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Case Report

Cervical tuberculous lymphadenitis: a diagnostic challenge and early intervention

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ABSTRACT:

Neck swellings are very common and it's a diagnostic challenge due to multiple differential diagnosis with various etiological factors. Physician knowledge is very important to identify and come to the right diagnosis and manage them precisely. Here in this article we report such a case which was undiagnosed for months, intervened by us, at the right time to give correct diagnosis and which was treated efficiently.

Keywords: Mycobacteria tuberculosis, Neck swelling, Lymph node, AFB Smear, Mantoux test, Cervical tuberculous lymphadenitis.

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INTRODUCTION

Tuberculosis (TB) is a chronic granulomatous infection caused by various strains of mycobacterium, usually mycobacterium tuberculosis [1]. Tuberculosis mainly affects the lungs but it can also affect other organs and tissues in the body [2]. TB bacilli enters the lymphatic system & blood stream to reach the extra pulmonary organs like central nervous system (CNS), urinogenital system, lymphatic system, bones, joints, skin, liver and spleen [3]. Extra pulmonary TB is not common occurring in 0.05-5% of patients. Thus it becomes a diagnostic challenge with many clinical differential diagnosis[1].

CASE REPORT

A 27-year-old female patient reported to department of Oral and Medicine and Radiology in Thai Moogambigai Dental college and Hospital, Chennai, with the complaint of a painful swelling on her left side of lower jaw for past 8 months.

Patient gave history of slow growing swelling for past 8 months, the swelling was initially small, while the patient was in her 1st trimester of her pregnancy after which the swelling increased in size over a period of time. During the course of her pregnancy, the patient was prescribed three separate courses of antibiotic therapy, spaced one month apart, the patient was prescribed (tab. Augmentin 625mg, tab. Dolo 650 mg) by an unidentified dentist and general physician. Despite the repeated use of these medications, no significant reduction of the swelling was noted. The lesion persisted throughout her pregnancy, after which patient reported to us after the birth of her child.

On general examination the patient appeared moderately built, moderately nourished, normal gait with no systemic illness, and no signs of weight loss, fever, and cough. Her past medical and family history were unremarkable. Intraoral examination (figure.1) revealed no odontogenic infections, mucosal lesions or no intra oral abnormalities that could be associated with swelling. However, extra-oral examination of the left submandibular gland lymph node (figure.2) revealed a diffuse, firm and tender swelling, approximately measuring 3.1 cm × 2.1 cm. The superimposing skin was the same as the surrounding skin, there was no discharge noticed with respect to the site. On palpation, a solitary cervical lymph node was felt in the left submandibular region, which was

enlarged, firm in consistency, non-fluctuant, non-compressible, tender on palpation with no rise in temperature.

Based on the clinical profile and anatomical location, a provisional diagnosis of left submandibular TB lymphadenitis was considered. A differential diagnosis of left submandibular sialadenitis was considered.

To further evaluate the condition, the patient was subjected to orthopantomogram (OPG), of 36, 46 (figure.3) reveals radiopaque tooth like structure noted at the level of crestal alveolar region suggestive of root stumps. However, these findings were determined to be incidental and unrelated to the primary pathology. Routine hematological investigations were done for the patient along with Mantoux test. However, there was no variation identified except the lymphocytes was elevated (48.50%) and Mantoux test showed positive outcome, suggesting exposure to mycobacterium tuberculosis or latent TB infection.

To rule out pulmonary involvement, a chest X-ray was taken (figure.4), which revealed no abnormalities. A neck ultrasound sonography (USG) was then performed and that gave impression (figure.5) as left cervical lymphadenitis with suspicious necrosis, necrotic level IB lymph node. For more precise anatomical delineation, a Non-Enhanced Computed Tomography (NECT) was also instructed for her(figure.6), which confirmed the presence of a markedly enlarged lymph node seen in the left submandibular area.

To establish a definitive diagnosis, Fine Needle Aspiration Cytology (FNAC) of lymph node was carried out. The cytological analysis (figure.7) revealed, numerous well defined epitheloid granulomas with multinucleated giant cells in a background of heterogenous population of lymphocytes and hemorrhage. These histological features are classically associated with tuberculosis lymphadenitis, confirming the diagnosis.

