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Thrombosed jugular vein presenting as a hard neck mass

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Abstract
We report an unusual case of thrombosis of a dilated external jugular vein presenting as a hard neck mass of sudden onset. The lesion's presentation, investigation, treatment and pathology are discussed.

Key words: Jugular veins; Aneurysm; Thrombosis

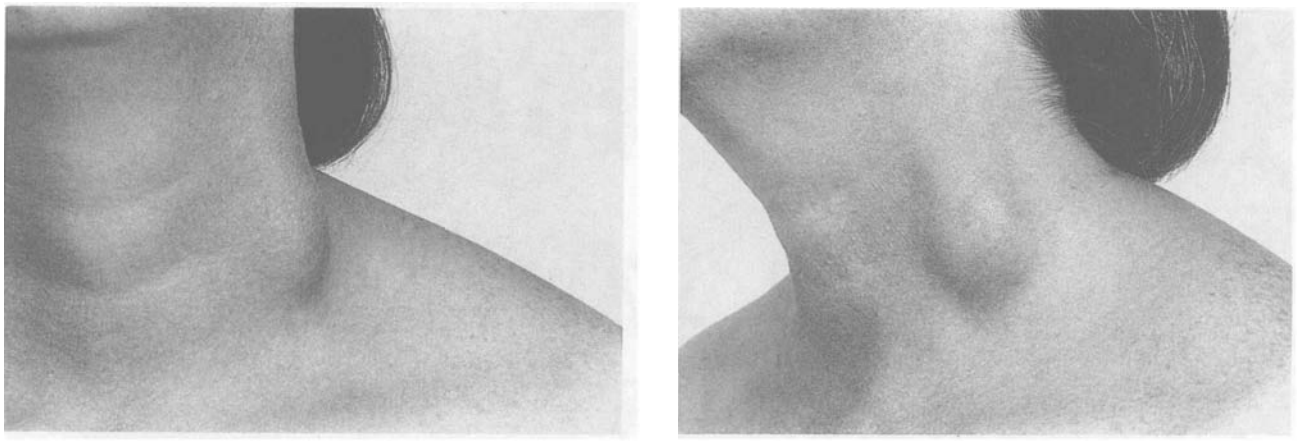
Introduction

Aneurysms or varices of the jugular venous system are uncommon, but have been reported in both children and adults (Gilbert *et al.*, 1972; Friedman *et al.*, 1990). They present as soft compressible masses which expand on coughing, Valsalva manoeuvres and proximal venous compression. Diagnosis by clinical and ultrasound examination is usually straightforward (Leung, 1983). Thrombosis of a dilated jugular vein or aneurysm presenting as a hard neck mass appears to be a rare occurrence having been reported before in the world literature on only a few occasions (Farrar, 1969; Pucci *et al.*, 1976). Pre-operative clinical diagnosis is difficult. The mass is often indistinguishable from other neck masses on clinical examination, frequently resembling an enlarged lymph node. Fine needle aspiration is unlikely to be helpful but imaging may be of diagnostic help if continuity of the mass with the external jugular vein can be shown.

Case report

A 45-year-old woman was referred by her General Practitioner to the ENT outpatient department with the rapid overnight development of a painful left-sided neck mass. There was no prior history of trauma or swelling in the neck. Examination revealed a 4 cm by 2.5 cm smooth, firm and tender subcutaneous mass overlying the lower third of the sternomastoid muscle (Figures 1 and 2). The overlying skin had a normal appearance and was not fixed to the mass. A full blood count, ESR and chest X-ray were normal. Fine-needle aspiration cytology was performed but yielded a trace of blood only. Ultrasound examination showed a discrete, solid lesion with no apparent connections. The mass remained unchanged over the next 10 days and the patient was admitted for panendoscopy of the upper aerodigestive tract and excision of the lesion. The panendoscopy was normal and the mass was exposed via a skin crease incision. The mass was fusiform in shape and in continuity with the external jugular vein. The vein was ligated and divided above and below the mass which was then removed and sent for histological examination.

