The Journal of Laryngology & Otology (2010), ***124***, *569–571*.

doi:10.1017/S0022215109991563

Clinical Record

Necrobiotic xanthogranuloma of the parotid gland

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Abstract

Objectives: To highlight the first reported case of necrobiotic xanthogranuloma of the parotid gland. We also review the clinical presentations and treatments for this rare condition.

Method: Case report and review of necrobiotic xanthogranuloma.

Results: A 48-year-old man presented with a right parotid mass. Fine needle aspiration cytology was suggestive of Warthin's tumour, for which the patient underwent a subtotal parotidectomy. The final histopathological diagnosis was necrobiotic xanthogranuloma.

Conclusions: Necrobiotic xanthogranuloma may clinically mimic commoner tumours such as Warthin's tumour. Once diagnosed, the clinician should be wary of extracutaneous manifestations and paraproteinaemias. Because of the variability of presentation, there is no consensus on the best treatment for necrobiotic xanthogranuloma, which may include surgery, chemotherapy, interferon, plasmapheresis and radiation therapy.

Key words: Xanthogranuloma; Parotid

Introduction

Necrobiotic xanthogranuloma is a rare, progressive, histiocytic disease. Although it commonly involves cutaneous sites around the periorbital region, it is now considered a systemic disease which can involve the myocardium, larynx, pharynx, lungs, intestines and ovaries.[1]

We report the first case of necrobiotic xanthogranuloma of the parotid gland, which was diagnosed histopathologically following a subtotal parotidectomy in a 48-year-old man.

Case report

A 48-year-old Malay man presented with a four-year history of a right parotid mass which had been gradually increasing in size. There was one episode of pain, one month prior to the current presentation, which was treated by his general practitioner as acute infection. This episode was not related to meals and was not associated with any constitutional symptoms.

The patient had no known medical problems, and was found to have Type 2 diabetes mellitus only on routine blood glucose testing. Systems enquiry was unremarkable.

On examination, a firm, non-tender, mobile, 6×6 cm mass was palpable at the right angle of the mandible. There was no inflammation of Stensen's duct or any medialisation of the right lateral pharyngeal wall. Right facial nerve function was intact. The patient did not have any periorbital or subcutaneous lesions elsewhere on his body.

Fine needle aspiration cytology (FNAC) analysis of the right parotid mass revealed features consistent with Warthin's tumour.

Three months later, the patient underwent a right subtotal parotidectomy. (There had been no physical change in the mass between FNAC and surgery.)

Intra-operatively, a well-encapsulated mass was identified at the tail of the right parotid gland, extending into the deep lobe. Examination of the specimen revealed a cystic, $2.5 \times 2.5 \times 3$ cm lesion within the right parotid gland filled with yellowish, fragile, necrotic tissue.

Microscopic examination showed sections of cystic tissue filled with necrotic material and infiltrated with chronic inflammatory cells. Numerous large foamy macrophages (Figure 1), multinucleated giant cells (Figure 2) of the Touton and foreign body-types, and cholesterol clefts (Figure 3) could be seen in a background of extensive tissue necrosis. Normal salivary gland tissue and some lymphoid aggregates were seen at the surrounding areas. There was no evidence of caseating necrosis, epithelioid granuloma or Langhans giant cells. No organisms were demonstrated on Ziehl–Neelson, periodic acid Schiff, Grocott and Giemsa staining. These features were consistent with necrobiotic xanthogranuloma. There were no histological features of the specimen suggestive of Warthin's tumour.

Post-operatively, the patient recovered well without complication. After eight months of follow up, the patient remained well with no constitutional symptoms.

Discussion

Necrobiotic xanthogranuloma is a rare, progressive, histiocytic disease. In the World Health Organization ICD-10 classification of diseases, it falls within the category of 'other histiocytosis syndromes' (category D76.3). In the Medical Subject Heading classification system, it is grouped under non-Langerhans cell histiocytosis. In 1987, histiocytic disorders were classified into three categories by the Histiocyte Society Writing Group: class I

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Accepted for publication: 22 June 2009. First published online 14 October 2009.

