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Nasal Schwannoma

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A Schwannoma or neurilemmoma is a rare benign nerve sheath tumour which has been sparingly reported in the nose. Its resemblance to a nasal polyp and the difficulties of its diagnosis and management are presented in this paper.

Case Report

A 35-year-old female had a long history of left-sided nasal obstruction which was diagnosed as 'deviated septum'. An SMR 2 years previously had failed to improve her condition. During the last few months she noticed a swelling occupying the left nasal fossa with occasional blood-tinged discharge.

Rhinoscopy revealed a pedunculated pale-reddish mass with a smooth intact surface and firm texture. It was attached to the lateral nasal wall above the level of the inferior turbinate. Slight bleeding occurred on touch. The swelling did not extend to the choana and the sublabial region, palate, teeth, maxillary walls and orbit appeared normal.

Radiography (Fig. 1) showed a soft tissue shadow filling the left nasal fossa and opacity of the maxillary sinus with no evidence of bone erosion.

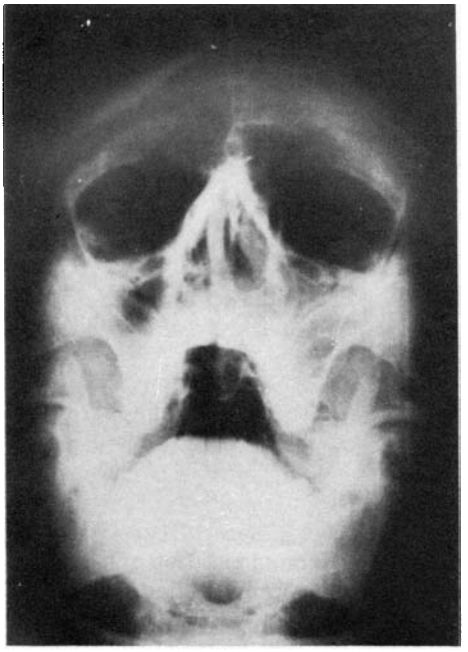
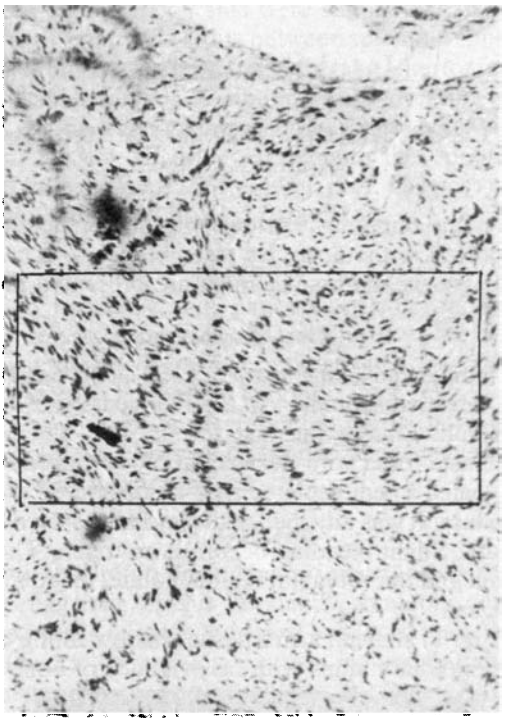


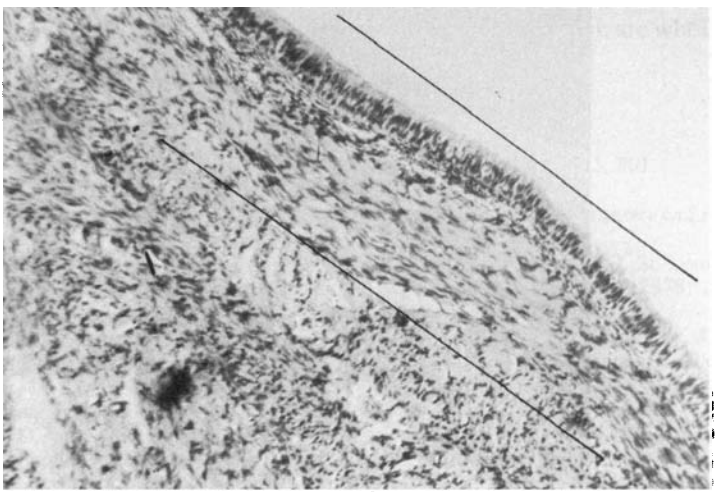
FIG. 1

X-ray, occipito-mental view, showing soft-tissue opacity of the left maxillary sinus and nasal fossa and deviation of the nasal septum.