Histological examination showed a large thick-walled branching vein distended by blood clot and showing alternating laminae of blood and fibrin (Figure 3). High power examination revealed evidence of papillary



Figs. 1 and 2
Clinical photographs of the neck mass.

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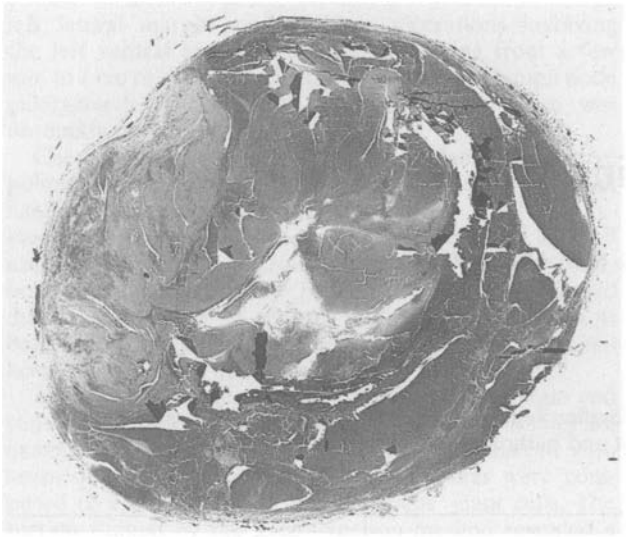

FIG. 3

Low power photomicrograph of a transverse section through the excised neck mass showing a vein distended by blood clot characterized by alternating laminae of blood and fibrin. (H & E; × 7).

endothelial hyperplasia, that is a florid organization of thrombus with many spindly fibroblasts, scattered lymphocytes and papillary projections covered by a single layer of endothelial cells (Figure 4). There were no features visible in the vessel wall to suggest a cause for the dilatation or thrombosis.

The patient made an uneventful post-operative recovery and on review at six months the scar was well healed and there was no recurrence of the mass.

Discussion

From the history, clinical and histopathological examination in this case no apparent cause was found for the thrombosis, with the vessel wall having a normal appearance on histological examination. It is not clear whether there was a preceding dilatation or aneurysm of the jugular vein which led to venous stasis and subsequent thrombosis, or whether external pressure or minor trauma initiated the thrombosis. Pucci *et al.* (1976) found degenerative changes in the vessel wall following thrombosis of the external jugular vein, with no features in the history to suggest a cause for the thrombosis. Farrar (1969) reported a jugular thrombosis occurring the day after routine surgery for