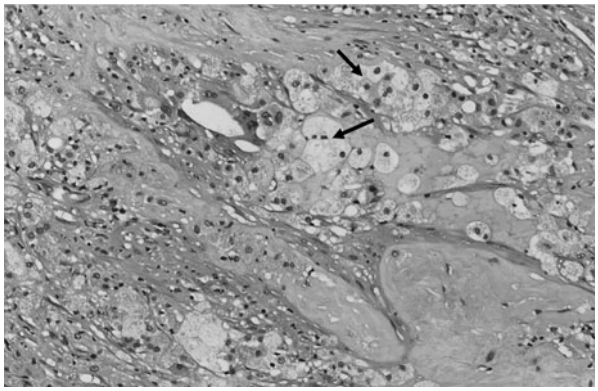

FIG. 1
Photomicrograph of surgical specimen showing large, foamy macrophages (arrowheads) (H&E; ×20).

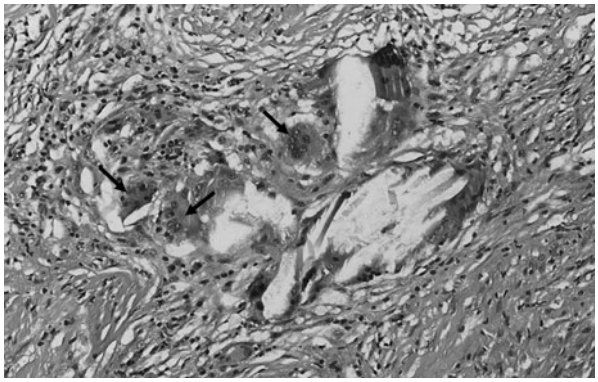

FIG. 2
Photomicrograph of surgical specimen showing multinucleated giant cells (arrowheads) (H&E; ×20).

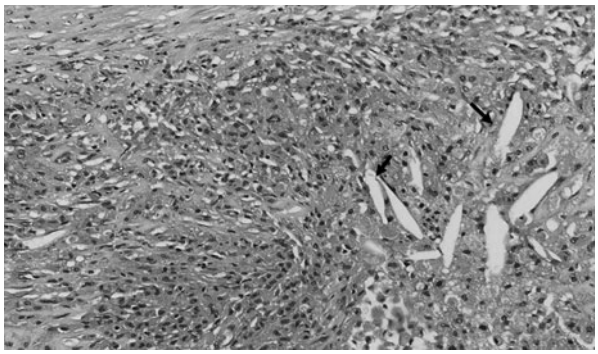

FIG. 3
Photomicrograph of surgical specimen showing cholesterol clefts (arrowheads) (H&E; ×20).

(Langerhans cell histiocytosis–histiocytosis X spectrum); class II (histiocytosis of mononuclear phagocytes other than Langerhans cells); and class III (malignant histiocytic disorders).[2] Adult xanthogranulomatous disease falls within class II of this categorisation. It is a disease of unknown aetiology characterised by variable involvement of a spectrum of symptoms, including destructive periorbital and cutaneous lesions, multiple extracutaneous manifestations, and paraproteinaemias. The mean age of onset is the sixth decade and there is no sex predilection.[3]

In 2006, Sivak-Callcott *et al.* organised a multi-institutional effort to study adult xanthogranulomata, and were able to categorise it into four syndromes based on histopathological, immunohistochemical, clinical and systemic features, as follows: (1) adult onset xanthogranuloma (solitary lesion without systemic findings); (2) adult onset asthma and periocular xanthogranuloma; (3) necrobiotic xanthogranuloma; and (4) Erdheim–Chester disease.[4]

Necrobiotic xanthogranuloma is characterised by the presence of multiple, indurate, yellow-red plaques in the head and neck area (especially the periorbital region) and trunk; however, although characteristic, such lesions are not necessary for diagnosis.[5]

Eighty per cent of necrobiotic xanthogranuloma cases have been associated with paraproteinaemia; the most common type is immunoglobulin (Ig) Gκ monoclonal gammopathy (60 per cent), followed by IgGλ (26 per cent) and IgA.[1,6] In 10 per cent of cases, the monoclonal gammopathy develops into multiple myeloma.[6]

A review of necrobiotic xanthogranuloma by Finan and Winklemann revealed the involvement of extracutaneous sites such as the spleen, lung, kidney, intestine, ovary, skeletal muscle and central nervous system.[1] The larynx and pharynx are the only sites within the head and neck region reported to be involved with necrobiotic xanthogranuloma.

