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Bilateral parotid and submandibular gland enlargement: rare features of Wegener's granulomatosis

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Abstract

Wegener's granulomatosis is a potentially fatal disease of unknown origin affecting mainly the upper and lower respiratory tracts and kidneys. Prompt recognition of the more unusual presentations of the disease is necessary to ensure early treatment. We present a case of a 46-year-old female with bilateral submandibular and parotid gland enlargement.

Parotid or submandibular salivary gland enlargement is a rare presenting feature of Wegener's granulomatosis. Common to 80 per cent of these cases is nasal involvement, while ear pathology or lung lesions may occur in the remaining cases. The diagnosis is both clinical and pathological, biopsy of suspicious tissue, serum c-ANCA levels and a chest X-ray are valuable investigations. Treatment with immunosuppressive therapy is essential, and usually ensures a long-term remission.

Key words: Salivary Gland Diseases; Parotid Gland; Submandibular Gland; Wegener's Granulomatosis

Introduction

Wegener's granulomatosis is a disease of unknown aetiology that presents insidiously with non-specific symptoms, and is usually fatal within two years if untreated.[1] It often begins as a localized process that can then progress to a more generalized form.[2] The systemic form usually affects the upper and lower respiratory tracts and kidneys. The limited form affects these or other tissues of the body as isolated lesions.[3,4] Presenting symptoms include sinusitis, nasal crusting, epistaxis, cough, haemoptysis, and non-specific constitutional symptoms such as arthralgia, fever, malaise and weight loss. Histological findings include necrotizing inflammation with granuloma formation, vasculitis of small and medium-sized arteries and focal necrotizing glomerulonephritis.[5] The diagnosis is a clinicopathological one, in which suspicious tissue from patients with clinical symptoms show these findings. The presence of anti-neutrophil cytoplasmic antibodies (c-ANCA) in the serum helps to confirm the diagnosis.[6]

Management with immunosuppressive therapy usually leads to a long-term remission.[7] Early recognition of the more unusual presentations of Wegener's granulomatosis, such as salivary gland enlargement, is important to ensure early treatment.

Case report

A 46-year-old female was referred to the ENT department with a two-week history of enlargement of both parotid and both submandibular glands, nasal obstruction and blood-stained nasal discharge. She had no constitutional symptoms. All the major salivary glands were enlarged and tender (Figure 1). The nasal cavity mucosa was friable and inflamed especially on the right side.

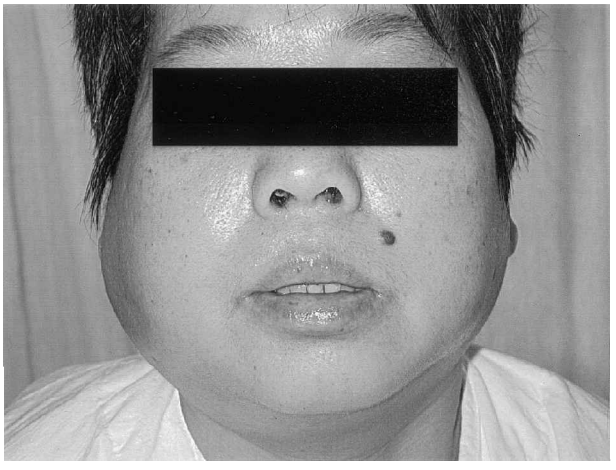

Fig. 1

Wegener's granulomatosis presenting with generalized parotid and submandibular gland enlargement.

The ESR was elevated (46 mm/hr), the c-ANCA negative and the full blood count, liver function, renal function, urinalysis and chest X-ray were normal. Ultrasound, computed tomography (CT) and magnetic resonance imaging (MRI) scan of the salivary glands reported similar findings, that of diffuse heterogeneous enlargement suggestive of a diffuse inflammatory process. The soft tissue of the right nasal cavity showed homogenous enhancement with contrast (Figure 2).

