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Parotid gland involvement as a presenting feature of Wegener's granulomatosis

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ABSTRACT Salivary gland involvement is a rare presenting clinical feature of Wegener's granulomatosis (WG). Early recognition and identification of any unusual presentations of WG may enable the early commencement of appropriate treatment. We report a case in which the initial manifestation of the disease was parotid gland swelling, and discuss the management of the patient. WG should be considered in the differential diagnosis when salivary gland enlargement occurs with other otolaryngological symptoms.

Keywords: computed tomography, cutaneous fistula, parotid gland, Wegener's granulomatosis

INTRODUCTION

Wegener's granulomatosis (WG) is a systemic disease characterised by necrotising granulomas that involve the upper and/or lower respiratory tract, with vasculitis in small arterioles and venules, and focal glomerulonephritis.[1] At onset, the disease is localised to a region without any systemic involvement. The head and neck are involved in nearly 90% of cases, while the respiratory tract, including the nose and paranasal sinuses, is usually the first site of WG.[2] The presenting symptoms of WG that involve the upper respiratory tract include epistaxis, sinusitis, saddle nose deformity, nasal obstruction, severe rhinorrhoea and necrotising lesions.[3] Other commonly involved sites of WG are the lungs and kidneys. In this case report, we present the case of a patient whose initial symptom involved the parotid gland.

CASE REPORT

A 37-year-old woman presented to a medical centre with bilateral painful parotid swelling that failed to respond to systemic antibiotic treatment three months prior to her admission to our department. At the time of referral to our department, the patient had been suffering from epistaxis, nasal obstruction and a weight loss of 10 kg over the past two months. She also complained of a nonproductive cough that had persisted for the past one month. There was evidence of arthralgia of the knee, wrist and elbow, as well as fatigue and malaise. Physical examination at admission revealed diffuse enlargement and cutaneous fistulas on the bilateral parotid glands (Fig. 1). Anterior rhinoscopic examination showed extensive crusting, especially in the right nasal cavity. On the septum of the right nasal cavity, an ulcerated, haemorrhagic and fragile mucosa (measuring 2 cm × 2 cm) was observed. There were no palpable cervical lymph nodes, and facial nerve function was normal. Laboratory test results

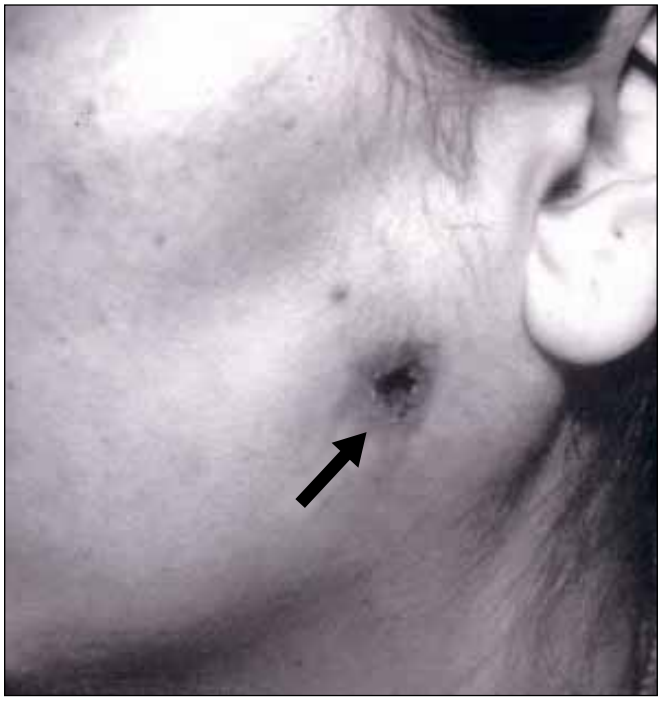

Fig. 1 Pre-treatment photograph shows a cutaneous fistula (arrow) over the left parotid gland.

