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Solitary fibrous tumour arising in the nasal cavity: report of a case

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Abstract
The nasal and the paranasal sinuses are a rare site for solitary fibrous tumours. There have been no previously reported cases in the English literature, with eight cases in the world literature (Witkin and Rosai, 1991; Zuckerberg *et al.*, 1991). We present a case of a solitary fibrous tumour arising in the nasal cavity and review the previous reports.

Key words: Nose; Solitary fibrous tumour.

Introduction

Solitary fibrous tumour (SFT) is a distinct mesenchymal tumour that usually arises in the pleura (Gary and Rosai, 1989) and less commonly in relation to other serosal surfaces (Dalton *et al.*, 1979; El-Naggar *et al.*, 1989). Recently SFTs have been reported unrelated to the pleura and other serosal surfaces at sites such as: the lung (Yousem and Flynn, 1988), liver (Gary and Rosai, 1989), thyroid (Gianluca *et al.*, 1993), sublingual gland (Gunhan *et al.*, 1994), nasal cavities and nasopharynx (Witkin and Rosai, 1991; Zuckerberg *et al.*, 1991; Batsakis *et al.*, 1993).

We report the first case in the English literature of a solitary fibrous tumour arising in the nasal cavity.

Case report

A 59-year-old woman presented with a one-year history of increasing difficulty in breathing through the right nostril and intermittent rhinorrhoea. On examination a thick mucopurulent discharge was aspirated from the right nasal cavity. Endoscopy revealed a smooth mass in the right nasal cavity which was apparently arising from the medial aspect of the middle turbinate and occluding the postnasal space.

A CT scan (Figure 1) demonstrated a polypoid mass in the postnasal space which occluded the choanae and extended upwards into the ethmoid air cells.

At operation the tumour was found to be arising from

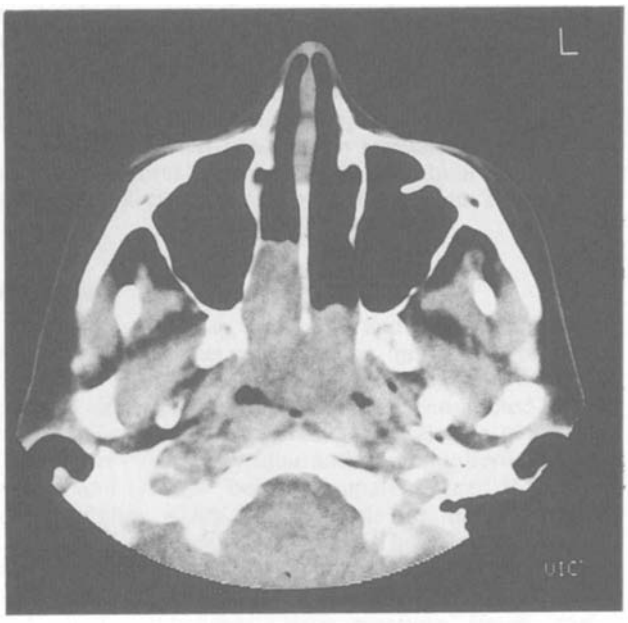

FIG. 1
CT scan showing the tumour arising from the roof of the nasal cavity.

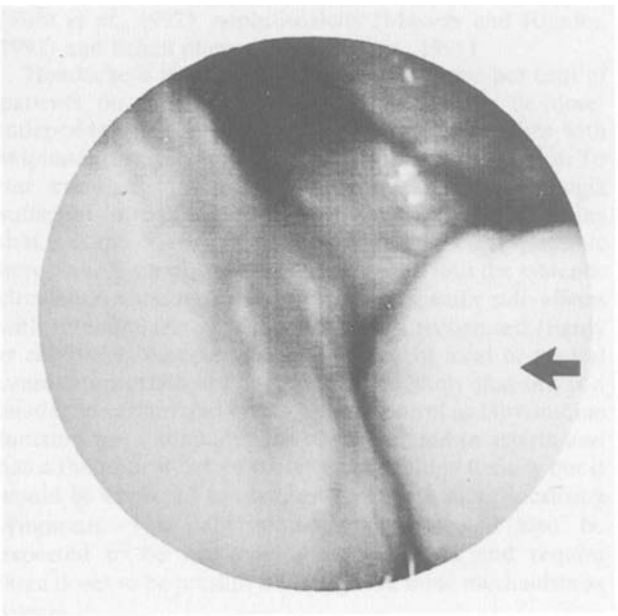

FIG. 2
Endoscopic view of the tumour (arrowed).

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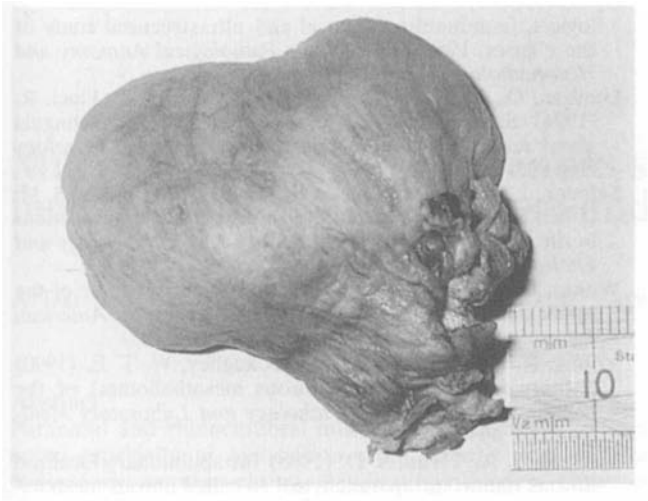

FIG. 3
Macroscopic appearance of the tumour.

the right posterior ethmoid close to the roof of the nasal cavity, attached by a broad stalk (Figure 2). The postnasal mass was then delivered through the oral cavity. The posterior ethmoid cells were partially excised. She has been followed-up for 18 months with no sign of recurrence.

