

Tuberculous parotitis: a series of five cases diagnosed on fine needle aspiration cytology

UMA HANDA, M.D., SANJAY KUMAR, M.D., RAJPAL SINGH PUNIA, M.D., HARSH MOHAN, M.D.,
RAMAN ABROL, M.S.* , VARINDER SAINI, M.D.†

Abstract

Parotid gland tuberculosis is still a rare entity and has mostly been diagnosed after parotidectomy. We present five cases which were diagnosed on fine needle aspiration cytology (FNAC) and managed medically avoiding surgical intervention.

Key words: Parotid Gland; Tuberculosis; Cytology

Introduction

Tuberculous parotitis is extremely rare even in countries such as India, where the disease is rampant. Clinically, it presents as a slow-growing localized mass which is difficult to distinguish from tumours of the parotid gland. The problem is compounded by the absence of local or systemic signs and symptoms of tuberculosis.¹ Imaging studies such as sialography, ultrasonography or computerized tomography may be non-specific.² In the salivary glands, where trucut and incisional diagnostic biopsy have never found favour, fine needle aspiration cytology (FNAC) can provide a pre-operative diagnosis.³ FNAC is often the preliminary step in the work up of a patient with a parotid mass and thus unnecessary surgery can be avoided in inflammatory lesions. FNAC is a safe and economical procedure, and in many instances, permits rapid diagnosis with minimal inconvenience or pain. We present five cases of parotid tuberculosis that were diagnosed by FNAC and managed medically.

Case reports

Case 1

A 39-year-old male presented with a three week history of painful swelling in the left pre-auricular region that was gradually progressive. There was no history of fever, cough nor weight loss. There was no past or family history of tuberculosis. Local examination revealed a 4 × 4 cm firm swelling in the parotid region that was slightly tender. On massaging the swelling, no discharge nor pus came out from the parotid duct opening. A clinical diagnosis of Warthin's tumour was made. The Mantoux test was positive while chest X-ray was suggestive of pulmonary Koch's. On ultrasonography, the parotid gland was diffusely enlarged with heterogeneous echotexture. Multiple well-defined rounded hypoechoic lesions, suggestive of intraglandular lymph nodes were seen. Fine needle aspiration yielded thick caseous material. The smears showed epithelioid cell granulomas, foreign body and Langhans' giant cells along with acute and chronic

inflammatory cells in a necrotic background. The Ziehl-Neelsen (ZN) stain for acid-fast bacilli was positive. Salivary tissue was not identified. Based on these cytological findings, a diagnosis of intraglandular tuberculous lymphadenitis was made. The patient was subjected to antitubercular chemotherapy to which the patient did not respond. FNAC was repeated after four weeks and the findings were the same. However, the patient was lost to subsequent follow-up.

Case 2

A 60-year-old female presented with a right parotid swelling which she had for six weeks that was painless and did not resolve with antibiotic therapy. Chest X-ray was within normal limits. The Mantoux test was positive. Systemic examination and examination of the ear and oral cavity did not reveal any abnormality. There was no palpable lymph node. On local examination, there was a diffuse swelling 2 × 2.5 cm in the right parotid region. The swelling was mobile, firm and non-tender. Ultrasonography revealed an enlarged parotid gland with heterogeneous echotexture and dilated intraparotid duct. FNAC showed predominance of ductal epithelial cells, acute and chronic inflammatory exudate and areas of caseation necrosis. A few degenerated epithelioid cell granulomas were also seen. ZN stain showed acid-fast bacilli. A diagnosis of tuberculosis of the parotid gland was given. The patient responded well with antitubercular chemotherapy.

