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Tuberculosis of the parotid gland

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Abstract
Tuberculosis of the parotid gland is very rare and clinically indistinguishable from a neoplasm. Thus the diagnosis of parotid gland involvement with tuberculosis has traditionally been made after surgical resection. We present a case which was diagnosed on fine needle aspiration cytology and managed medically.

Keywords: Parotid Gland; Tuberculosis; Biopsy, Fine needle

Introduction

Tuberculosis of the parotid gland, first reported by C de Paoli, is a rare disease with approximately 100 reported cases in the literature.[1] The clinical picture of patients with the disease is that of a slow growing parotid mass, clinically indistinguishable from a neoplasm.[2,3] Fine needle aspiration cytology (FNAC) is often the preliminary step in the work-up of a patient with a parotid mass.[1] We present a patient with a parotid mass that was diagnosed as tuberculosis using FNAC and managed medically.

Case report

A 52-year-old woman presented at our clinic with gradually progressive swelling over 6 months in the left parotid region. Physical examination revealed two separate firm and non-tender masses, one on the pre-auricular region and one on the tail of the parotid gland. She had no family history of tuberculosis. Haematologic and biochemical investigations were within normal limits except the PPD test (Mantoux test) which was measured as 18 mm. Ultrasonographic examination of the left parotid gland showed multiple well-defined rounded hypoechoic lesions (Figure 1). FNAC revealed granulomatous tissue material along with epitheloid histiocytes and mononuclear inflammatory cells (Figure 2). Chest X-ray and computed tomography (CT) of the lungs were normal. CT showed two solid mass lesions, in the parotid gland about 1.5 × 1 cm in diameter and in the periparotid region about 2.5 × 2 cm in diameter (Figure 3). Magnetic Resonance Imaging (MRI) revealed two sharply defined rounded mass lesions, measuring 1 × 1.5 and 2 × 2.5 cm in diameter, of hyperintense on T2-weighted images, and of hypointense on T1-weighted images, located in the left parotid gland. Postgadolinium fat-saturated T1-weighted images showed mild enhancement of these lesions. The right parotid gland appeared normal at all radiologic examinations (Figure 4[a],[b],[c]). The patient was diagnosed with primary tuberculosis of the parotid gland and anti-tubercular chemotherapy (ethambutol, rifampicin, isoniazid and pyrazinamide) was started.

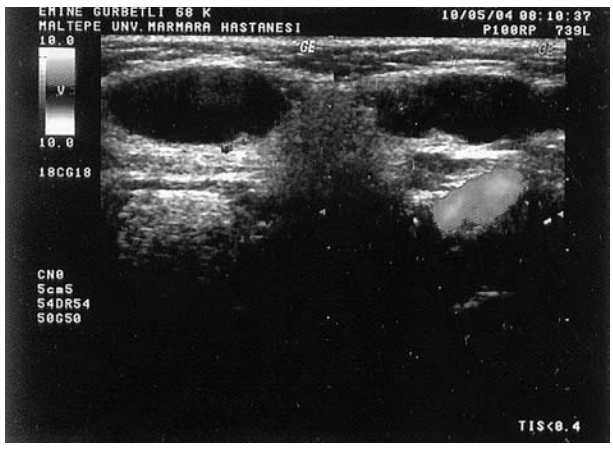

FIG. 1

Ultrasonographic examination of the left parotid gland shows multiple well defined, solid, rounded hypoechoic lesions. Colour doppler examination revealed no pathologic vasculature of these mass lesions.

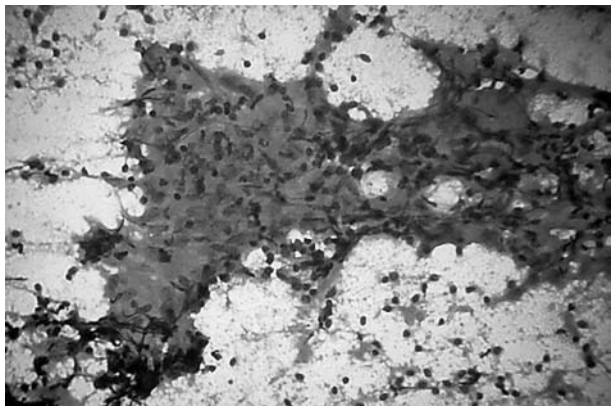

FIG. 2

Granulomatous tissue material showing epitheloid histiocytes and mononuclear inflammatory cells. (× 100 Pap EA 50).