Pathological findings

Grossly the specimen consisted of a nodular polypoid mass 5 × 3 × 3 cm with a broad stalk 3 × 2 × 1.5 cm (Figure 3). The cut surface was firm, white-grey in colour with a whorled appearance.

Microscopically the lesion was composed predominantly of spindle-shaped cells with abundant eosinophilic cytoplasm. The tumour had a variable appearance with alternating hyper- and hypocellular regions (Figure 4). In the more hypocellular regions the cells were set in a loose myxoid stroma. There was a prominent vascularity, with frequent thick-walled vessels. The nuclei were vesicular and showed a mild degree of pleomorphism particularly in the myxoid areas. The mitotic rate was low (two to three mitotic figures/10 high power fields). There was no evidence of necrosis or invasion of surrounding structures. Immunohistochemical studies showed positivity of tumour cells for CD 34 antibody (Q Bend 10). No staining for desmin, S-100 protein or actin was seen.

Discussion

Solitary fibrous tumours are rare neoplasms that occur most frequently in adults as pleural or serosal tumours (England *et al.*, 1989). Histologically, these tumours are composed of plump and spindle-cells arranged in a patternless fashion in a collagenous background. Typically there are hyper- and hypocellular areas. Prominent vascularity resulting in haemangiopericytoma-like foci is also frequently seen. Prediction of clinical behaviour is imprecise. The prognosis for tumours arising in the pleura, pericardium and mediastinum varies according to the series, but approximately 15 per cent show aggressive behaviour (El-Naggar *et al.*, 1989; England *et al.*, 1989; Young *et al.*, 1990). Poor prognostic factors are said to be large tumour size, high cellularity, pleomorphism and a high mitotic rate.

The histogenesis of SFT has been controversial since it was first recognized as a specific entity. Evidence from histological, immunohistochemical, ultrastructural and tissue culture studies favour a mesenchymal rather than

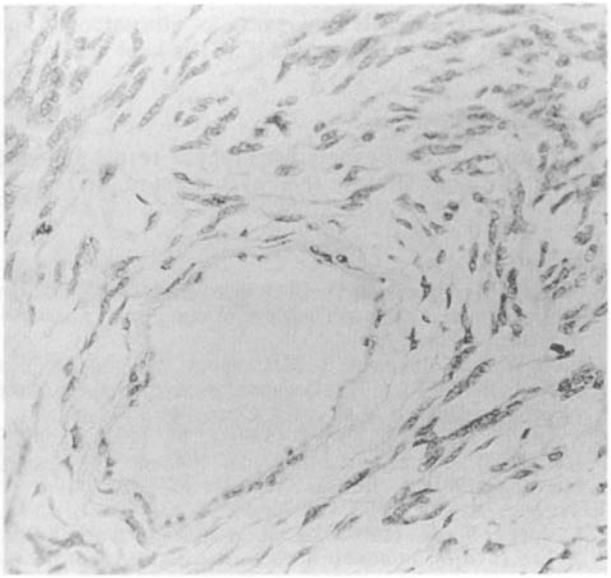

FIG. 4
Microscopic appearance of the tumour (H & E: ×200).

an epithelial or mesothelial cell origin (Dervan *et al.*, 1986; England *et al.*, 1989). In most reports tumour cells stain for vimentin and not for keratin, epithelial membrane antigen, S100 protein, actin or carcinoembryonic antigen. Ultrastructural features include rough endoplasmic reticulum, interdigitating cytoplasmic processes and primitive junctions without specialized differentiating organelles (England *et al.*, 1989).

Extraserosal SFTs have been described in the lung (Yousem and Flynn, 1988), liver (Gary and Rosai, 1989), sublingual gland (Gunhan *et al.*, 1994) and upper respiratory tract (Witkin and Rosai, 1991; Zuckerberg *et al.*, 1991; Safneck *et al.*, 1993).

In this latter location, eight cases of SFT have been recently reported in the nasal fossa, nasopharynx and paranasal sinuses (Witkin and Rosai, 1989; Zuckerberg *et al.*, 1991). Five have been in women and three in men. The mean age of the patients at the time of diagnosis was 48 (range 30–64 years). The tumour occupied the nasal cavity in every patient, except one, whose lesion was said to be limited to the nasopharynx. Extension to the ethmoid sinuses was manifest in two patients.

Solitary fibrous tumours when seen in unusual locations do pose some diagnostic difficulties. The main differential diagnostic considerations in the nasal cavity and nasopharynx include haemangiopericytoma, angiofibroma, neurofibroma, fibrosarcoma and fibrous histiocytoma. Sinonasal haemangiopericytoma is formed by sheets of bland spindle-cells with prominent vascular channels but lacks the striking collagenous background. Nasopharyngeal angiofibroma most frequently occurs in young men. This shares the prominent vascularity, collagen and spindle cells of a SFT but is less cellular. Peripheral nerve tumours show palisading and S100 immunopositivity while fibrous histiocytomas have a storiform pattern and more cellular atypia. Fibrosarcomas and fibromatosis are characterized by a herring bone pattern and a parallel arrangement of the collagen fibres.

This report stresses the importance of the recognition of solitary fibrous tumour in the differential diagnosis of spindle-cell lesions in the nasal cavity, as so far, all have behaved in a benign fashion. Treatment is conservative with local excision the treatment of choice. Confusion with

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the more aggressive lesions, such as fibrosarcoma and fibromatosis, should be avoided if SFT is kept in mind.

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