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a



b

FIG. 2

(a) Photomicroscopy showing a palisaded or regimented appearance, all the nuclei being aligned in one strip and the clear cytoplasm of the cells in an adjacent strip (Antoni type A).
(b) Photomicroscopy showing same arrangement as in 2(a) underneath the pseudo-stratified columnar ciliated epithelium of the nose.

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A provisional diagnosis of a benign nasal mass was made and the nose was explored through a Moure's lateral rhinotomy. The swelling was found to be attached to the ethmoid region; it was friable and bled readily during removal which had to be done piece-meal. The nose was packed for three days.

Recovery was uneventful.

Histologically the mass proved to be a neurilemmoma, Antoni type A (Figs. 2a and b).

Discussion

Schwannomata are tumours of the Schwann cells of the inner endoneurium. According to Arena and Hilal (1976) these tumours were first recognized as a separate entity by Verocay in 1910, and Antoni in 1920 described the histologic types that still bear his name.

In 1955 Conley published a modification of Stout's classification of neurogenous tumours found in the head and neck. He divided these tumours into four basic types, each derived from a different neuro-ectodermal cell. In an abridged form the radical groups are as follows:

(1) True nerve tissue (neuroma).
(2) Supportive tissue (neurilemmoma or Schwannoma)
  (2a) True nerve tissue and supportive tissue (neurofibroma).
(3) Ganglion cells (ganglioneuroma).
(4) Paraganglion cells (paraganglioneuroma).

The normal nerve fibre is ensheathed by an inner sheath of Schwann cells and an outer thin membrane of loosely distributed fibroblasts called 'neurilemma'. Controversy still exists over the parent cell of origin of nerve sheath tumours, creating confusion as to their classification and terminology. Murray and Stout (1940), Batsakis (1974) and Calcaterra *et al.* (1974) pointed out that these tumours were derivatives of Schwann cells and solitary neurilemmoma, Schwannoma and neurofibroma were considered to be the same clinical entity. The chief objection to the schwann cell theory has been based on the presence of collagen in these tumours. Since collagen was assumed to be produced only by fibroblasts these tumours were considered to originate from the outer neurilemma. This objection was successfully countered by histochemical, tissue culture and electron microscopic studies which proved that Schwann cells can also produce collagen.

A Schwannoma is usually solitary, encapsulated, rounded, ovoid, fusiform or bosselated. According to Mukherjee (1979) it is either firm and solid, or cystic and fluctuant. It occupies an eccentric position in relation to its nerve of origin. The nerve bundles spread over the surface of the growth and may traverse the capsule but they do not penetrate into the tumour. The tumour is benign and grows slowly and though a malignant (sarcomatous) variety exists no such transformation has been claimed. On the other hand, Das Gupta *et al.* (1969) reported a 16 per cent incidence of unrelated associated malignancies with solitary extracranial Schwannomata.

Anand and associates (1977) found that the common anatomical sites of origin of Schwannoma are the central and intracranial portions of the spinal nerves. Rare peripheral sites have also been described such as the larynx, parapharyngeal space, tonsillar region, maxillary sinus and nose.

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Histology

Both earlier (Stout, 1949) and recent (Pesavento *et al.*, 1979) publications recognize two histologic patterns for the disease: Antoni type A (fasciculated), characterized by an orderly arrangement of spindle-shaped cells with elongated nuclei arranged in rows in long whorling strands so as to form the so-called 'palisaded' appearance; and Antoni type B (reticular), which has a looser structure with myxoid areas occasionally displaying pseudocystic structures containing a mucinous matter which is positive for stains demonstrating acid mucopolysaccharides such as Alcian blue. Sometimes the neoplasm shows a mixed structure of types A and B with a line of demarcation between the two areas.

Nasal schwannoma

MacCormack and Harris (1955) and later Becker and Jacox (1964) estimated that neurogenous tumours of the nasal cavity and nasal sinuses make up 3 per cent of the true neoplasms in this area.

Iwamura *et al.* (1972) reviewed the world literature and found 45 cases, of which 7 occurred in the nasal cavity, 5 in the maxillary sinus and 33 both in the nose and ethmoid sinuses.

There is no sex predilection for the tumour and the age incidence is usually between the 2nd and 4th decades.

The most common symptom is unilateral nasal obstruction, of an insidious onset and pursuing a slowly progressive course. Recurrent bleeding may also occur. Small growths may be hidden by a deviation of the nasal septum (Verma and Marwaha, 1970) but larger ones appear as soft fleshy pinkish polypoid masses above the inferior turbinate (Dutt, 1969).

Radiography usually shows a hazy soft-tissue shadow occupying the affected side of nose with no bone destruction.

These findings are by no means characteristic of Schwannomata and diagnosis rests solely on histologic examination.

The tumour is radio-resistant and the only hope for cure is excision, preferably through a lateral rhinotomy to gain a better exposure. Prognosis is excellent after complete removal.

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