



## Unusual Case of Primary Tuberculosis of Left Parotid Gland

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### ABSTRACT

Parotid gland tuberculosis is a rare form of extra-pulmonary tuberculosis. It has no specific signs or symptoms, but it commonly presents as a slow-growing parotid mass. Tuberculosis of the parotid gland presents difficulties in diagnosis because of the similarity of the presentation to that of a neoplasm and it most commonly gets diagnosed after superficial parotidectomy. With no history of pulmonary tuberculosis and no relevant symptoms, diagnosis becomes difficult, such cases may get misdiagnosed and the patient may undergo unnecessary surgery. Hence, early and accurate diagnosis of parotid gland tuberculosis is of great significance because it can be treated medically. It is essential to include parotid tuberculosis in the differential diagnosis of parotid swelling. This paper presents a case of swelling of the left side of the face in which USG and FNAC results were inconclusive. Hence, a core needle biopsy was performed which gave the diagnosis of tuberculosis of the left parotid gland. Further QuantiFERON-T.B Gold test was done which was positive. Lastly, a chest X-ray was done which showed no significant abnormality. Based upon histopathological examination, chest X-ray, and QuantiFERON-T.B. Gold test final diagnosis of primary tuberculosis of the left parotid gland was made. The patient was put on an anti-tuberculosis drug regimen for six months and follow-up showed complete resolution of swelling with no recurrence after one year, suggesting a successful outcome.

**Keywords:** Primary tuberculosis of parotid gland, Misdiagnosed, Core needle biopsy, Anti-tuberculous therapy

### INTRODUCTION

Infectious granulomatous disease tuberculosis is caused by *Mycobacterium tuberculosis*. It is a global health problem, with eight million people newly infected annually and three million people dying from diseases related to complications. It primarily affects the pulmonary system, but it can also involve extra-pulmonary sites [1]. An isolated occurrence of tuberculosis at body sites other than the lungs is termed Extrapulmonary Tuberculosis (EPTB) [2]. Though tuberculosis is quite common especially in developing countries, about 15%-20% of tuberculosis are extrapulmonary, of which tuberculosis affecting the parotid gland is rare. In literature, less than 200 cases of parotid gland tuberculosis have been reported [3]. First-person to report tubercular involvement of parotid glands was C De Paoli in 1893 [4]. Tuberculosis of the parotid gland has a similar presentation to that of a neoplasm creating difficulties in diagnosis. Therefore, diagnosis relies on the treating physician who has a high index of suspicion [5]. With no history of pulmonary tuberculosis and no relevant symptoms, diagnosis becomes difficult, such cases may get misdiagnosed and the patient may undergo unnecessary surgery. Hence, early and accurate diagnosis of parotid gland tuberculosis is of great importance, because it can be treated medically without any surgery. Here, we present a case of primary tuberculosis of the left parotid gland which due to early diagnosis prevented the patient from undergoing surgery.

### CASE REPORT

A 45-year-old female patient came with a chief complaint of pain and swelling on the left side of the face for 2 months. Initially, the swelling was small which gradually increased in size. Later patient started experiencing pain associated with swelling which aggravated jaw movements. No abnormality was detected on intraoral examination.

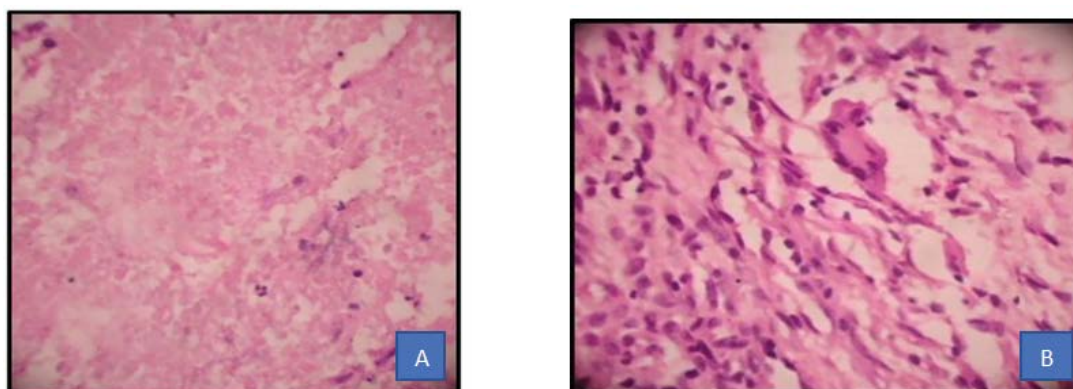
Extraoral examination revealed solitary diffuse swelling on the left side of face approximately 6 cm × 4.5 cm. extending from Anterio-posteriorly: line passing through lateral canthus of the eye and 2 cm posterior to angle of the mouth up to tragus of the ear. Superio-inferiorly: from temporal region to 1 cm above the angle of the mandible (Figure 1).



