

Sudden parotid swelling due to spontaneous haemorrhage

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Abstract

This paper presents an interesting case of a severe spontaneous haemorrhage within the parotid gland in an adult. A rapidly enlarging parotid mass with absence of causative trauma, inflammation or vascular abnormality, raised the suspicion of a neoplasm. Ultrasound, computed tomography (CT) and tissue biopsy, however, have shown only changes suggestive of previous haemorrhage and no evidence of malignancy. A 30-year review of the literature revealed no similar case reported previously.

Key words: Parotid gland; Haemorrhage

Case report

A 50-year-old gentleman presented to our department with a three-day history of a sudden onset, painful, swelling over the left side of the face (Figure 1). Two days later, painless bruising under the left lower eyelid and over the anterior aspect of the chest was noticed. The patient denied previous trauma, head injury or recent infection. He was otherwise healthy apart from a chronic cough which he had had for a month, worsening over the two weeks prior to presentation.

Physical examination revealed a 6 cm, firm, tender, left parotid swelling. There were no changes in the overlying skin. Mouth opening was markedly restricted, and a mild facial nerve palsy on the ipsilateral side was noted, especially in the buccal and zygomatico-temporal branches. There was left infraorbital and upper sternal area bruising. The buccal mucosa, parotid duct and oropharynx were normal on examination, and there was no cervical lymphadenopathy. Blood tests, including ESR and clotting screen were normal except for a raised WBC (14.5) with neutrophilia (77 per cent).

An ultrasound scan showed an ill-defined cystic space within the parotid gland. A CT scan, performed at the same time, revealed an area of increased attenuation consistent with haemorrhage (Figure 2). An abscess or a solid tumour as a cause of the haemorrhage could not be excluded at this stage.

Aspiration of the swelling on admission, produced 120 ml of fresh blood and made the mass less tender and tense, but there was no appreciable decrease in size. The following day the patient underwent surgical exploration and evacuation of the haematoma via a classical parotidectomy approach. Biopsy of the surrounding parotid tissue was subsequently reported as normal.

A left external carotid arteriogram performed a few days later, excluded aneurysm, arteriovenous malformation, tumour circulation or any other vascular abnormality as a cause of the bleeding (Figure 3).

The patient was discharged on the seventh day with an obviously reduced, but still visible, swelling and residual palpable induration. The left sided facial palsy disappeared

two weeks from the onset of the bleeding. Tenderness and secondary trismus gradually settled down and finally disappeared after four months with the help of physiotherapy to the masseter and temporomandibular joint on the

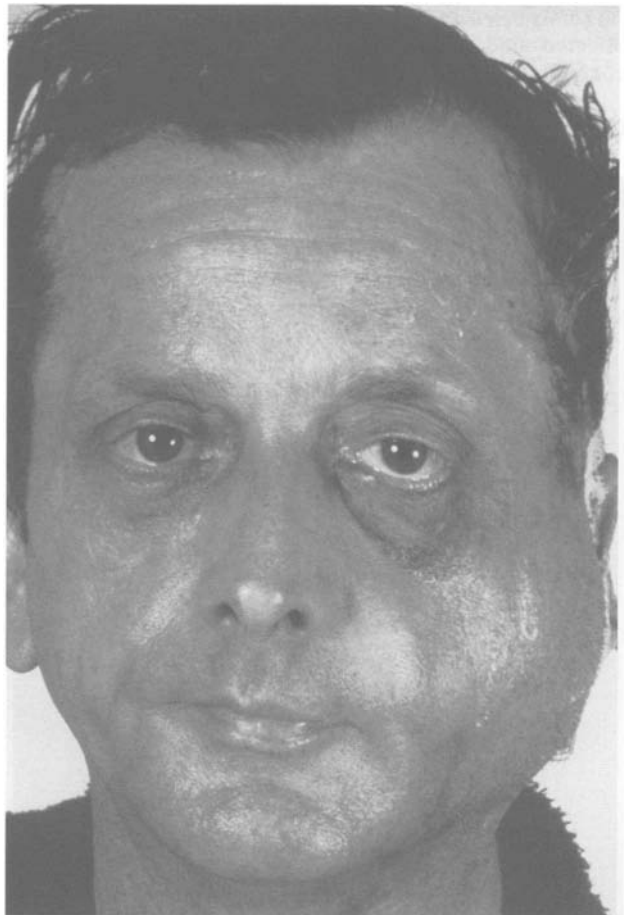


FIG. 1
Swelling of the left parotid region.

