

## TUBERCULAR ABSCESS OF PAROTID: A DIAGNOSTIC DILEMMA

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### ABSTRACT

Tuberculosis is a chronic infection and a major health burden in many countries. It can involve almost any organ of the body, most common being the Lungs, followed by Lymph Nodes, Peritoneum, Genital Tract, Pleura, Cervical Spine, Cold Abscesses, Intestine, Pericardium, Kidneys, Meninges and other organs. Tuberculosis in the parotid region is an extremely rare presentation and can mimic a pyogenic abscess or a parotid neoplasm. Our case, a 12 year old female, presented with a parotid swelling. An initial diagnosis of pyogenic parotid abscess was made and treatment given. But the disease recurred, prompting further investigations which revealed it to be a tubercular abscess. Appropriate anti-tubercular therapy was started and the patient is responding well to the treatment.

**KEYWORDS:** tuberculosis, parotid tubercular abscess, anti-tubercular therapy (ATT), AFB (Acid Fast Bacillus) Staining, GeneXpert.

### INTRODUCTION

Tuberculosis is a chronic granulomatous inflammation with a varied clinical presentation and a wide distribution. It mostly involves the pulmonary organs (>80% cases), but can also involve other extrapulmonary sites like lymph nodes, peritoneum, genital tract, cervical spine, intestines, pericardium, renal system etc. Even in countries, like India, where it is wide spread, the parotid gland is rarely involved.<sup>[1]</sup> Clinically, tubercular abscess of parotid usually presents as a slow growing swelling, mimicking a pyogenic abscess or a parotid neoplasm. The diagnosis of parotid tuberculosis needs a high degree of clinical suspicion and is commonly overlooked by treating physician. However, if managed properly, the prognosis of parotid tuberculosis is good and surgical intervention is not required in most of the cases.

### CASE REPORT

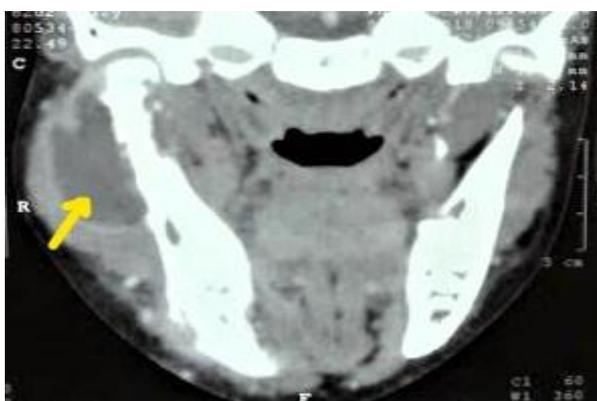
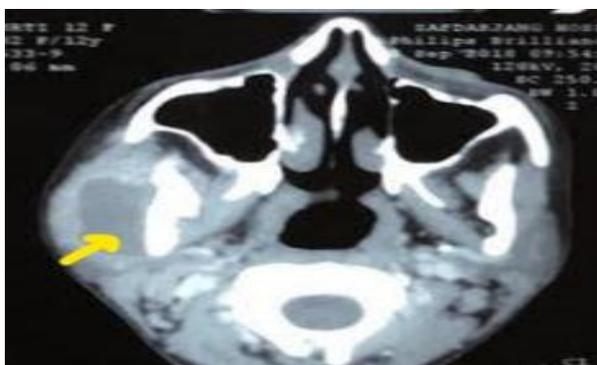
A 12 years old female presented with a gradually enlarging swelling on the right side of pre-auricular region for two months. It was associated with mild pain and low-grade fever. During the course, she already had consulted another physician and received antibiotics but with no appreciable results. There was no history of loss of appetite, weight loss, chronic cough, or any immunosuppressive disorder. Patient denied past history or family history of tuberculosis.

General physical examination was normal. Local examination revealed a 3cm x 2cm sized cervicofacial lump in the right parotid area with well-defined margins and smooth surface.. It was mobile, soft-to-firm in consistency, with fluctuation at the center. Local temperature was not raised. No overlying scar/ sinus/ fistula was seen. There was no palpable lymphadenopathy. Facial nerve was intact Movements of cervical spine were normal. No discharge or calculus in the region of the salivary ducts or any tonsillar enlargement was noted.

The hematological investigation were within normal limits. A fine needle aspiration cytology (FNAC) of the right parotid swelling was done which suggested a pyogenic abscess. Ultrasonography (USG) revealed a heterogeneously hypochoic collection of 2 x 2 cm in the superficial lobe of the right parotid gland with normal deep lobe, and right sub-centric cervical lymphadenopathy (level Ib and II). Left parotid gland was normal. Ultrasound-guided aspiration was done which aspirated 3ml of pus which was sent for culture, sensitivity testing and AFB (Acid Fast Bacillus) staining. AFB turned out to be negative and culture showed no growth of pathological bacteria. The patient was kept on intravenous antibiotics. She showed improvement with subsiding swelling and fever. She was discharged from the hospital in one week.

