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## Primary Tuberculous Abscess of the Parotid Gland: A Case Report

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### ABSTRACT

Chronic parotiditis is a rare disease of the parotid glands. Both infectious (e.g. tuberculosis) and non-infectious causes (e.g. sarcoidosis, autoimmune diseases, malignancy and duct stones) have been enumerated for this condition.

Primary tuberculous parotiditis is a rare disease. It was diagnosed in a 20-year-old soldier after obtaining a biopsy and observing granuloma and caseous necrosis compatible with TB in histological examination of the specimen. Cultures of discharge and tissue were negative in regard to mycobacterium tuberculosis. Also, malignancy was ruled out by histopathological examinations. Therefore, the four drug anti-TB regimen was initiated. The patient was completely treated and there was no report of recurrence.

The endemic condition of TB in developing countries such as Iran has increased the rate of extra-pulmonary TB. One of the extra pulmonary sites which is rarely involved in TB is parotid gland; presenting usually as chronic swelling or mass. Therefore, it is recommended to consider TB in the differential diagnosis of parotiditis and chronic swelling of this salivary gland especially in developing countries. (Tanaffos 2006; 5(1): 65-68)

**Key words:** Chronic parotiditis, Tuberculosis, Tuberculous parotiditis, Granuloma, Caseous, Abscess

### INTRODUCTION

Parotid gland is one of the salivary glands which is rarely infected in tuberculosis. Chronic infection of this gland is very rare and usually occurs as a result of recurrent infections following duct stones and/ or strictures. Other causes of chronic parotiditis include: decreased flow of secretion in the duct (due to inflammation), autoimmune diseases (Sjogren's syndrome), sarcoidosis, gland emphysema (due to

duct destruction), neoplasm and sometimes other infectious factors (TB).

In chronic cases of parotiditis, Sjogren's syndrome, malignancy, sarcoidosis, TB and poly arteritis nodosa should be considered in the differential diagnosis (1-3).

Parotid gland might be infected by bacteria and become purulent. This infection mostly occurs in patients with malnutrition, dehydration, in geriatrics, and in post-operative states (1). The main microorganisms involved in chronic purulent parotiditis are staphylococcus and mixed aerobic and

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anaerobic infections (2).

Clinical manifestation of chronic parotiditis includes non-tender swelling and enlargement of the gland. In infections such as TB, there could be fistula and drainage of pus. However, it is notable that clinical features are not sufficient to differentiate various diseases of the parotid gland (3).

Also radiological findings such as sonography cannot accurately help in the differential diagnosis (4). Presence of a chronic mass in the parotid gland should be differentiated from cancer (5). Other uncommon factors that affect the parotid gland are HIV and fungal infections (6).

Biopsy and surgery are essential procedures in the differential diagnosis of chronic disorders of parotid gland. Needle biopsy is safer and less invasive, and can be performed easily (7). In developing countries where TB is common, parotid gland could also be involved; sometimes appearing as primary tuberculosis of parotid gland. Before AIDS became epidemic in the world, TB rarely caused extra pulmonary infections. However, with the spread of AIDS, extra pulmonary TB increased (4-6).

Tuberculosis results in a range of clinical disorders and is one of the most frequent infectious causes of mortality and morbidity in the world. Unfortunately, with increase in the incidence of AIDS in the world, the prevalence of TB increased once more. It even did not respond to the usual therapeutic measures and became resistant to treatment. Meanwhile, cases of extra pulmonary TB also increased.

Involvement of the parotid gland especially in the form of abscess is very rare; as a result of which, diagnosis could be delayed (8-11).

## **CASE SUMMARIES**

The patient was a 20-year-old man who residing in Bandar-Abbas. He referred to the hospital with the chief complaint of pain in the masticatory muscles

and teeth on the left side of his face, starting two months before the admission. He was treated with antibiotics, with the possible diagnosis of teeth decay in the upper jaw.

With a passage of time, a swelling appeared in the parotid area. The area became red and a fluctuating abscess was formed. He became slightly anorexic and lost 2-3 kg of body weight. The abscess was aspirated and open drainage was performed. The discharge was sent for smear microscopy, bacterial culture, and histopathological examinations. The patient received antibiotics, covering aerobic and anaerobic microorganisms. However, no response was observed. Smear and culture of the discharge were sterile and there was no growth of any microorganism. Suspecting other diseases such as sarcoidosis and parotid gland tumors, the patient underwent further evaluations. Chest x-ray showed bilateral hilar lymphadenopathy without any parenchymal involvement. For further confirmation CT-scan and gallium scan of lung were performed; both reports were normal.