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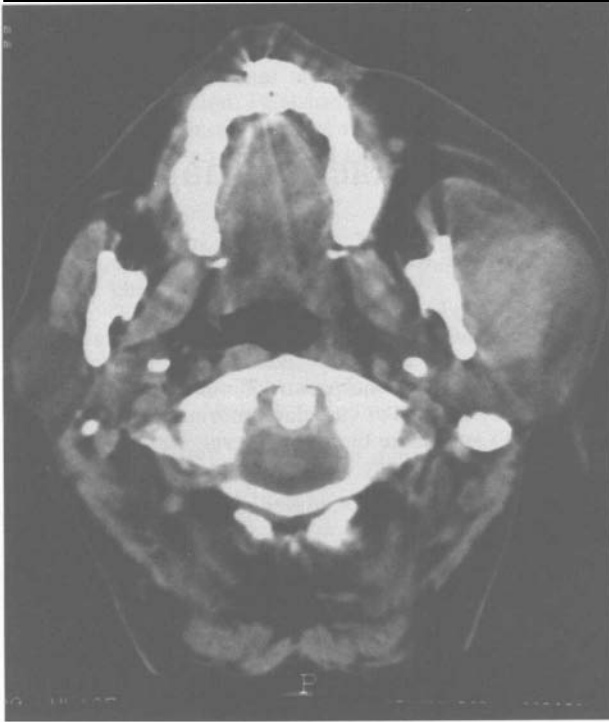


FIG. 2

CT scan on admission, showing left parotid swelling with an area of the haemorrhage.

affected side. The facial and sternal bruising resolved completely within two months.

A repeat CT scan, performed one month after admission (Figure 4), showed a resolving haematoma and areas of

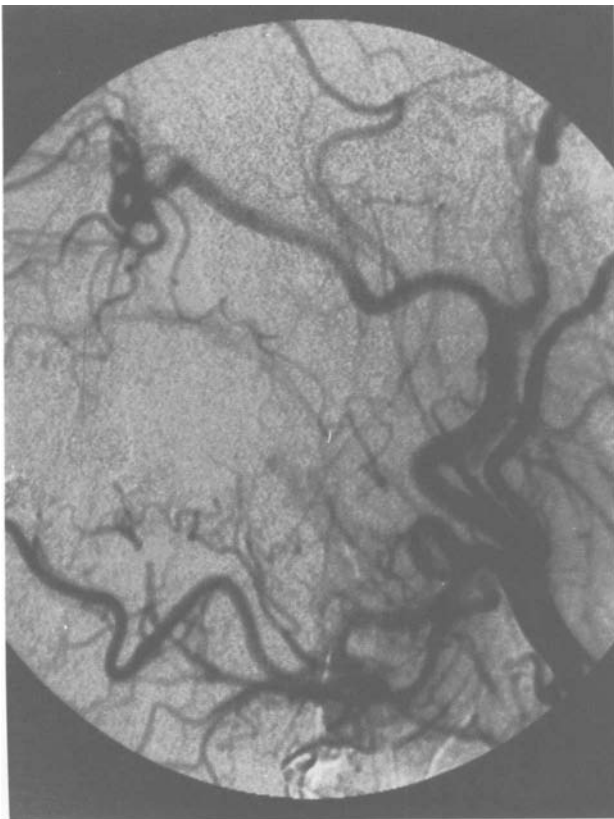


FIG. 3

Normal selective left external carotid arteriogram.

