: Post-operative day 7 of Incision and Drainage, no sign of Pus formation.

Figure 4: Post-operative day 10 of Incision and Drainage, after suturing the wound site.

On 7th month follow up, patient had no complaints of difficulty in swallowing/breathing/voice change/fever/cough/pain/weight loss/night sweats/neck swelling.Though patient had complaints of scar mark as shown in figure 5.

Figure 5: Scar mark seen at 7th month of follow up.

Discussion

Tuberculosis is still a most prevailing disease in countries like India having 22.7% of global burden. Lymph nodes are the most frequent site of extrapulmonary disease manifestation, with the cervical group of lymph nodes accounting for 60–90% of

cases.[12]51% of nodes are in the posterior triangle, followed by nodes in the upper deep cervical and submandibular regions. A relatively uncommon 1% of nodes occur in an anterior group.[13]

Extrapulmonary Tuberculosis forms 10–15% of all cases of Tuberculosis in India.[14]

Tuberculosis in Neck may present as: Lymphadenitis, Peri adenitis, Cold abscess, Collar stud abscess, Sinus.

A study conducted by Pandurang et al., on 70 patients from the year 2011–2013 in a renowned hospital in Mangalore revealed that in the head and neck region, tuberculous lymphadenitis (77%) was the most frequent form of the disease, followed by deep neck space abscess (10%), laryngeal TB (8.50%), submandibular gland tuberculosis (3%) and 1.5% of cases were found to have pharyngeal tuberculosis. 33% of patients had concomitant pulmonary TB, while 12.8% of patients had simultaneous HIV infection.[15]

In our case, USG revealed a hypodense lesion with fluid attenuation and enhanced rim, anterior to trachea and thyroid, likely a pre-tracheal tubercular abscess.

FNAC is definitively useful tool in establishing diagnosis of tubercular lymphadenitis.[16] It is minimally invasive, faster and cheaper when compared to excision biopsy. FNAC has a high diagnostic accuracy in detecting tuberculosis with sensitivity of 93.1%and specificity of 100%.[16] Cytological criteria include clusters of Epitheloid cells with or without necrotic debris, mature lymphocytes and pleomorphic lymphoid cells.[17][18]

Deep neck space infections often have a rapid onset and can progress to life-threatening complications such as airway obstruction, involvement of carotid sheath and septic shock. In this study, this patient presented with pain in the neck and were diagnosed using ultrasound scan and treated using incision and drainage technique.

CT scan helps us isolate the exact location of the lesion and its extent.[19]

We did Incision and Drainage of the abscess under Short General Anaesthesia in barking dog position, along with a biopsy from the wall of the cavity and the cavity was left open. It is necessary to take special care during operation to prevent spillage of contents. Scar healed well and post operative period was uneventful. Patient completed the course of anti-tuberculous treatment Category 1 for 6 months as per RNTCP- Guidelines for TB control in India. Patient was explained and was monitored for complications of anti-tuberculous drugs. There was no recurrence or reactivation of the disease in follow up.

Conclusion

Atypical presentation of extrapulmonary tuberculosis in the head and neck region, often causes delay in its diagnosis. Early diagnosis and prompt initiation of the proper treatment can completely cure the disease. Thorough history taking and proper clinical examination by understanding the pathology of extrapulmonary tuberculosis, plays an important role in its proper diagnosis.

In conclusion, the occurrence of tuberculosis in the rarest of the sites should be dealt with high degree of suspicion in endemic countries. Pre operative diagnosis in such cases avoids major surgery and related complications.

Even though it is not very common, tuberculosis of the head and neck still occurs and should be addressed, especially in developing nations. One of the most common manifestations is involvement of the cervical lymph node. Fine needle aspiration cytology has proved to be very valuable investigation in the diagnosis of the

tuberculous lymphadenitis. Tuberculosis of the head and neck region need not to occur always secondary to pulmonary tuberculosis.

Abbreviations

AFB: Acid Fast Bacteria; ATT: Anti-tubercular Treatment; CBNAAT: Cartridge Based Nucleic Acid Amplification Test; COPD: Chronic Obstructive Pulmonary Disease; CT: Computed Tomography; ENT: Ear Nose Throat; EPTB: Extrapulmonary Tuberculosis; FNAC: Fine Needle Aspiration Cytology; GCS: Glasgow Coma Scale; Hb; Haemoglobin; HIV: Human Immunodeficiency Virus; OPD: Outpatient Department; RNTCP: Revised National Tuberculosis Control Programme; TB: Tuberculosis; TLC: Total Leukocyte Count; USG: Ultrasonography; WHO: World Health Organization;

Ethics approval and consent to participate

Written consent for the publication of this case report was obtained from the patient. Approval for case report by the institutional ethics committee is not required.

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