Considering the complaint of dry cough, which had been started about one month before admission, bronchoscopy was performed. Bronchoscopy showed diffuse inflammation in bronchial mucosa; bronchoalveolar lavage (BAL) was negative for TB and other usual microorganisms. Complementary investigations were performed which are demonstrated in table 1. Computerized tomography scan of paranasal sinuses, gums and mastoidal region was normal. It showed only swelling of the soft tissue of parotid gland along with calcification. Biopsy of the parotid gland demonstrated diffuse inflammation, granuloma, caseous necrosis, multinucleated giant cells similar to Langerhans' cells, and macrophages. All these findings were compatible with TB infection. There was no clinical manifestation of malignancy. Because of its rareness, needle biopsy was repeated showing the same results.

**Table 1.** Laboratory investigations in patient with tuberculous parotiditis

| Laboratory investigations  | Results    |
|--|------------|
| CBC  | Normal     |
| AST, ALT   | Normal     |
| ALP,LDH  | Normal     |
| Amylase  |            |
| CRP  | ++         |
| ESR  | 90-100mm/h |
| ACE  | Negative   |
| ANA,RF, Anti-ds DNA  | Negative   |
| Smear and culture of discharge, BAL for bacterial ,TB and brucella | Negative   |
| PPD  | 15 mm      |
| HIV Antibody ELISA   | Negative   |

Final diagnosis was primary tuberculosis of the parotid gland and the patient was put on four drug anti-TB regimen, consisting of rifampin 600 mg/d, isoniazid 300 mg/d, pyrazinamide 1500 mg/d, and ethambutol 800 mg/d for a 6-month-duration. With this treatment the patient completely recovered and on follow-up, there was no report of disease recurrence.

## DISCUSSION

Chronic parotiditis is a rare disorder of the parotid gland for which the patient receives different antibiotic regimens, has frequent visits to the clinics and undergoes surgical drainage (1-3). Different causes have been mentioned for this condition. Based on patient's clinical history and examination, various laboratory and pathological investigations must be performed in order to reach a final diagnosis.

Needle biopsy can be used in many instances and there is no need for the total removal of the gland. Tuberculosis is one of the items which must be considered in the list of differential diagnosis. As it was performed in this research, needle biopsy is essential to confirm the diagnosis in these

circumstances (7).

Tuberculous parotiditis can occur both as primary and concurrently with pulmonary TB. In our patient, it occurred as primary in the absence of pulmonary TB. Although the condition is rare, primary tuberculous parotiditis should be considered in countries where TB is endemic. Furthermore, in societies where AIDS is highly prevalent, primary tuberculous parotiditis should be considered (6, 8-11). Our patient however, did not have AIDS. Although malignancies are common in old aged people, it should be considered in the differential diagnosis of chronic parotiditis. In our patient, cytological examination of the specimen was negative for malignant cells (5).

Sarcoidosis and autoimmune disorders should be remembered in young individuals. These conditions were ruled out in our case. In these circumstances in order to reach a definite diagnosis and specific treatment, the differential diagnoses should be evaluated carefully (2). Clinical examination, imaging and laboratory investigations such as tuberculin test are sufficient for differentiating tuberculous parotiditis from other conditions. Biopsy and histological examination of the specimen are essential for differentiating it from malignancy and/or TB. Due to the high incidence of TB in our country, a large number of people have positive tuberculin skin test; therefore, this test is insignificant in this situation. Observing caseous necrosis and granuloma in the histological examination of the biopsied material is essential for diagnosis (2, 4, 5).

PCR and tissue culture are another methods by which tuberculous parotiditis are confirmed. Although PCR was not performed in this study, it is necessary to perform PCR in suspicious cases. Cultures of tissue and discharge were negative; the negative response could be explained by the lack of specific culture media and/or early reading of the result. It is essential to keep the tissue culture for a

longer period of time in suspicious cases of TB (8-11).

Finally, the disease was confirmed in our patient by pathological findings compatible with TB, good therapeutic response to anti-TB medications and absence of recurrence. Thus, TB should be regarded in chronic disorders of the parotid gland in developing countries. Also, it is essential to perform investigations necessary for TB diagnosis.

## CONCLUSION

Considering the above mentioned case which was diagnosed as chronic tuberculous parotiditis, it is recommended to perform TB work-up for patients (especially in endemic countries) that do not show therapeutic response to anti bacterial medications.

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