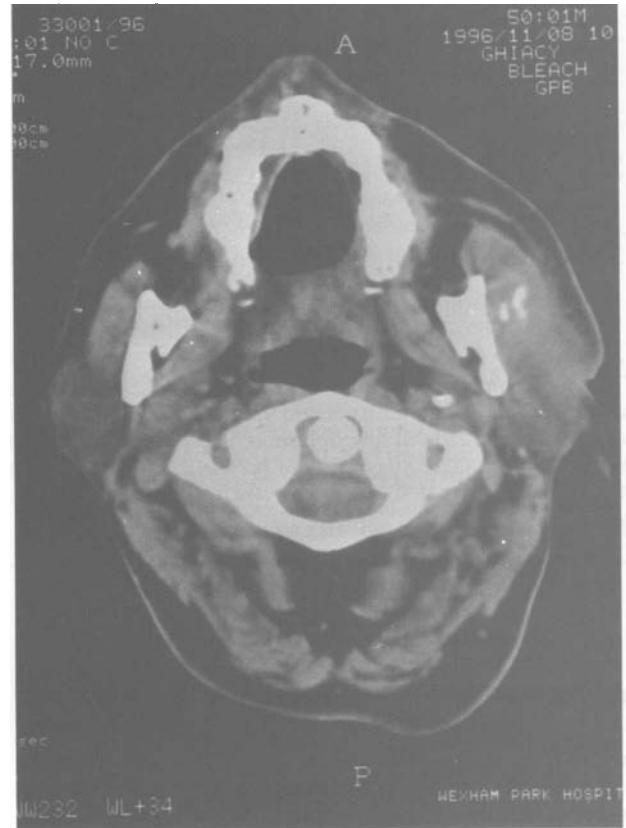


FIG. 4

CT scan performed four weeks after admission, showing the reduction in the size of the left parotid swelling and areas of calcification.

calcification. An ultrasound-guided FNA once more ruled out an underlying neoplasm.

Discussion

Swellings within the parotid gland are common. Most are due to inflammation or tumour with haematomas being found only in extremely rare circumstances.

Inflammatory disease is more common than neoplastic disease in children whilst solid tumours are found more frequently in adults. Of the salivary glands, the parotid is by far the most common site (90 per cent) for tumours but this still represents less than two per cent of all human neoplasms (George *et al.*, 1991; De Carpentier *et al.*, 1996). Twenty to 25 per cent of these, are malignant (Richardson *et al.*, 1975; Nettle and Orell, 1989). In children, parotid haemangiomas account for over 50 per cent of salivary gland tumours compared to only two per cent in adults (George *et al.*, 1991; Hughes and Oates, 1997). Parotid swellings in children, may more rarely be due to benign follicular hyperplasia of adjacent lymph nodes, cat-scratch disease, congenital cysts, or atypical mycobacterial infection (Lauretano *et al.*, 1992).

Parotid haemorrhages are rare, usually occurring as a complication arising from parotidectomy or fine needle aspiration (FNA) (Richardson *et al.*, 1975; Rodriguez *et al.*, 1989). Considering the frequency of blunt trauma to the face, it is surprising that bleeds within the parotid are not more common (De Carpentier *et al.*, 1996). Only two reported cases with intraparotid haemorrhage have been described in the literature and both were post-traumatic and both in children. Gabrielsen *et al.* (1994) reported four cases associated with a congenital arteriovenous fistula supplied by a single large branch of the second part of the

maxillary artery all of whom had a spontaneous bleed deep to the parotid gland (Gabrielsen *et al.*, 1994). Haematomas within the parotid gland may also be secondary to a tumour (Richardson *et al.*, 1975; Chi *et al.*, 1993).

Diagnosis can be assisted by a variety of imaging techniques. Ultrasound, sialography, radioisotope scanning, CT and magnetic resonance imaging (MRI) are all of value. It is also mandatory to perform FNA whenever a neoplasm is suspected.

Ultrasonography distinguishes well between cystic and solid masses as well as between intra- and extra-parotid lesions (Lauretano *et al.*, 1992). It is, however, not reliable in demonstrating deep lobe masses (Nettle and Orell, 1989) or in differentiating between lesions with solid and mixed density or the relationship of a mass to the facial nerve (Lauretano *et al.*, 1992). In the diagnosis of fluid collections, ultrasound alone is inadequate because the appearance of blood may emulate that of almost any other tissue (De Carpentier *et al.*, 1996). In our case, sonography failed to demonstrate deep extension of the haematoma.