were as follows: haemoglobin 9.7 g/dL; white blood cell count 12.4 × 10^9/L; platelets 482,000/mL; erythrocyte sedimentation rate 130 mm/hr; rheumatic factor 10.3 (range 0–15 IU/mL); C-reactive protein 16.3 (range 0–5 IU/mL); and antineutrophil cytoplasmic antibody (c-ANCA) 18.3 U/mL. Tuberculin skin test was negative. Culture from cutaneous fistula discharge for *tuberculosis* bacilli and polymerase chain reaction examination were both negative. Serum electrolytes, urea, creatinine, liver function tests were also normal. Urinalysis revealed microscopic haematuria and moderate proteinuria. Serologic tests for mumps, cytomegalovirus and Epstein-Barr virus were negative. Anti-human immunodeficiency virus

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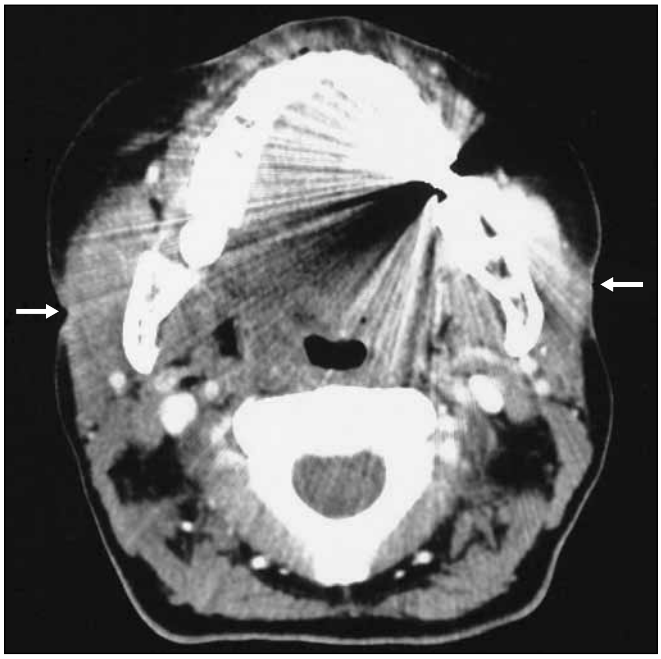

Fig. 2 Axial CT image shows surface ulceration (arrows) of the glands.

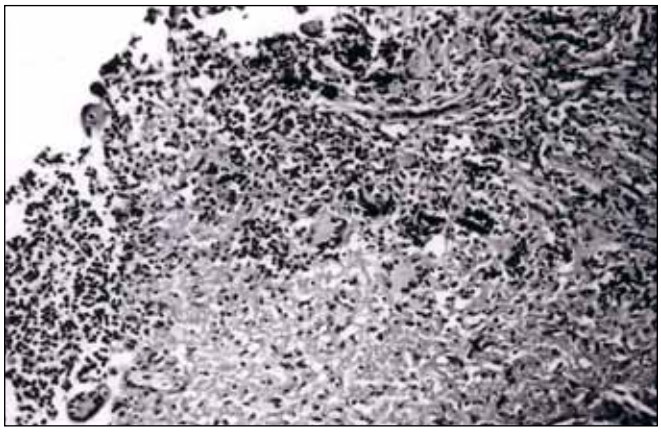

Fig. 3 Photomicrograph shows mixed inflammatory infiltrates surrounding an area of fibrinoid necrosis and an area of granulomatosis characterised by multinucleated giant cells. (Haematoxylin & eosin, × 200).

antibody test was also negative. Complement components 3 and 4 and immunoglobulins (IgA, IgG, IgM, IgE) were normal.

