

*Case Report*

## **Tubercular Parotitis or Parotid Neoplasm - Diagnostic Dilemma**

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### **ABSTRACT**

Tuberculosis is a common illness found in Indian subcontinent. It can involve wide spectrum of organs ranging from lungs, lymph nodes, brain and many others including salivary glands. However isolated involvement of salivary glands by tuberculosis is a rare entity with very little number of cases reported worldwide. We hereby present a case of tubercular parotitis in a 42yr old male, who presented with a unilateral parotid swelling mimicking a neoplasm in which Ultrasonography, Computed tomography scan and fine needle aspiration cytology could not reveal ,while polymerase chain reaction for mycobacterium tuberculosis on aspirate was helpful in establishing diagnosis avoiding undue surgery in the patient.

**Keywords:** Parotitis, Tuberculosis, parotid neoplasm.

### **INTRODUCTION**

Tuberculosis (TB) of Parotid Gland is a rare situation to encounter in clinical practice with around 100 cases reported in literature that too in post parotidectomy specimens. <sup>[1]</sup> Even in countries where TB is a common illness like India Tubercular involvement of parotid gland still remains a rare condition. <sup>[2]</sup> The diagnosis of TB of salivary glands on clinical examination and imaging is very difficult to make as it mimics a neoplasm and is usually a histological surprise post superficial or total parotidectomy. <sup>(3,4)</sup> Salivary gland parenchyma involvement by the bacillus usually occurs from oral cavity by the way of glands ductular system or by haematogenous spread. The parotid is the major salivary gland most commonly

infected in this way. Although not common, TB of parotid gland must be included in the differential diagnosis of a parotid gland lumps and every attempt must be made to exclude this condition before undertaking surgery. Usual studies show its diagnosis based on cytological features and Zeihl Nelson (ZN) staining. This paper highlights the clinical presentation, imaging findings and importance of analysing aspirate for Polymerase Chain Reaction (PCR) apart from cytology for reaching a diagnosis.

### **CASE REPORT**

A 42 years old male presented with swelling in the right parotid region of 6 months duration [Fig 1]. It was insidious in onset and gradually progressive. There was mild dull aching pain over the swelling.

There was no history of chronic cough or evening rise of temperature. There was no family history or past history of TB. Examination revealed a single 3x4 cm swelling in right parotid region which was non tender with bosselated surface and variable consistency over it. There was no facial palsy and tonsillar bulge.



Figure 1-Rt sided parotid swelling

Ultrasonography (USG) was done for the patient which was suggestive of multi-lobulated anechoic cystic lesion within the right parotid gland measuring 3cm in diameter [Fig 2]. Fine needle aspiration cytology (FNAC) was suggestive of benign inflamed cystic lesion. To gain more information on the pathology Computed Tomography (CT) scan [Fig 3] and CT Sialography was done, suggestive of well defined lobulated heterogeneously enhancing lesion with mixed soft tissue and fluid contents predominantly in the superficial lobe of right parotid gland insinuating the deep lobe suggestive of either a pleomorphic adenoma or infected epithelial cyst. In view of non resolution of diagnostic dilemma, a repeat FNAC was done to solve the dilemma before resorting to excision biopsy which in this case would have been a superficial parotidectomy. Repeat FNAC revealed a milky white fluid

which was very unusual for any salivary gland neoplasm, therefore apart from cytology was also sent ZN staining and PCR for Mycobacterium tuberculosis (MTB). Cytology suggested it to be a foreign body inclusion cyst and was negative for ZN staining. Chest X-ray showed no features of TB. The PCR report came as positive for MTB. In view of absence of systemic features and no pulmonary or oral cavity involvement, neoplasm especially Warthins tumour was still a differential diagnosis. However in view of positive PCR for MTB and relatively young age for Warthins tumour patient was started on anti tubercular treatment. Patient responded well to treatment and swelling gradually reduced.



Figure 2- USG Showing anechoic cystic lesion in right parotid



Figure 3- CT showing well defined heterogenous lesion in Rt Parotid

## DISCUSSION

Extra-pulmonary forms of TB account for about 20% of overall active tuberculosis, but the salivary glands appear to be very rarely affected. This may be due to the inhibitory effect of saliva on MTB. [5] Tuberculous parotitis occurs in 2.5% -10% of parotid gland lesion even in countries where TB is endemic such as India. [5] First case of parotid gland TB was reported in 1893 by C De Pauli. [4] TB of parotid glands may be clinically misdiagnosed as parotitis, Warthins tumours, mixed tumours and sometimes malignant tumours.

In absence of active TB or history of TB or any clinical evidence, tuberculous parotid swellings can be mistaken for parotid tumour. Imaging modalities available for evaluating salivary gland lesions include USG, CT and magnetic resonance imaging (MRI). They help in differentiating benign from malignant neoplasm. [6]

USG features of tubercular parotitis are diffusely enlarged gland showing heterogeneously hypoechoic parenchyma with focal hypoechoic or anechoic areas within the gland with increased blood flow around anechoic areas while neoplasms appear as well defined hypoechoic nodule with necrosis or hemorrhage seen as cystic areas with significant color flow with tumour substance on colour Doppler imaging. [7] CT findings of a tubercular parotitis may be a solid nodule with homogeneous enhancement or multi-loculated rim enhancing nodule with central lucency or contrast enhancing solid nodule with an eccentric non-enhancing microcyst have been reported. [8] while specific CT findings are multiple round, smooth thick, walled rim enhancing lesion with central lucency within parotid with parenchyma showing diffuse enhancement with filling defects .

Fine needle aspiration has been used as a reliable and useful technique for diagnosis of TB of parotid. [9] In parotid lesions it has a sensitivity of 81% to 100% and specificity of 94% to 100%, but they are not always contributory as areas of necrosis may be seen in the tumours as well as tubercular infection. In our patient fine needle aspiration cytology could not reveal diagnosis possibly because it being a rare condition and non demonstration of MTB. Culture of the aspirate is also possible but this requires initial suspicion and long time to obtain results with high specificity but low sensitivity. The advantage of diagnosis on aspirate cytology is that undue surgery is avoided which entails risk to facial nerve and increased morbidity. The diagnostic dilemma that was faced in our case was that ultrasonography, CT and cytological features were not clearly in favour of either a neoplasm or TB. In this scenario came the role of PCR for MTB which was positive for the aspirate which helped us in initiating antitubercular treatment. PCR for MTB has a very high sensitivity (98%) than concomitantly (75%) and subsequently (93%) performed cultures [10] and also requires shorter time to obtain results. It should therefore be used when diagnosis is not clear on imaging and cytological basis

## CONCLUSION

TB of the parotid being rare always creates a dilemma for diagnosis because of features mimicking a neoplasm. Though cytological features usually reveal a positive diagnosis but sometimes fail to do so. In these cases PCR for MTB seems an alternate and effective investigation which may help avoiding unnecessary surgery as happened in this case.

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