Ten days later the patient was again admitted with similar complaints. Further investigations were done. ESR levels were found to be raised and Montoux test positive. A suspicion of tubercular etiology was made and Chest X-ray done which reported left hilar lymphadenopathy. Computed tomography of neck and chest revealed necrotic mediastinal lymph nodes suggestive of tubercular etiology. Pus was again aspirated from right parotid swelling under USG-guidance and sent for AFB-staining, culture and sensitivity testing and GeneXpert. AFB- staining turned out to be negative again and culture sterile. But, GeneXpert detected the presence of mycobacterium tuberculosis in the aspirated pus. A confirmed diagnosis of tubercular parotid (cold) abscess was made and the patient was started on anti-tubercular therapy (ATT).

The patient took ATT for 6 months (2HRZE + 4 HRE) (H- ISONIAZID, R- RIFAMPICIN, Z- PYRAZINAMIDE, E- ETHAMBUTOL). The swelling subsided completely by the end of 2<sup>nd</sup> month. ATT was stopped after complete course of 6 months. The patient remains in our follow up, after 4 months of completion of ATT, with no signs of residual/ recurrent disease.



**Ct-Scan Showing Collection (Abscess) in the Right Parotid Region**

## DISCUSSION

Tuberculosis is a chronic granulomatous inflammation caused by *Mycobacterium tuberculosis* with a varied clinical presentation. It is common in developing countries, like India. In the recent years, the incidence is increasing in developed countries due to factors such as the development of resistance strains and co-infection with HIV. While pulmonary tuberculosis is the

commonest presentation, 15–20% of cases are extra-pulmonary tuberculosis, affecting mainly the cervical lymph nodes.<sup>[2,3]</sup> Tuberculosis of the parotid gland is an extremely rare presentation with less than two hundred cases of parotid gland tuberculosis being reported in the literature.<sup>[4]</sup>

The salivary glands are usually spared of tuberculosis because of the bactericidal action of saliva due to the presence of thiocyanate ions and proteolytic enzymes, such as lysozyme. In addition, the continuous flow of saliva prevents the inoculation of mycobacteria within the gland parenchyma.<sup>[1]</sup> The pathogenesis of parotid tuberculosis remains unclear. Van Stubenrauch, in one of the earliest reports of tuberculosis of salivary glands, postulated that the main mode of infection is extension of infection along Stenson's duct from the oropharynx.<sup>[5]</sup> Bockhorn proposed a hematogenous spread from any primary focus in the body.<sup>[6]</sup> According to Berman and Fein, infection can reach the parotids via lymphatics, particularly from infected tonsils.<sup>[7]</sup> Tuberculous involvement of the parotid gland is more commonly seen secondary to systemic dissemination of pulmonary tuberculosis than as primary extra-pulmonary tuberculosis.

There are varied clinical presentations of parotid gland tuberculosis. The commonest mode of presentation is a slowly enlarging painless mass, over months to years, which results from infection of intra-capsular or pericapsular lymph nodes.<sup>[8, 9, 10]</sup> This mimics a neoplasm and a high index of suspicion is required for the diagnosis. Some cases may present as an abscess resistant to antibacterial therapy and tends to recur on repeated aspiration.<sup>[11]</sup> It may also present as sialadenitis with diffuse enlargement of the parotid gland. The parenchyma of the parotid is involved in this form of parotid tuberculosis. It may also present as a preauricular fistula.<sup>[2]</sup> A total of 25% of patients with parotid tuberculosis have a concomitant pulmonary infection.<sup>[12]</sup> Parotid tuberculosis becomes a real diagnostic problem in the absence of clinical lung disease and without any systemic symptoms and signs of tuberculosis. Imaging and FNAC are helpful in the diagnosis of parotid tuberculosis.<sup>[13]</sup> The imaging modalities useful for studying parotid parenchyma are – USG, CT and MRI. They can identify signs suggestive of malignancy and distinguish parenchymatous lesions from extra parotid lesions. The definite diagnosis of parotid tuberculosis requires isolation and identification of mycobacteria from parotid tissue. FNAC is recommended as a reliable and useful diagnostic tool with sensitivity of 81–100% and specificity of 94–100%.<sup>[10]</sup> Cytological studies when combined with AFB staining of the aspirated material achieve better results. When imaging and FNAC are inconclusive, surgical intervention becomes necessary for obtaining tissue for histopathological examination. Usually, an excisional biopsy is performed and in cases where whole parotid is involved, total parotidectomy may be necessary. Surgical intervention must be done

only after detailed informed consent as there is definitive risk of facial nerve injury during the procedure. Histopathological features of tuberculosis are caseating granulomas and positive staining for acid-fast bacilli. More recently, World Health Organization has recommended GeneXpert as one of the initial investigations in the diagnosis of tuberculosis. GeneXpert not only detects the presence of mycobacterium but also reveals the resistance to Rifampicin, the most important anti-tubercular drug, if any.

In cases of long-standing parotid abscess, incision and drainage should not be performed until tuberculosis has been ruled out otherwise fistula or sinus formation may occur. The treatment of parotid tuberculosis is anti-tubercular medication whether the diagnosis is made clinically, radiologically or even after surgical excision of the parotid gland. Early diagnosis with a high level of clinical suspicion is essential to avert the need for surgery for this medically treatable condition.

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