Previous ultrasonography of the neck, done two months prior to admission, showed a hypoechoic solitary mass lesion with irregular contour containing cystic degenerative areas in both the parotid glands. Computed tomography (CT) of the parotid region demonstrated surface ulceration of the glands (Fig. 2). CT of the thorax revealed no mediastinal or hilar lymphadenopathy. However, an area of consolidation showing cavitation and nodules (measuring 1 cm) was seen in the right inferior lobe of the lung. These findings were consistent with pulmonary involvement of WG. CT of the paranasal sinuses revealed inflammation in both the maxillary sinuses and the sphenoid sinus. There was thickening in the anterior part of the septum. Bilateral sialography of the parotid glands showed irregularities in the contours of Stensen's duct and intraglandular canaliculi. A cutaneous fistula on the inferior part of the right parotid gland was detected. Abdominal ultrasonography was normal. No calcification was observed on direct urinary system radiograph. Fine-needle aspiration of the parotid glands was unremarkable. Open biopsy, performed on both of the parotid glands, revealed diffuse acute and chronic inflammation, necrosis and granulomas containing Langhans giant cells (Fig. 3). These findings were consistent with WG. Biopsy of the right nasal cavity revealed mixed inflammatory infiltration, collagenised tissue necrosis and surrounding histiocytes, diffuse granulomatosis and formation of several giant cell granulomas.

The patient was initially given deltacortril 100 mg/day, trimethoprim-sulphamethoxazole (TMP-SMX) 80–400 mg every other day, cyclophosphamide (CYC) 150 mg/day. TMP-SMX was stopped on the second week of treatment. CYC was replaced with oral methotrexate (MTX) 10 mg/wk four months after the onset of treatment. MTX therapy was continued for one year. Steroid therapy was tapered progressively, and at the time of writing, the patient was still on a dose of 10 mg every other day. Within a month of the onset of treatment, improvements in the nasal and parotid lesions were observed. No clinical relapse occurred, and by the third month of treatment, c-ANCA had completely disappeared and continued to be negative at the fourth year of treatment.

DISCUSSION

Salivary gland involvement in WG is rare.[4] A histopathological study that reported on 126 head and neck biopsy specimens from 70 patients with WG described acute or chronic vascular changes, necrosis, microabscesses and poorly formed granulomas in the salivary gland biopsies of 3 of the 70 patients.[5] Parotid gland involvement in WG was first reported by Fahey et al in 1954,[6] and only about ten cases have been reported to date. One such case involved a patient with bilateral parotid gland involvement in WG.[7] Salivary gland involvement could be an early feature of WG, and enlargement of the parotid gland may be an important manifestation for timely diagnosis. Early commencement of treatment may prevent irreversible organ damage. If left untreated, WG is a fatal disease with 90% of patients succumbing to the disease within the first two years of diagnosis.

To arrive at an accurate diagnosis, a combination of clinical, laboratory and histopathologic testings is necessary. Open biopsy is indicated if fine-needle aspiration biopsy does not reveal any pathology. Measurement of c-ANCA level plays a major role in the diagnosis of WG, as its specificity is high. However, as the sensitivity of c-ANCA testing depends on the activity and generalisation of the disease,[8-10] the results may be negative in 15%–33% of patients, especially if renal involvement is present.[11] Thus, to achieve a precise diagnosis of WG, a tissue biopsy is recommended, as it is not sufficient to rely solely on the results of a c-ANCA test.[12] It is, however, useful to measure the c-ANCA level during follow-up for relapse and treatment complications.

Combined treatment using CYC and prednisone has been reported to be successful in 93% of patients with WG.[13] In resistant cases, cyclosporine may be added to this treatment regimen.[14] An effective medical treatment programme can result in the resolution of the disease in the salivary gland without surgical intervention and healing of both the organ and tissue manifestations. Early commencement of treatment may also prevent irreversible organ damage. As a cutaneous fistula on the parotid gland may be a presenting feature of other diseases such as mycobacterial infections and malignancies, it is important to exclude these conditions. Mycobacterial infection and malignancies can be diagnosed using cultures and histopathological examination, respectively. Finally, WG should be included in the differential diagnosis of bilateral parotid gland swelling that presents with upper respiratory tract symptoms.

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