Upon confirmation, the patient was referred to a physician who instructed a World Health Organization (WHO) endorsed anti-tubercular therapy: Isoniazid (INH, 100 mg/day), rifampicin (RIF, 300 mg/day), pyrazinamide (400 mg/day) for 2 months and INH (80 mg/day) and RIF (150 mg/day) for another 4 months. The patient tolerated the medications well. This anti-tubercular therapeutic regimen was administered for 6 months, and by end of 6 months follow-up the lesion had completely resolved, and no palpable lymph node was noted, indicating successful therapeutic outcome and clinical remission.

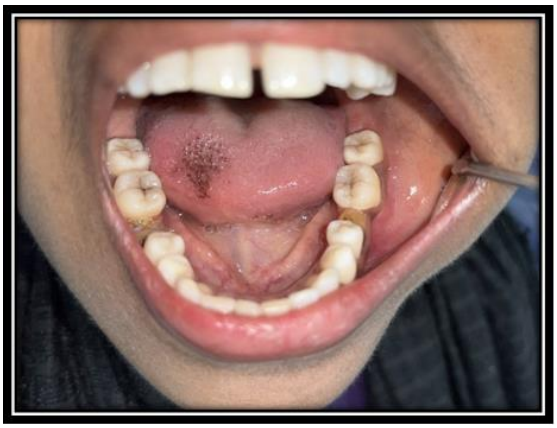

Figure 1: INTRA ORAL IMAGE

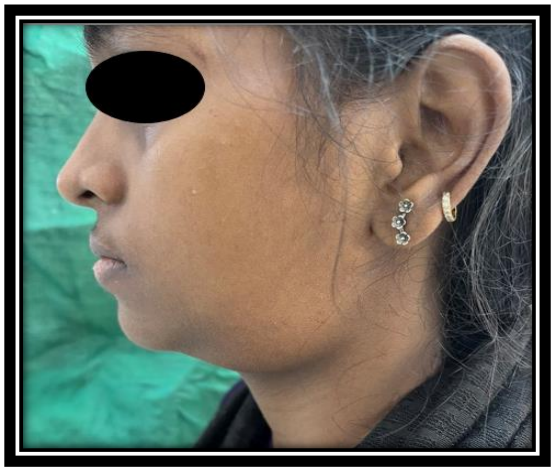

Figure 2: EXTRA ORAL IMAGE SHOWING SWELLING IN HER LEFT SUBMANDIBULAR REGION

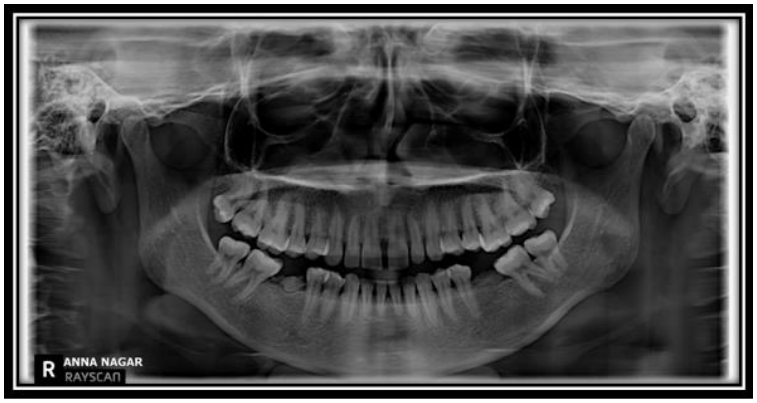

Figure 3: ORTHOPANTOMOGRAM

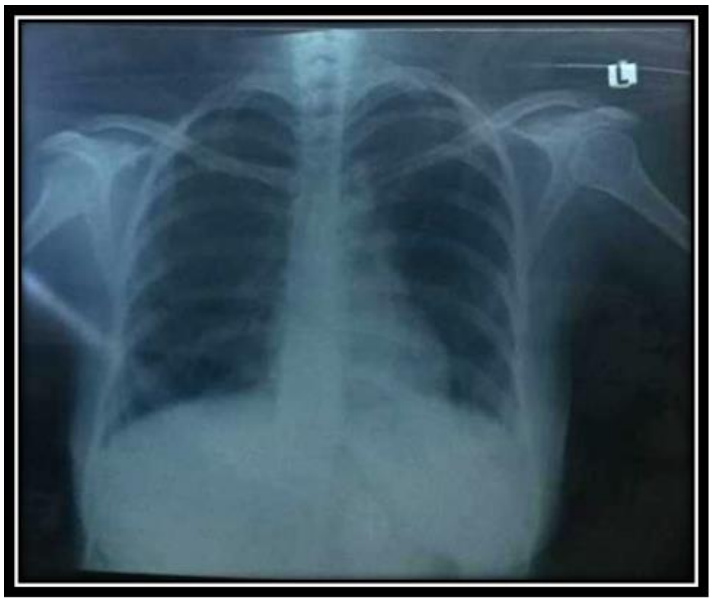

Figure 4: CHEST X-RAY

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DEPARTMENT OF RADIOLOGY

[redacted]

USG - NECK

OBSERVATION:

Both lobes of thyroid appears normal in size and echotexture.

Multiple enlarged lymph nodes noted in left cervical chain level with few lymph nodes showing loss of fatty hilum and suspicious necrosis, largest node measures ~ 3.1 x 2.1 cm at level IB.

Isthmus appears normal in size.

Right parotid gland appears normal.

Left parotid gland appears normal.

Bilateral CCA & IJV appears normal.

Few subcentimetric lymph nodes noted in right cervical chain.

IMPRESSION:

→ **Left cervical lymphadenitis with suspicious necrosis — Infective etiology (? koch's)**

- **Suggested HPE correlation.**