Case 3

An 18-year-old male presented with swelling over the left parotid region of one year that was progressive in nature. The swelling was firm, mobile and non-tender. General physical and systemic examination did not reveal any significant finding. There was no past nor family history of tuberculosis. Routine investigations were within normal limits. FNAC was performed which revealed multiple epithelioid cell granulomas, occasional giant cells along with reactive lymphoid cells. The background showed

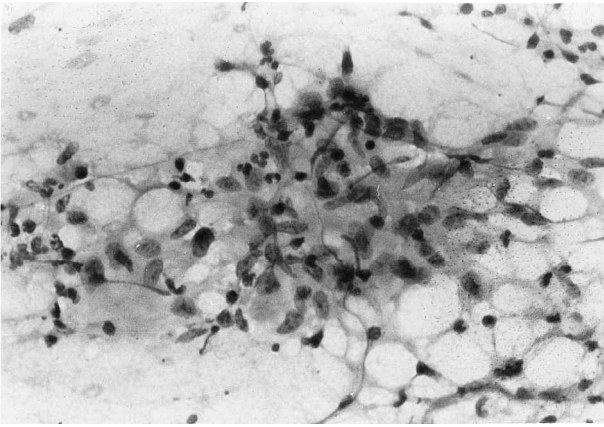


FIG. 1

Fine needle aspiration cytology showing epithelioid cell granuloma with lymphocytes (H & E; $\times 40$).

extensive areas of necrosis. ZN stain for acid-fast bacilli was negative. A diagnosis of tuberculous parotitis was given. The patient was subjected to antitubercular chemotherapy and swelling regressed in due course.

Case 4

A 30-year-old male presented with a right parotid swelling of six months which was non-tender. The patient gave a history of incision and drainage of the swelling four months ago. Systemic examination including ear and oral cavity did not reveal any abnormality. Sialography showed salivary duct obstruction. The rest of the investigations were within normal limits. FNAC of the swelling yielded pus. Smears showed epithelioid cell granulomas together with degenerating lymphocytes, neutrophils and macrophages. Salivary gland acini and ductular epithelial cells were also seen. ZN stain for acid-fast bacilli was negative. A diagnosis of granulomatous inflammation suggestive of tuberculosis was made. The patient was started with antitubercular chemotherapy, to which he responded and the swelling regressed.

Case 5

A 38-year-old male presented with left parotid swelling of two months, that was mildly tender and progressive in nature. General physical and systemic examination did not reveal any abnormality. Routine investigations were within normal limits. There was no palpable lymphadenopathy.



FIG. 2

Photomicrograph showing acid-fast bacilli (arrow) (Ziehl-Neelsen stain: $\times 100$).

No past or family history of tuberculosis was present. FNAC of the swelling yielded gelatinous material. Smears showed salivary gland acini together with epithelioid cell granulomas and reactive lymphoid cells. The background showed necrotic material. ZN stain for acid-fast bacilli was negative. A diagnosis of granulomatous inflammation suggestive of tuberculosis was given.

Results

FNAC was performed on 85 cases of salivary gland lesions between January 1998 and June 2000 in the department, out of which five cases were diagnosed as tuberculous parotitis. Four patients were male and one female, with ages ranging from 18 to 60 years. The chief complaint was a progressive swelling in the parotid region with a duration ranging from three weeks to 12 months. None of the cases had a past or family history of tuberculosis. The Mantoux test was positive in only two out of five cases, while chest X-ray of one patient was suggestive of pulmonary Koch's. On cytological examination all the cases showed epithelioid cell granulomas (Figure 1), caseation necrosis and inflammatory cell infiltrate. Giant cells were seen in three cases. Only three cases showed the presence of salivary tissue in cytological smears. Acid-fast bacilli by ZN stain were positive (Figure 2) in the same two cases that were positive for the Mantoux test. Based on the above cytological findings, the diagnosis of tuberculous parotitis was made in all these cases. However, other investigations for tuberculous infection were performed only after the cytological diagnosis. None of the cases was clinically diagnosed as tuberculous lesion.