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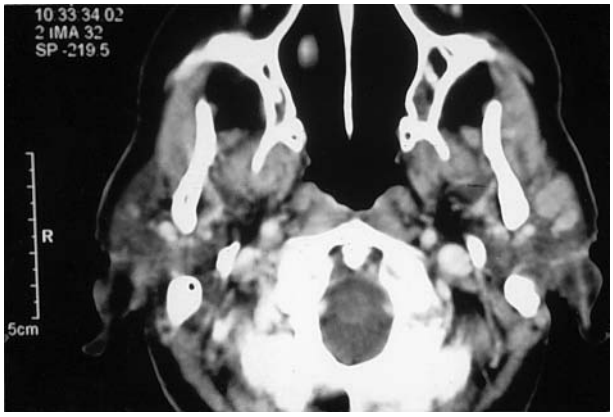

FIG. 3

Axial CT image shows two solid, low attenuated homogenous enhanced, hypodense mass lesions in the parotid gland measuring about 1 × 1.5 cm and 2 × 2.5 cm in diameter. Neither calcification nor calculi are observed.

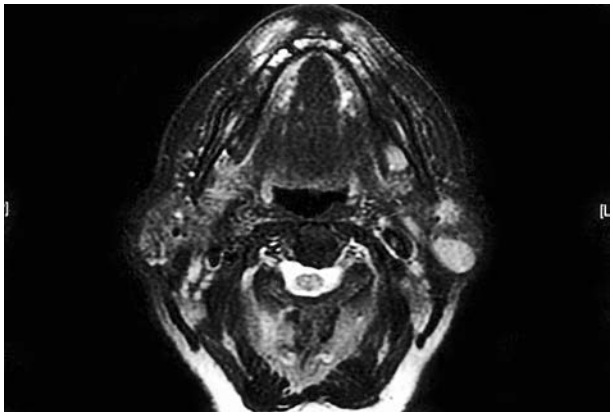

FIG. 4(A)

The T2-weighted axial image shows two sharply defined hyperintense mass lesions located in the left parotid gland.

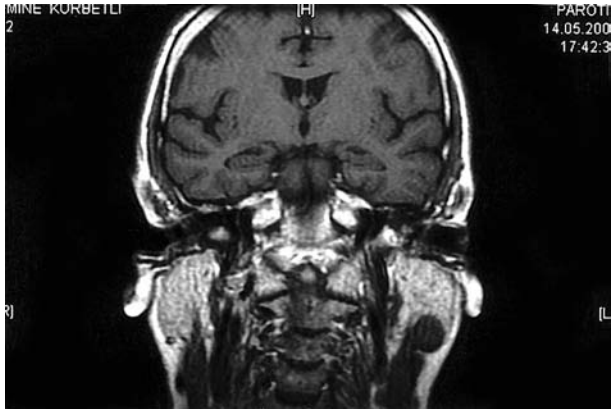

FIG. 4(B)

Coronal nonenhanced, T1-weighted image shows sharply defined hypointense rounded mass lesions located in the left parotid gland.

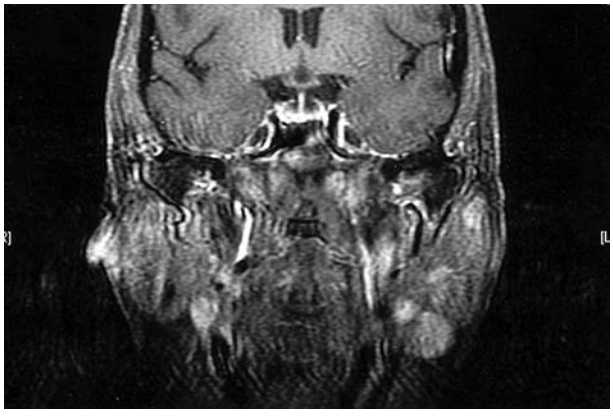

FIG. 4(C)

Coronal postgadolinium enhanced fat sat T1-weighted image shows mild enhancement of the mass lesions. The pseudocapsule and homogenous attenuation suggest benignity.