Dr.R.M.Mubarak., MD, RD., DNB.
Assistant Professor.,
Department of Radio diagnosis.

Figure 5: USG report reveals left cervical lymphadenitis with suspicious necrosis

Avanthika Scans

[redacted]

NECT – NECK SCREENING

Technique: *The NECT imaging of the soft tissue neck has been performed using 1 mm collimation.*

Findings:

Left submandibular gland appears enlarged and edematous with mild surrounding fat stranding. No calculus / collection seen.

Few enlarged lymphnodes seen in left upper jugular group, largest measuring 22 x 16mm.

The study demonstrates normal wall and lumen of naso-pharynx including the fossa of Rosen muller. The oro-pharynx with both tonsils and para-tonsilar regions appear normal. The hypo-pharynx and laryngopharynx with pre-epiglottic space, vallecula, aryepiglottic folds and pyriform sinuses appear normal.

The true and false vocal cords have normal appearance. The subglottic region appears unremarkable.

Rest of the major salivary glands viz., bilateral parotid and right submandibular glands show normal attenuation.

All the major neck spaces viz., pre-vertebral, retro-pharyngeal, para-pharyngeal, infra-temporal, masticator, submandibular, posterior triangle, pre-tracheal and carotid spaces appear normal.

The thyroid gland shows normal size and shape.

IMPRESSION :

➢ ***Acute left submandibular sialadenitis.***

Kindly correlate clinically

Dr. S. RAM KUMAR, MD (RD), DNB.,
Consultant Radiologist

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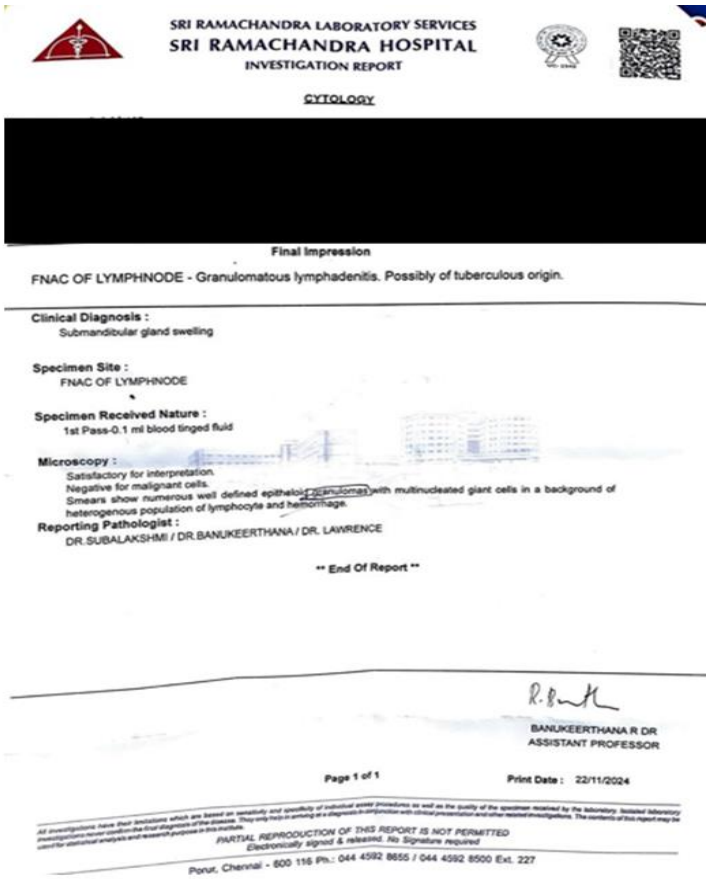
Figure 6: NECT of the patient reveals acute left submandibular sialadenitis



