Parotid tuberculosis: A diagnostic dilemma

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ABSTRACT
Tuberculosis of the parotid gland is a rare condition, even in endemic countries. It usually presents as a slow growing swelling, which can be mistaken for a neoplasm of the parotid gland. Diagnosis is by high suspicion and demonstration of epithelioid granulomas on fine needle aspiration cytology (FNAC). Herein, we report a case of parotid tuberculosis, secondary to pulmonary tuberculosis, in a 50-year-old female patient diagnosed by FNAC and treated successfully with anti-tuberculosis regimen.

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Introduction
Tuberculosis is a chronic granulomatous inflammation with a varied clinical presentation and a wide distribution. Even in countries, like India, where it is widespread, the parotid gland is rarely involved [1]. Clinically, it usually presents as a slow growing swelling usually indistinguishable from a parotid neoplasm. The diagnosis of parotid tuberculosis needs a high degree of clinical suspicion and is commonly overlooked by treating physician. However, if treated properly, the prognosis of parotid tuberculosis is good and surgery is not required in most of the cases.

We herein report a case of parotid tuberculosis, in a 50 years old female, presenting as a parotid mass mimicking a parotid neoplasm and the importance of FNAC in diagnosis of this rare entity.

Case report
A 50 years old female presented with a gradually enlarging swelling on the left side of face for 4 months (Figure 1). There was history of mild pain in this region. It was associated with irregular low-grade fever, loss of appetite and gradual weight loss for same duration. Patient gave no past or family history of tuberculosis. Patient was HIV negative and there was no other obvious cause of immunosuppression.

On examination, there was a swelling in the left parotid region, measuring 7 × 5 cm, with well-defined margins, smooth surface and soft to firm in consistency. It appeared free from overlying skin and underlying structures. Local temperature was not raise and there was no scar mark or sinus over the swelling. Multiple cervical lymphadenopathy was present on the left side of the neck. Facial nerve was intact. Initial fine needle aspiration cytology (FNAC) of the parotid swelling was suggestive of acute on chronic inflammation. Ultrasonography (USG) of the parotid gland revealed a low-echo complex mass in the superficial lobe of left parotid gland measuring 72 × 54 mm, with no calcification or cystic degeneration, suggestive of inflammatory mass. Multiple lymph nodes were enlarged in the left upper and mid cervical region. Contrast enhanced computed tomography (CECT) of the left parotid gland was suggestive of hypodense fluid collection with wall-enhancement and surrounding edematous changes (Figure 2). On repeat FNAC of the swelling, it revealed epithelioid granulomas with caseous necrosis and multiple degenerated polymorphs, suggestive of tubercular pathology (Figure 3). Ziehl–Neelsen (ZN) staining for AFB was negative. On aspiration of the swelling using a wide bore needle, 75 ml of purulent material was aspirated. Repeated aspirations had to be performed to drain the pus due to the large size of the abscess. The pus on staining for AFB was negative. On further investigation, chest radiograph revealed a cavitatory lesion in the left lung (Figure 4). Mantoux test showed 30 mm induration and ESR – 45 mm at 1 h. Thus, a diagnosis of parotid tuberculosis secondary to pulmonary tuberculosis was made. The patient was started on...
antituberculosis treatment under DOTS category 1. On completion of the treatment, the parotid abscess resolved and the patient was asymptomatic. Due to the high level of clinical suspicion, the patient was treated medically and inadvertent surgery was avoided.

**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 extrapulmonary tuberculosis, affecting mainly the cervical lymph nodes [2,3]. Tuberculosis of the parotid gland remains extremely rare, even in countries where tuberculosis is endemic. Less than two hundred cases of parotid gland tuberculosis have been reported in the literature [4]. 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 [1].

The pathogenesis of parotid tuberculosis remains unclear and there are various postulates regarding its source. 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 [5]. Bockhorn proposed a hematogenous spread from any primary focus in the body [6]. According to Berman and Fein, infection can reach the parotids via lymphatics, particularly from infected tonsils [7]. Tuberculous involvement of the parotid gland is more commonly seen secondary to systemic dissemination of pulmonary tuberculosis than as primary extrapulmonary tuberculosis, such as in our patient. In primary tuberculosis of the salivary glands, the parotid gland is involved in 70% of cases [8].

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 intracapsular or pericapsular lymph nodes [9–11]. 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 [12]. 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 [2]. A total of 25% of patients with parotid tuberculosis have a concomitant pulmonary infection [13]. Our patient also had radiographic evidence of active pulmonary focus of tuberculosis.

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 [14]. 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 for parotid tuberculosis. In parotid lesions, FNAC has a sensitivity of 81–100% and specificity of 94–100% [11]. However, it is not always contributory to a diagnosis in large parotid swelling as center of these are often necrotic. A total of 20.6% of FNAC are non-diagnostic; this could be due to the complexity of the tissue architecture [15]. This can be overcome by doing a repeat FNAC. Also, in case of active infection, the FNAC report may be inconclusive. Cytologic 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 case whole parotid is involved one may have to perform total parotidectomy. Surgical intervention must be done in 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 staining for acid-fast bacilli. In case 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.

FNAC plays important role in diagnosis of parotid tuberculosis. 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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