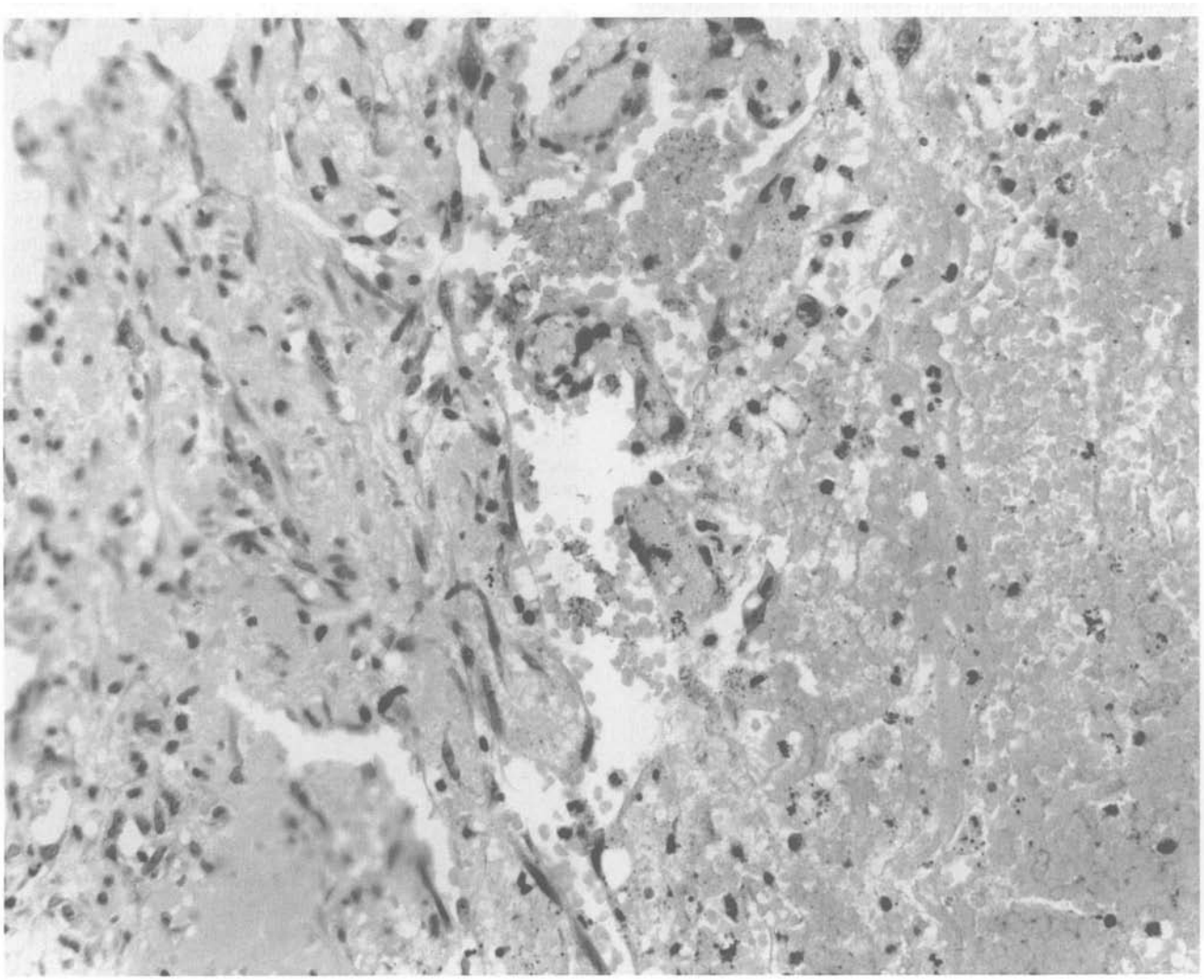

FIG. 4

High power photomicrograph showing the organizing thrombus with spindly fibroblasts, scattered lymphocytes and papillary projections covered by a single layer of epithelial cells. Such florid organization of thrombus is termed papillary endothelial hyperplasia. (H & E; × 300).

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strabismus. Laminated clot was found in the vessel lumen but no abnormality of the vessel wall was seen on microscopic examination. At present there appear to be too few cases reported to reach a consensus on the significance of histological changes in the vessel wall.

Thromboembolism and pulmonary embolism have not been reported following thrombosis in the jugular venous system and the rationale for excision of these masses rests therefore on diagnostic and cosmetic grounds. Pre-operative clinical diagnosis is difficult as the thrombosed jugular vein closely resembles an enlarged lymph node on clinical examination. Factors which might help to differentiate a thrombosed jugular vein from an enlarged lymph node or other neck tumour include: a history of rapid onset associated with mild initial pain and tenderness, a firm spherical or fusiform mass along the course of the external jugular vein, a fine-needle aspirate yielding only traces of blood and evidence on ultrasound or computerized axial tomography of venous connections.

In summary, thrombosis of the external jugular vein may present as a hard neck mass. There are features in the history and examination which suggest the diagnosis but a conclusive diagnosis is unlikely to be made without histological examination and in our view surgical excision is generally indicated.

Acknowledgement

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