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SRI RAMACHANDRA HOSPITAL
INVESTIGATION REPORT

CYTOLOGY

[redacted]

Final Impression

FNAC OF LYMPHNODE - Granulomatous lymphadenitis. Possibly of tuberculous origin.

Clinical Diagnosis :
Submandibular gland swelling

Specimen Site :
FNAC OF LYMPHNODE

Specimen Received Nature :
1st Pass-0.1 ml blood tinged fluid

Microscopy :
Satisfactory for interpretation.
Negative for malignant cells.
Smears show numerous well defined epithelioid granulomas with multinucleated giant cells in a background of heterogenous population of lymphocyte and hemorrhage.

Reporting Pathologist :
DR.SUBALAKSHMI / DR.BANUKEERTHANA / DR. LAWRENCE

** End Of Report **

BANUKEERTHANA R DR
ASSISTANT PROFESSOR

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All investigations have their limitations which are based on sensitivity and specificity of individual assay procedures as well as the quality of the specimen received by the laboratory. Isolated laboratory investigations never confirm the final diagnosis of the disease. They only help in arriving at a diagnosis in conjunction with clinical presentation and other relevant investigations. The contents of this report may be used for statistical analysis and research purpose in this institute.
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Figure 7: FNAC report reveals Granulomatous Lymphadenitis

DISCUSSION

Tuberculosis (TB) is widely recognized as an opportunistic infection, particularly affecting individuals with compromised immune systems such as those with HIV, diabetes, or undernutrition. According to the WHO Global TB Report 2024, which provides surveillance data for the year 2023, India accounted for approximately 26% of the global TB burden, reaffirming its status as the highest TB-burden country worldwide [4]. Globally, 10.8 million individuals were newly diagnosed with TB in 2023. Among these, 81% were affected by pulmonary TB, which primarily involves the lungs and is the most common and transmissible form of the disease, while 19% presented with extrapulmonary TB [5]. The clinical presentation of TB can be insidious, with low-grade fever, persistent cough (with or without sputum), fatigue, loss of appetite, and unintentional weight loss being hallmark features. These non-specific symptoms often result in delayed diagnosis, especially in extrapulmonary cases, underscoring the need for heightened clinical suspicion and early diagnostic intervention, particularly in high-risk populations.

Comparative Table: Pulmonary vs. Extrapulmonary Tuberculosis (India-based Data)