**Figure 1** Extra oral swelling on the left side of the face

On palpation, the swelling was firm and tender. Lymph nodes were non-palpable and non-tender. Ultrasonography revealed an ill-defined heterogeneous collection predominantly hypoechoic measuring app 4.2 cm × 1.5 cm is noted in the left parotid gland, giving the impression of parotid gland abscess. FNAC smear revealed plenty of neutrophils along with a few lymphocytes and macrophages on a necrotic background. There is no evidence of malignancy in the smear studied giving the impression of parotid abscess.

A core needle biopsy was performed. On microscopic examination, the histopathological section revealed the formation of granuloma which is circumscribed by a collection of epithelioid histiocytes, lymphocytes, and multinucleated giant cells with central caseous necrosis. The nuclei of giant cells are arranged at the periphery of the cell in a horseshoe or ring shape (Langhans giant cells) (Figure 2).



**Figure 2** Hematoxylin and Eosin stained section magnification; A: (10x) and B: (40x), showing necrotizing granulomatous inflammation, composed of epithelioid histiocytes, lymphocytes, and multinucleated giant cells with central necrotic zone

After the histopathological confirmation of tuberculosis, the QuantiFERON-TB Gold test and chest X-ray were suggested to rule out pulmonary tuberculosis (Figure 3). QuantiFERON-TB Gold test was positive and chest X-ray showed no significant abnormality. Hence, confirming our diagnosis of primary tuberculosis of the left parotid gland.



**Figure 3 Chest X-ray: no significant abnormality detected**

The patient was put on anti-tuberculosis treatment for six months, the drugs are given were Pyrazinamide, Ethambutol hydrochloride, Isoniazid, and Rifampicin. The patient responded well to the treatment and swelling subsided after a few months. After the treatment patient was completely asymptomatic.

### DISCUSSION

Parotid gland tuberculosis is quite an uncommon manifestation of one of the most common infections caused by *Mycobacterium tuberculosis* [6]. Tuberculosis mostly involves lungs but extra-pulmonary forms are not uncommon and account for approximately 20% of overall active tuberculosis, but the salivary glands appear to be rarely infected. It may be due to the inhibitory effect of saliva on mycobacterium [7].

The bactericidal effect of saliva is due to the presence of thiocyanate ions and lysozymes. Inoculation of mycobacteria within the salivary gland parenchyma is prevented by the constant flow of saliva. Among the major salivary glands, the parotid gland is the most commonly affected, comprising 70% of all salivary gland tuberculosis [3].

The source of parotid infection is controversial. Saliva has an inhibitory effect on mycobacterium. According to Van Stubenrauch infection extends through Stenson's duct from the oropharynx and Bockhorn postulated vascular mode of spread from any primary focus in the body or through the wounded oral mucosa. According to Berman and Fein, it is spread by lymphatic vessels, especially from infected tonsils and the external auditory canal, which plays an important role [8].

Usually, tuberculosis of the salivary gland clinically presents as a slow-growing, firm to hard nodular mass with a variable degree of fixation. It mostly takes weeks or months before medical attention is sought. The mass is unilateral and its clinical features are difficult to distinguish from those of a salivary gland neoplasm, thus making its diagnosis challenging [9]. Some cases of tuberculosis of the parotid gland may present with an abscess that tends to recur on repeated aspiration. Tuberculosis may present as acute parotitis, or with a fistula [3].

In absence of active tuberculosis or clinical evidence or any, a history of tuberculosis parotid swellings is mistaken for a parotid tumor. Fine needle aspiration is considered a reliable technique for the diagnosis of tuberculosis of parotid, it has a sensitivity of 81% to 100% and specificity of 94% to 100% in parotid gland lesions. But they are not always contributory as areas of necrosis may be seen in tumors as well as tubercular infection [8].

In our case based upon the clinical presentation provisional diagnoses of salivary gland neoplasm, sialoadenitis and sialolithiasis were made. On further investigation with USG and FNAC, the results were inconclusive. Hence, a core needle biopsy was performed based on which diagnosis was made. Core needle biopsy is usually suggested for patients with initial inadequate or indeterminate FNA and it is increasingly identified as the preferred diagnostic

technique. Core needle biopsy is an alternate, safe, accurate, and minimally invasive method for histopathological diagnosis [10].

Further chest X-ray was suggested which revealed no significant abnormality. QuantiFERON-TB Gold test (QFT) was done which is a simple blood test for detection of *Mycobacterium tuberculosis*. QFT is an Interferon- Gamma Release Assay (IGRA) and is a modern alternative to Tuberculin Skin Test (TST, PPD, or Mantoux test).

Based upon the histopathological report, chest X-ray, and QuantiFERON-TB Gold test, a final diagnosis of primary tuberculosis of the left parotid gland was made. The patient was put on an anti-tubercular drug regimen six months and follow-up showed complete resolution of swelling with no recurrence after one year, suggesting a successful outcome.

### CONCLUSION

Though parotid tuberculosis is rare it should always be included in the differential diagnosis of parotid swelling. In conclusion, simple procedures such as Core Needle Biopsy or FNAC should be used as a diagnostic tool before subjecting the patient to any surgical intervention. Early diagnosis and a high index of suspicion are needed to prevent the need for unnecessary surgery in such medically treatable conditions.

### DECLARATIONS

#### Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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