Discussion

Tuberculosis of the parotid gland is rare even in countries where the disease is endemic. Less than 50 per cent of patients with extrapulmonary tuberculosis exhibit radiologic evidence of pulmonary disease.[4] Occurrence of these lesions in the absence of clinical disease in the lung, without any systemic signs and symptoms, is a real diagnostic problem. Infection of the salivary glands and lymph nodes may develop in two ways. First, a focus of mycobacterial infection in an oral cavity or mucosal break liberates the mycobacterium that ascends into salivary glands via their ducts, or passes to their associated lymph nodes via lymphatic drainage. The second pathway involves haematogenous or lymphatic spread from the lungs.[1] Two clinical forms of tuberculous parotitis are usually recognized. In one form, acute tuberculous sialadenitis presents with diffuse gland enlargement. The other form presents as a chronic sialadenitis that manifests itself as an asymptomatic localized lesion within the parotid gland, slowly growing in size over many years.[5]

Tuberculosis accounts for 2.5 to 10 per cent of parotid pathology.[6] Tuberculosis of the parotid gland is usually confined to the preauricular lymph nodes and those in the lower pole. These lymph nodes are covered by the dense parotid fascia. Tuberculosis of this site often presents as a localized swelling in front of and below the ear, or in the posteroinferior pole of the parotid gland anterior to the mastoid attachment of the sternocleidomastoid muscle. Most of the reported cases presented with slow growing masses, gradually increasing in size over 2–6 months. When the disease accelerates, the lymph nodes may enlarge rapidly and mimic the growth of a pleomorphic adenoma.[7] In addition, most of these cases were misdiagnosed as parotid tumours, with the diagnosis of mycobacterial infection after parotidectomy and histopathologic examination.[8]

The diagnosis of parotid gland tuberculosis should be based on both the patient's history and the clinical features, combined with the results of FNAC. Clinically, it should be differentiated from pleomorphic adenoma, adenolymphoma, chronic suppurative parotitis, chronic lymphadenitis, sarcoidosis, Sjögren's syndrome, malignant lymphoma and metastatic carcinoma.[9,10] In parotid lesions the sensitivity of FNAC ranges from 81–100 per cent while the specificity is from 94–100 per cent. Shaw and Freidman described tuberculosis of the parotid gland in association with adenolymphoma of the gland.[11] Given the high rate of sensitivity and specificity, and because of this co-occurence, every lesion should be evaluated by FNAC if tuberculosis of the parotid gland is suspected.

In our patient we could not find any evidence of active disease elsewhere. Because ultrasonographic and CT examinations did not help to predict the histologic

diagnosis, MR examination was performed. On non-enhanced and enhanced T1-weighted images, the intensity of multiple lesions was lower than the parotid gland. However, in T2-weighted images those were hyperintense. Although the conventional wisdom is that a hyperintense mass on T2-weighted images is benign and a mass of low to intermediate signal intensity is malignant, neither study can be relied upon wholly to predict histologic diagnosis. Hence, we think that if tuberculosis is suspected with radiologic examinations, FNAC should be performed to avoid unnecessary surgery. Since tuberculous infection may involve multiple sites in the parotid gland and periparotid region, MRI may better delineate the nature of this disease than CT and ultrasonography. In addition, because it is a medically curable disease, surgical intervention should be considered according to the patient's response to this therapy.

- **Tuberculosis of the parotid gland is a rare presentation, clinically similar to neoplasia**
- **In this case diagnosis was made by fine-needle biopsy**
- **Treatment was with antituberculous chemotherapy**

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