Necrobiotic xanthogranuloma can be histologically characterised by: xanthomatised histiocytes; giant, bizarre foreign body cells; Touton cells; lymphocyte aggregates; cholesterol clefts; and areas of severe necrobiosis.[7]

Because of the rarity of this disease, the outcome of therapy is difficult to evaluate, as multiple therapeutic modalities have been used in all the syndromes, including chemotherapy, interferon (α-2b or α-2a), plasmapheresis, intralesional steroid injections, cryotherapy, radiation therapy and surgery.[7–13] The best results have been obtained with multiagent chemotherapy, with or without radiation or surgery.[4] Sivak-Callcott *et al.* also recommend characterisation of histiocytes and correlation with histopathological B and T cell findings, when choosing an immunosuppressive agent for treatment.[4]

To our knowledge, the current patient represents the first reported case of necrobiotic xanthogranuloma of the parotid gland. This is a different histological entity to xanthogranulomatous sialadenitis, a handful of cases of which have been reported.[14]

- **Necrobiotic xanthogranuloma is a rare, progressive, histiocytic disease**
- **It is a systemic disease which may involve cutaneous and extracutaneous sites, and which is associated with paraproteinaemias**
- **Necrobiotic xanthogranuloma may present as a swelling of the parotid gland**
- **For an isolated swelling, surgical excision is a reasonable management option**

In our patient, the diagnosis was made from the classical histological features of necrobiotic xanthogranuloma. Because the lesion was removed in its entirety during the subtotal parotidectomy, and the patient did not show any manifestation of cutaneous or systemic necrobiotic xanthogranuloma, the decision was made to follow him up expectantly.

https://doi.org/10.1017/S0022215109991563 Published online by Cambridge University Press

References

1 Finan MC, Winklemann RK. Necrobiotic xanthogranuloma with paraproteinaemia. A review of 22 cases. *Medicine* 1986;**65**:376–88
2 Moschella SL. An update of the benign proliferative monocyte-macrophage and dendritic cell disorders. *J Dermatol* 1996;**23**:805–15
3 Mehregan DA, Winklemann RK. Necrobiotic xanthogranuloma. *Arch Dermatol* 1992;**128**:94–100
4 Sivak-Callcott JA, Rootman J, Rasmussen SL, Nugent RA, White VA, Paridaens D *et al*. Adult xanthogranulomatous disease of the orbit and ocular adnexa: new immunohistochemical findings and clinical review. *Br J Ophthalmol* 2006;**90**:602–8
5 Chave TA, Hutchinson PE. Necrobiotic xanthogranuloma with two monoclonal paraproteins and no periorbital involvement at presentation. *Clin Exp Dermatol* 2001;**26**:493–6
6 Martinez Fernandez M, Rodriguez Prieto MA, Ruiz Gonzalez I, Sanchez Sambucety P, Delgado Vicente S. Necrobiotic xanthogranuloma associated with myeloma. *J Eur Acad Dermatol Venereol* 2004;**18**:328–31
7 Finan MC, Winkelmann RK. Histopathology of necrobiotic xanthogranuloma with paraproteinaemia. *J Cutan Pathol* 1987;**14**:92–9
8 Machado S, Alves R, Lima M, Leal I, Massa A. Cutaneous necrobiotic xanthogranuloma (NXG) successfully treated with low dose chlorambucil. *Eur J Dermatol* 2001;**11**:458–62
9 Meyer S, Szeimies RM, Landthaler M, Hohenleutner S. Cyclophosphamide-dexamethasone pulsed therapy for treatment of recalcitrant necrobiotic xanthogranuloma with paraproteinaemia and ocular involvement. *Br J Dermatol* 2005;**153**:443–5
10 Venencie PY, Le Bras P, Toan ND, Tchernia G, Delfraissy JF. Recombinant interferon alfa-2b treatment of necrobiotic xanthogranuloma with paraproteinaemia. *J Am Acad Dermatol* 1995;**32**:666–7
11 Georgiou S, Monastirli A, Kapranos N, Pasmatzi E, Sakkis T, Tsambaos D. Interferon alpha-2a monotherapy for necrobiotic xanthogranuloma. *Acta Derm Venereol* 1999; **24**:484–9
12 Finelli LG, Ratz JL. Plasmapheresis: a treatment modality for necrobiotic xanthogranuloma. *J Am Acad Dermatol* 1987;**17**:351–4
13 Elner VM, Mintz R, Demirci H, Hassan AS. Local corticosteroid treatment of eyelid and orbital xanthogranuloma. *Ophthal Plast Reconstr Surg* 2006;**22**:36–40
14 Cocco AE, MacLennan GT, Lavertu P, Wasman JK. Xanthogranulomatous sialadenitis: a case report and literature review. *Ear Nose Throat J* 2005;**84**:369–70

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Dr A Zainal takes responsibility for the integrity of the content of the paper.
Competing interests: None declared