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Intraglandular toxoplasmosis lymphadenitis of the parotid gland

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Abstract
Toxoplasmosis is a protozoan infection manifested by systemic findings as well as generalized or localized lymphadenopathy. Although lympadenitis is the most common clinical form, involvement of the intraglandular nodes within the parotid gland found is a rare occurrence during the course of the disease.

This unusual form may mimic a parotid mass, and can cause difficulties in differential diagnosis. In this article, a case of intraglandular parotid lymphadenitis which developed due to toxoplasmosis is presented, and the relevant literature is reviewed.

Introduction

The wide variety of histological appearances and biological behaviour of parotid masses can cause difficulties in definite diagnosis and even treatment, on some occasions. In spite of the recent developments in radiological and immunological evaluation, the diagnosis can only be verified by histopathology of the operative specimen.

Toxoplasmosis is a protozoan infection, which is transmitted from the host mammals and rodents to man with the organism called *Toxoplasma gondii*. Although asymptomatic infections are common, the main clinical manifestation of toxoplasmosis is characteristic with localized or generalized lymphadenopathies (Karlan and Baker, 1972; Batsakis, 1979; Morgan *et al.*, 1986).

However, within the parotid gland, involvement of the intraglandular lymph nodes by toxoplasma infection with the clinical presentation of a parotid mass is an uncommon feature of the disease, causing difficulty in differential diagnosis (Seifert, 1986; Bryne and Spector, 1988; Laubert *et al.*, 1989).

Case report

A 17-year-old female was admitted to the Department of Otorhinolaryngology of University of Ankara, Ibn-i Sina Hospital, with a symptomless mass in the left parotid region which had been present for two months.

Physical examination revealed a 2×1 cm hard, mobile, ovoid-shaped, painless mass located in the left preauricular area. Facial nerve function was normal, and there was no palpable cervical lymphadenopathy. The ENT and physical examination did not show any other findings. Routine laboratory investigations were not significant.

Ultrasonographic evaluation revealed two solid, hyperechoic and well circumscribed masses; one 18 mm diameter in the antero-medial location and the other, 9 mm diameter, in the postero-medial part of the superficial lobe of the left parotid gland.

The canal and ducts of the left parotid gland were found to be normal with Digital Subtraction Sialography (DSS), though with displacement laterally.

On computed tomography and sialo-computed tomography, two solid, well-circumscribed, non-infiltrating masses measuring 16 and 10 mm in diameter which became more prominent with contrast were identified in the supero-medial plane of the superficial lobe (Fig. 1a, b).

In order to confirm the diagnosis, operation was recommended. The encapsulated masses, with smooth contours which could be easily identified from adjacent tissues, were excised with clear margins from the superficial lobe.

Histopathology of the operative specimen revealed multiple areas of focal proliferation of histiocytes within and around hyperplastic follicles, and enlarged germinal centres with preservation of the overall lymph node structure. These characteristic features were found to be diagnostic of toxoplasmosis lymphadenitis and further investigation of the patient was recommended (Fig. 2).

From further questioning of the patient it was learnt that she had close contact with domestic animals especially cats. Sequential serological investigations were performed at regular intervals; the Sabin-Feldman (SF) dye test was found positive at 1:64 titre. IgM indirect fluorescent antibody (IFA) test was measured at 1:10, while IgG-IFA results was found to be positive at 1:1024. The marked rise in IgG-IFA test with low titres of IgM levels were found compatible with toxoplasmosis infection at some time in the past. ELISA test, ANA and RF tests were found to be negative.

The post-operative course was uneventful and the patient was treated with the combination of pyrimethamine and sulphadiazine. After a two year follow-up, the patient did not show any manifestation of active toxoplasmosis and the serological titres, especially IgG-IFA measurements have gradually decreased to normal limits.

Discussion

Toxoplasmosis is a protozoan infection caused by the obligative intracellular parasite called *Toxoplasma gondii*. The major route of transmission to humans is by ingestion of oocysts found in the faeces of domestic cats. The disease occurs in both congenital or acquired forms (Karlan and Baker, 1972).

In the *congenital* form, where transplacental transmission is held to be responsible, the disease is characterized by chor-

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(a) (b)

FIG. 1

Computed tomographic (a) and sialo-computed tomographic (b) evaluation revealed two solid, well-circumscribed adenopathies in the superficial lobe of the left parotid gland.

ioretinitis, cerebral calcification, hydro- or microcephaly, physicomotor retardation, and in some cases with congenital deafness. Toxoplasmosis can cause spontaneous abortion espcially during the first trimester of pregnancy (Morgan *et al.*, 1986).