Parameter	Pulmonary TB (PTB)	Extrapulmonary TB (EPTB)
Common Age Group	25–44 years. [6]	15–34 years. [6]
Sex Distribution	Male > Female (M:F ≈ 2:1). [7]	Slight female predominance (F:M ≈ 1.2:1). [7]
Site of Involvement	Primarily lungs (upper lobes). [8]	Cervical lymph nodes, pleura, bones, CNS, genitourinary tract. [8]
Orofacial Lesions	Rare. [9]	Occasionally in mandible, buccal mucosa, gingiva. [9]
Clinical Features	Cough, hemoptysis, fever, weight loss, night sweats. [8]	Localized swelling, lymphadenopathy, sinus tract formation, minimal respiratory symptoms. [8]
Radiological Findings	Infiltrates, cavitation, fibrosis (mostly in upper lobes). [6,8]	CT shows abscesses, necrotic nodes, calcifications in spine, pleura, lymph nodes. [6,8]
Lymph Node Involvement	In advanced disease (mediastinal nodes).[10]	Very common in cervical TB, especially level IB nodes.[10]
Duration Before Diagnosis	2–4 weeks.[4]	Often delayed (6–12 weeks), particularly in atypical locations.[4]
Diagnosis Tools	Chest X-ray, sputum AFB, GeneXpert, culture. [4,8]	FNAC, histopathology, USG, CT/MRI, GeneXpert. [4,8]
Treatment Duration	6 months standard Directly Observed Treatment Short-course(DOTS). [4]	6–12 months depending on site (e.g., CNS, bone TB may require prolonged therapy). [4]
Response to Therapy	Good with early diagnosis and adherence. [4,8]	Slower regression; response varies by site and immune status. [4,8]
Recurrence Rate	5–7% in compliant patients. [6]	Slightly higher in cases with immune compromise or late diagnosis. [6]
Mortality Rate	2–5% (higher with MDR-TB or untreated HIV). [4]	4–6% (higher in CNS or disseminated TB). [4]
Associated Comorbidities	HIV, diabetes mellitus, undernutrition. [8]	HIV, autoimmune disorders, malnutrition, pregnancy. [8]
Need for Surgical Intervention	Rarely required (only in complications like empyema). [11]	Common in lymphadenitis, spinal TB, abscess drainage. [11]

OROFACIAL LESIONS

The diagnosis of cervical tuberculous lymphadenitis was challenging because of the patient did not have the history of fever, cough and weight loss. Patient only gave history of swelling which had slow growing and painful for 8 months. The only positive history aiding to suspicious was the swelling did not subside on taking antibiotics. The provisional diagnosis of submandibular lymphadenitis was ruled out and cervical tuberculous lymphadenitis was considered. Then the patient was subjected to various investigation and a final diagnosis of cervical tuberculous lymphadenitis was made. The patient was advised for anti-tubercular therapeutic regimen for 6 months and patient is apparently well.

Jones and Campbell classified peripheral tuberculous lymph nodes into following five stages.
Stage 1 - enlarged, firm, mobile, discrete nodes showing non-specific reactive hyperplasia.

Stage 2 - large rubbery nodes fixed to surrounding tissue owing to periadenitis.
Stage 3 - central softening due to abscess formation.
Stage 4 - collar-stud abscess formation.
Stage 5 - sinus tract formation [12].

Table 2: Various manifestations of orofacial tuberculosis [13]

Condition	Salient Features
Tuberculous ulcer	Shallow, ovoid ulcer with undermined margins and is lined with pale granulation tissue
Tuberculous gingivitis	Nodular or papillary proliferation of gingival tissues which is diffuse and hyperemic
Tuberculous dental periapical granuloma	Painless swelling and sometimes involve a considerable amount of bone by relatively rapid extension
Tuberculous involvement of extraction sockets of teeth	Delayed healing, the socket gets filled with "tuberculous granulation tissue" consisting of pink to red elevations
Tuberculous osteomyelitis of jaws	Lumpy jaw, intraoral or extraoral single or multiple sinuses may be present. Pathological fracture of mandible or sequestration may occur
Tuberculosis of maxillary sinus	Nasal discharge, stuffiness of nose, crust formation and sometimes with epistaxis
Tuberculosis of temporomandibular joint	Nocturnal muscular spasm, soft and elastic joint tumefaction, without erythema, with edema and severe and localized periarticular muscle atrophy
Tuberculous sialadenitis	Slow growing, non-tender localized swelling is commonly present. Pain, abscess, fistula, and nerve involvement are the late features
Tuberculous lymphadenitis (Scrofula)	Slowly enlarging cold abscess in the neck may rupture forming a sinus and an open wound
Lupus vulgaris	Single or several, unilateral, reddish-brown papules coalescing into erythematous plaques. Characteristic lesion is apple-jelly nodules

CONCLUSION

Tuberculosis is a significant stigma which has a negative impact like social isolation, discrimination fear of disclosure and acceptance leading to a delay in diagnosis and treatment. Thus, raising awareness and public education and patient counselling can promote positively and an emotional assurance to the patient. So community health prognosis can play a vital role in identifying and supporting TB patients to reduce stigma.

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