Discussion

Extrapulmonary mycobacterial infection can occur in many organs with a simultaneous focus in the lung. Occurrence of these lesions in the absence of clinical disease in the lung without any systemic signs and symptoms is a real diagnostic problem.⁴ Tuberculosis of the major salivary glands, first reported by C de Paoli in 1893 is still a rare entity even in endemic areas.⁵ Up until now, fewer than 100 cases have been reported in the literature searched.² It may occur either secondary to primary focus in the lung as a result of haematogenous/lymphatic spread or as an auto-infection from the oral cavity. There are two pathological forms of tuberculous parotitis – the common localized form that is due to involvement of intra- or periglandular lymph nodes, with a pathogenesis similar to that of scrofuloderma, while the rare diffuse form involving parenchyma may be secondary to the nodal infection.⁶ Generally it presents as a localized swelling in the parotid region which gradually increases in size.⁷ If there are no accompanying symptoms, diagnosis of tuberculous parotitis is extremely difficult and it is often misdiagnosed as a salivary neoplasm or enlarged lymph node of unknown aetiology. Most of the cases were diagnosed after the histopathological examination of parotidectomy specimens except an isolated report of four cases diagnosed on FNAC. All the four cases presented as a slow-growing parotid lump with no past nor family history of tuberculosis. FNAC revealed epithelioid cell granulomas in three cases while Langhans' giant cell with caseous debris was seen in one case. However, ZN stain for acid-fast bacilli was not carried out.⁸ FNAC of all five cases in our study showed epithelioid cells granulomas, caseation necrosis and inflammatory cell infiltrate while giant cells were seen in three cases. ZN stain showed acid-fast bacilli in only two out of five cases.

There is an absolute need for a cytological diagnosis of such lesions before embarking on surgery which may involve a branch of facial nerve with tuberculous involvement. In such cases, the pre-operative diagnosis becomes mandatory before any radical surgery.⁹ Different investigations like sialography, ultrasonography and computerized tomography may be non-specific. The Mantoux test, chest X-ray and sputum examination at times may raise suspicion of tuberculous focus. FNAC of salivary gland lesions provides considerably rapid and safe diagnostic information. In parotid lesions the sensitivity of FNAC ranges from 81 to 100 per cent while the specificity was from 94 to 100 per cent. FNAC of the parotid lump with suspicion of tuberculosis of even on a routine basis can provide an early diagnosis of tuberculous parotitis. If tuberculosis is diagnosed by cytological examination in a parotid mass, it can be managed medically avoiding any surgical intervention. After all, tuberculosis for almost all organs has ceased to be a surgical condition and effort needs to be put into diagnosing this medically treatable condition efficiently and promptly.

Thus, we conclude that FNAC should be performed in all parotid lesions, where there is suspicion of tuberculosis so as to institute antitubercular chemotherapy and thus avoid unnecessary surgery.

References

- 1 Bhargava AK, Shenoy AM, Kumar RV, Nanjundappa, Rao CR. Parotid tuberculosis simulating malignancy. *J Laryngol Otol* 1999;**113**:951–2
- 2 Bhargava S, Watmough DJ, Chisti FA, Sathar SA. Case report. Tuberculosis of the parotid gland – diagnosis by CT. *Br J Radiol* 1996;**69**:1181–3
- 3 Young JA. Diagnostic problems in fine needle aspiration cytopathology of the salivary glands. *J Clin Pathol* 1994;**47**:193–9
- 4 O'Connell JE, George MK, Speculand B, Pahor AL. Mycobacterial infection of the parotid gland: an unusual cause of parotid swelling. *J Laryngol Otol* 1993;**107**:561–4
- 5 Suoglu Y, Erdamar B, Colham I, Katircioglu S, Cevikbas U. Tuberculosis of the parotid gland. *J Laryngol Otol* 1998;**112**:588–91
- 6 Bhat NA, Stansbie JM. Tuberculous parotitis: a case report. *J Laryngol Otol* 1996;**110**:976–7
- 7 Zheng JW, Zhang QH. Tuberculosis of the parotid gland: A report of 12 cases. *J Oral Maxillofac Surg* 1995;**53**:849–51
- 8 Weiner GM, Pahor AL. Tuberculous parotitis: limiting the role of surgery. *J Laryngol Otol* 1996;**110**:96–7
- 9 Singh B, Maharaja TJ. Tuberculosis of the parotid gland: clinically indistinguishable from a neoplasm. *J Laryngol Otol* 1992;**106**:929–31

Address for correspondence:

Harsh Mohan, M.D.,
Department of Pathology,
Government Medical College,
Sarai Building, Sector 32-A,
Chandigarh-160047,
India

Fax: +91 172 609360

E-mail: harshmohan@glide.net.in

H. Mohan, M.D. takes responsibility for the integrity of the content of the paper.

Competing interests: None declared