Sialography is mainly reserved for the diagnosis of obstructive, radiolucent stones and associated duct abnormalities such as strictures, dilatations and sialectasia (Lauretano *et al.*, 1992).

CT scanning is widely available and clearly differentiates between extrinsic, and intrinsic parotid lesions and with concomitant administration of sialographic contrast, may allow the distinction between benign and malignant lesions (Lauretano *et al.*, 1992). It is an accurate technique for the detection, diagnosis and monitoring of haematomas. It should be noted that the radiological appearance of extravasated blood changes with time and, therefore, scanning should be done at appropriate intervals (De Carpentier *et al.*, 1996). Initially blood appears isodense on CT scan. The normal clotting process then concentrates haemoglobin producing a hyperdense appearance for up to seven days. During the next few weeks the haematoma gradually becomes isodense again due to clot lysis (Swensen *et al.*, 1984). Patients with a clinical picture of suspicious intraparotid bleeding following recent trauma should undergo CT scanning with contrast, as extravasation is highly specific and pathognomonic of active bleeding (Swensen *et al.*, 1984). An alternative would be arteriography.

The gold standard imaging technique for the parotid gland is magnetic resonance scanning. This gives excellent soft tissue characterization and discrimination and is a superior technique in the evaluation of cysts, haematomas and tumours. It is indispensable in depicting masses of the deep lobe (Goshen and Ophir, 1993).

In our case the pre-operative imaging was helpful in localizing the site of the haemorrhage but the ultrasound scan showed the haematoma as a cystic mass within a solid gland and could not exclude an abscess. The diagnosis of haematoma was subsequently confirmed with CT scan and

magnetic resonance scanning was not required. Subsequent FNA cytology and surgical exploration of the parotid gland confirmed the radiological findings and excluded malignancy but failed to demonstrate an underlying cause for the bleed.

This is an intriguing example of intraparotid haematoma in the absence of trauma, vascular abnormality or anti-coagulant therapy and the underlying cause remains obscure. It is the only such case in an adult reported in the literature.

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References

- Chi, T. W. C., Lin, J. C. T., Shih, S. L. (1993) Neurofibroma: An unusual presentation. *Neuroradiology* **35**: 614–615.
- De Carpentier, J. P., Hargreaves, S., Zarod, A. P. (1996) A puzzling paediatric parotid haematoma. *Journal of Laryngology and Otology* **110**: 590–593.
- Gabrielsen, T. O., Deveikis, J. P., Introcaso, J. H., Coran, A. G. (1994) Congenital arteriovenous fistulas supplied by a single branch of the maxillary artery. *American Journal of Neuroradiology* **15**: 653–657.
- George, C. D., Ng, Y. Y., Hall-Craggs, M. A., Jones, B. M. (1991) Parotid haemangioma in infants: MR imaging at 1.5 T. *Paediatric Radiology* **21**: 483–485.
- Goshen, S., Ophir, D. (1993) Cystic hygroma of the parotid gland. *Journal of Laryngology and Otology* **107**: 855–857.
- Hughes, R. G. M., Oates, J. (1997) Capillary haemangioma of the parotid in an adult: an unusual case and the review of the literature. *Journal of Laryngology and Otology* **111**: 588–589.
- Lauretano, A. M., Cunningham, M. J., Weber, A. L. (1992) Imaging case study of the month. Intraparotid haematoma. *Annals of Otolaryngology and Rhinology* **101**: 791–793.
- Nettle, W. J. S., Orell, S. R. (1989) Fine needle aspiration in the diagnosis of salivary gland lesions. *New Zealand Journal of Surgery* **59**: 47–51.
- Richardson, G. S., Dickason, W. L., Gaisford, J. C., Hanna, D. C. (1975) Tumors of salivary glands. *Plastic and Reconstructive Surgery* **55**: 131–138.
- Rodriguez, H. P., Silver, C. E., Moisa, II, Chacho, M. S. (1989) Fine needle aspiration of parotid tumors. *American Journal of Surgery* **158**: 342–344.
- Swensen, S. J., McLeod, R. A., Stephens, D. H. (1984) CT of extracranial haemorrhage and hematomas. *American Journal of Radiology* **143**: 907–912.

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