Biopsy of the nasal and maxillary mucosa showed chronic inflammation without vasculitis, giant cells or caseation. Aspiration cytology of the parotid glands was

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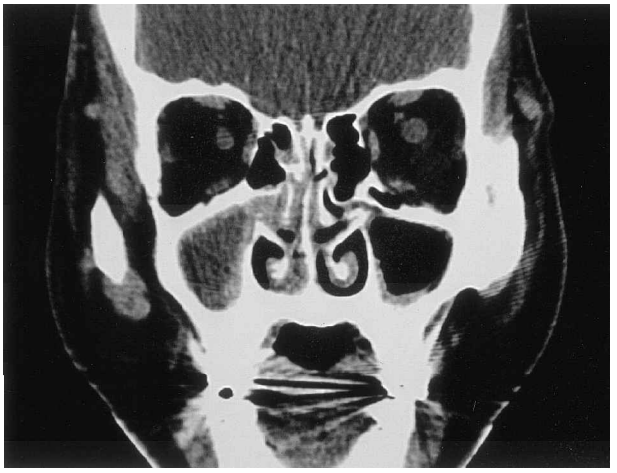

FIG. 2
Coronal CT scan showing mucosal thickening in the right nasal cavity and middle meatus.

consistent with sialadenitis. Repeated aspiration cytology of the salivary glands showed mixed leukocytes, macrophages, scattered epithelial cells and several multinucleated giant cells with no definite necrosis, indicating a possible granulomatous process. Repeated nasal biopsy showed a suppurative granulomatous lesion. Multiple sputum samples were negative for tuberculosis. A working diagnosis of tuberculosis was based on the clinical picture and suggestive histology, given the high incidence of tuberculosis in Hong Kong.

Two weeks after commencing anti-tuberculosis therapy the patient presented with severe haemoptysis and progressive dyspnoea. Chest X-ray showed bilateral diffuse infiltrates. Her haemoglobin was 7.3 g/dL, ESR was 130 mm/hr, c-ANCA and proteinase 3 (PR3, the principle neutrophil antigen for the antibodies[2]) were positive but her renal function remained normal. She was intubated and given ventilatory support. Following the diagnosis of Wegener's granulomatosis, cyclophosphamide 2 mg/kg/day and high dose prednisolone were commenced. She was decannulated four days later. The nasal symptoms and salivary gland swellings subsided over the following three weeks and she was discharged on a maintenance dose of medication. Eight weeks after that admission she developed renal impairment.

At follow-up 17 months later she was stable on maintenance therapy.

Discussion

Wegener's granulomatosis is a disease of unknown aetiology that was first described by Klinger[8] and further defined by Wegener.[9,10] It commonly involves the upper and lower respiratory tracts and kidneys, producing symptoms of nasal crusting, bloody nasal discharge sinusitis, cough and haemoptysis. Non-specific constitutional symptoms include arthralgia, fatigue, fever and weight loss.

Major salivary gland involvement by Wegener's granulomatosis is rare. In the literature to date there have been about 18 cases reported, involving either the parotid or submandibular gland. The first case of bilateral parotid and submandibular gland enlargement as a presenting symptom was only reported in 1996.[11]

A feature common to approximately 80 per cent of the reported cases is that they all had signs and symptoms of nasal involvement at presentation. In the other 20 per cent of cases it was not stated whether the patients had nasal symptoms or not, but these cases had either nodular or cavitating lung lesions on chest X-rays, or symptoms and signs of ear pathology. Major salivary gland enlargement in Wegener's granulomatosis does not occur as an isolated finding. All patients with salivary gland enlargement will have nasal, or ear or lung symptoms and signs. This has previously been reported, although not frequently. Fauci and Wolff[12] found that 17 of their 18 patients (94 per cent) with Wegener's granulomatosis had nasal symptoms, and D'Cruz *et al.* found that all of their 22 patients (100 per cent) had nasal symptoms.[13] Hoffman *et al.*[14] reported that 80 per cent of the 97 patients on the registry at the Cleveland Clinic Foundation had nasal sinus involvement, and 93 per cent eventually had upper airway involvement.

The diagnosis of Wegener's granulomatosis is made from the clinical presentation, histological findings of necrotizing granulomatosis vasculitis and a positive c-ANCA assay. The level of c-ANCA reflects the activity and extent of disease, being present in 95 per cent of systemic disease and in 67 per cent of active limited disease.[15]

Most patients will respond favourably to immunosuppressive therapy with cyclophosphamide and prednisolone.[12] In cases resistant to this regime or in cases where there is no renal involvement, cyclosporin has been reported to be effective.[16] Trimethoprim-sulfamethoxazole has shown some success in treating limited disease,[17] and in preventing relapses in treated patients.[18] Even when treated, the disease causes physical and occupational disability.

Conclusion

The parotid and submandibular glands may be involved in Wegener's granulomatosis, although rarely. When this does occur there are usually nasal, other ENT or constitutional symptoms. The clinical signs and symptoms, biopsy of inflamed tissue (nasal mucosa) and a c-ANCA test should provide the diagnosis. Untreated, the condition is fatal, however most patients will respond favourably to immunosuppressive therapy.

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