Acquired toxoplasmosis is seldom symptomatic and is usually recognized serologically. In mild forms, the clinical presentation of the disease is usually variable with maculopapular rash, arthralgia, myalgia, hepatosplenomegaly and chorioretinitis. Disseminated disease may present in immunologically compromised patients with cardiomegaly, pneumonitis and encephalitis (Karlan and Baker, 1972; Batsakis, 1979).

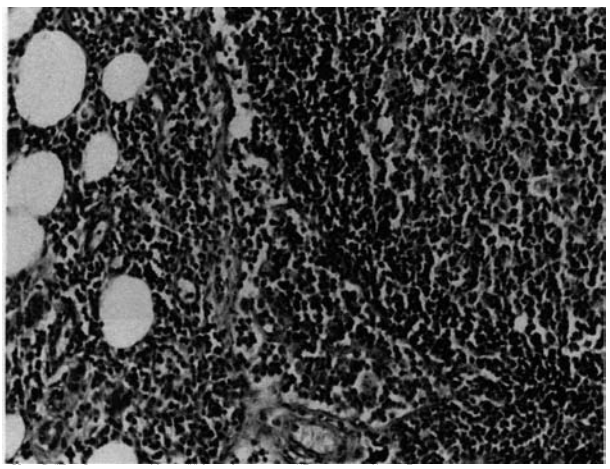

FIG. 2

Histolopathology of the operative specimen is characteristic with focal proliferation of histiocytes around hyperplastic follicles with preservation of reticular network (HE × 100).

Toxoplasma lymphadenitis which can either accompany systemic findings or appear as a solitary form is the most common clinical feature of acquired toxoplasmosis. Lymphadenopathy can be encountered in systemic or localized forms, particularly in the head and neck region, involving posterior cervical chain, supraclavicular and suboccipital regions. Mesenteric and retroperitoneal lymph nodes can also be involved (Morgan *et al.*, 1986).

Although cervical lymphadenopathy secondary to toxoplasmosis is considered as the most common clinical form of the disease, and has been estimated as a cause of 5 to 15 per cent of lymphadenopathy of unknown aetiology, intra-glandular parotid involvement is rare (Batsakis, 1979; Pittam and Thomas, 1987).

The number of intraglandular lymph nodes reported in the parotid gland, varies between 2–30 in different anatomical studies (McKean and McGregor, 1985; Seifert, 1986). These are mainly confined to the superficial lobe of the gland in association with paraglandular nodes.

However, involvement of these nodes in different pathological conditions is not a common finding. Seifert (1986) reported that in 8070 cases of salivary gland disease in the Salivary Gland Register, only 399 patients have had intraglandular lymph node involvement within the parotid or submandibular glands, comprising five per cent of the entire series. Furthermore, of 8070 patients, only 16 cases were diagnosed as intraglandular toxoplasma lymphadenitis, confirming the rarity of the disease. Likewise, Bryne and Spector (1988) failed to detect any toxoplasma lymphadenitis in their retrospective study of 231 parotid masses.

In the review of the literature, only in a few case reports, has

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the disease been described. Pittam and Thomas (1987) reported three patients with preauricular lymphadenitis, while Morgan *et al.* (1986), described an intraglandular parotid toxoplasma adenitis mimicking a parotid tumour. In their series of 22 children which were operated for parotid masses, Camacho *et al.* (1989) diagnosed only one toxoplasma case among 13 inflammatory lesions. The definitive diagnosis was made after histopathological evaluation of the operative specimen.

The unusual occurrence of toxoplasmosis in intraglandular lymph nodes poses a major problem in differential diagnosis. When suspected, the disease can be diagnosed with serological tests, such as Sabin-Feldman dye test (SF), indirect fluorescent antibody test (IFA), complement fixation test (CF) and haemagglutination antibody tests (IHA), which also indicators of the course of the disease. By this means Laubert *et al.* (1989), were able to establish the diagnosis in two cases of intraglandular toxoplasma lymphadenitis prior to operation.

The case presented in this article was diagnosed after evaluation of the operative specimen, and is the only case of intraglandular parotid lymphadenopathy due to toxoplasmosis among 137 consecutive parotid masses which were operated at University of Ankara, between the period of 1985–1990.

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