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Radiology in Focus

Radiological diagnosis of spheno-choanal polyp

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Abstract
Spheno-choanal polyp is a rare entity which presents in a similar manner to the more common antro-choanal polyp. There is often difficulty clinically in differentiating the two conditions, although their radiological characteristics are distinct. A case of spheno-choanal polyp is presented and the plain radiograph and the CT findings reviewed.

Key words: Sphenoid sinus; Polyp, choanal; Radiology.

Introduction

A spheno-choanal polyp arises from a single sphenoid sinus, passes through its ostium and presents at the posterior choana causing nasal obstruction, rhinorrhoea, recurrent episodes of acute sinusitis and ultimately the sensation and appearance of a mass in the naso and oropharynx. The polyp is usually solitary and not associated with other sinus disease. The origin is controversial but extension of an intramural cyst from within the sinus through the natural ostium has been suggested. This is supported by the finding of similar histopathological appearances of the intramural cyst and the intra-antral part of the polyp, similar protein distribution of the fluid aspirated from the cyst and the polyp and differences in the cellular composition of the choanal polyp and common allergic or inflammatory nasal polyps (Berg *et al.*, 1988). Identification of the sinus of origin of the polyp is important pre-operatively as this may influence the surgical approach. Surgical treatment should include removal of the intra-antral part of the polyp as simple avulsion alone is associated with an unacceptably high rate of recurrence (Heck *et al.*, 1950; Blitzer and Carmel, 1985). The radiological features of the spheno-choanal polyp are characteristic and should result in its pre-operative differentiation from the antro-choanal polyp. (Weisman *et al.*, 1991).

Case report

An 11-year-old boy of Afro-Caribbean descent presented to the Middlesex Hospital with a one-year history of bilateral nasal obstruction and anterior rhinorrhoea, and a one-week history of muco-purulent nasal discharge, facial and peri-orbital pain and general malaise and pyrexia. There was no history of chronic sinusitis but a strong history of allergy in both the patient and his family. Skin prick testing confirmed the patient's allergy to grasses and trees. Previous treatment had included topical steroids, anti-histamines, admission for trimming of the inferior turbinates and antral wash-outs, all of which had failed to relieve the nasal obstruction. On examination by posterior rhinoscopy a large polyp was seen which completely obstructed the nasopharynx and which was displacing the soft palate inferiorly. Anterior rhinoscopy showed no evidence of other polyps but there was pus arising from the right middle meatus and there was tenderness around the right cheek consistent with right acute maxillary sinusitis.

Plain radiographs were taken (Fig. 1). In the occipito-mental view the features of the right acute sinusitis with opacity of the

Fig. 1

Plain O–M view of the sinuses showing an opaque left sphenoid sinus and mass in the nasopharynx (arrows).

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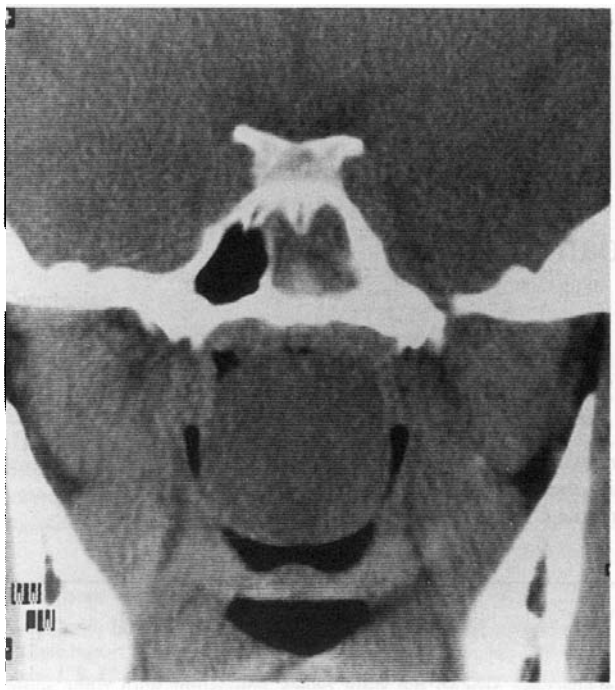

FIG. 2

Coronal CT scan through the posterior choana showing opacity of the left sphenoid sinus and a mass filling the choana and nasopharynx. In this section continuity between the sinus and the polyp is not seen and consequently no comment on the size of the ostium can be made.

right maxillary sinus are seen. Examination of the sphenoid sinuses through the open mouth shows opacity of the left sphenoid sinus and a mass filling the naso-pharynx (see arrows).

The acute sinusitis responded to a course of vibramicin after which coronal CT scans were taken (Fig. 2). They demonstrated an opaque left sphenoid sinus and a well circumscribed soft tissue mass in the nasopharynx arising from the left sphenoid sinus and extending through the sphenoethmoidal recess to the nasopharynx. There was no evidence of boney sclerosis, erosion or expansion of the sinus or deviation of the nasal septum. The natural ostia of the sphenoid sinuses were not seen in this section. The patient was admitted for excision of the spheno-choanal polyp under general anaesthetic. A 3 × 3.5 × 4 cm polyp was found to completely fill the naspharynx although examination of the nasal cavities showed no other evidence of disease. The polyp was avulsed with posterior pressure through the nasal fossa and delivered into the mouth. Macroscopically the specimen consisted of a nodule indented by the pressure from the vomer and a stalk leading to the shreds of the intramural cyst.

Discussion

Spheno-choanal polyps are rare and represent a very small proportion of choanal polyps arising from the paranasal sinuses although they present in the same manner as the more common antro-choanal polyp which arises from a maxillary sinus. Antro-choanal polyps are commonly unilateral and occur mostly in children and young adults and with an equal sex incidence (Sirola, 1966). They are usually solitary and not associated with other paranasal sinus disease (Ryan and Neek, 1979) although there may be underlying infection or allergy causing the polyp and there may be repeated episodes of acute sinusitis as a result of the polyp (Blitzer and Carmel, 1985). Characteristic plain X-ray appearances of a spheno-choanal polyp are of opacification of a single sphenoid sinus with usually no evidence of disease in the maxillary or ethmoid sinuses (Hayes and Lavelle, 1989). Occasionally there is an appearance of a mass in the nasopharynx, seen on the occipito-mental view through the open mouth or on the lateral view, causing displacement of the soft palate inferiorly.

CT appearances of a spheno-choanal polyp are of a hypoattenuating mass arising from the opaque sphenoid sinus extending through the sphenoethmoidal recess to the posterior choana and inferiorly to a variable degree into the nasopharynx (Hayes and Lavelle, 1989; Weisman *et al.*, 1991). The ostium of the sphenoid sinus is found in a variable position on the anterior wall of the sinus (Weisman *et al.*, 1991).The natural ostium often appears large although it is not clear whether this is an aetiological factor in the development of the polyp or whether this is due to pressure on the ostium from the stalk of the polyp.

MRI can be used for the evaluation of nasal polyps of unknown aetiology particularly when malignancy is suspected and will demonstrate the continuity of a spheno-choanal polyp from the choana to the sphenoid sinus.

Identification of the site of origin of a choanal polyp is desirable pre-operatively as it can influence the surgical approach to its removal. Careful evaluation of the appearances of the plain radiographs and CT scans will assist in identifying the sinus of origin.

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