CASE REPORT

Capillary haemangioma of the ethmoid sinus

Kathryn A Lightbody,¹ Mark D Wilkie,² David A Luff¹

¹Department of Otorhinolaryngology – Head and Neck Surgery, Countess of Chester Hospital, Chester, UK
²Department of Otorhinolaryngology – Head & Neck Surgery, University Hospital Aintree, Liverpool, UK
³Department of Otorhinolaryngology – Head and Neck Surgery, Countess of Chester Hospital, Chester, UK

Correspondence to

Kathryn Lightbody,
 kate.lightbody@gmail.com

SUMMARY

A middle-aged male presented with unilateral nasal blockage, reduced sense of smell and daily nosebleeds. He had a history of nasal polyps, and had undergone a left-sided polypectomy and ethmoidectomy some 10 years previously. A large polypoid mass was visible within the right nasal cavity upon examination, with CT and MRI imaging confirming the presence of a large soft tissue abnormality with no intracranial extension. Following biopsy suggestive of angioma, the patient underwent embolisation of the mass prior to endoscopic resection. Subsequent pathology revealed the mass to be a capillary haemangioma. The man made good postoperative progress and was asymptomatic at early follow-up.

BACKGROUND

Haemangiomas are benign vascular tumours that may be classified into capillary or cavernous types. They uncommonly affect the upper respiratory tract and are rare within the paranasal sinuses, and especially rare within particularly the ethmoid and sphenoid sinuses. Although haemangiomas of the nasal cavity have been relatively well documented in the literature^{1–2} there have been only sporadic individual case reports of haemangiomas originating from the paranasal sinuses.^{3–6}

This case describes an uncommon pathology of an intranasal mass, with a particularly unusual site of origin. It also serves to highlight the importance of investigation of the unilateral nasal mass, particularly when a history of nasal polyps has the potential to provide false reassurance to the clinician.

CASE PRESENTATION

A 66-year-old gentleman presented with a 4 month history of right-sided nasal blockage, hyposmia and worsening daily epistaxes. He had a history of left-sided intranasal polypectomy and ethmoidectomy with washout and septoplasty 10 years previously. He had no other significant medical problems and had had no exposure to occupational dusts or chemicals.

Upon examination, a large mass was noted in the right nasal cavity. This was confirmed by flexible nasendoscopy, which revealed a grade III blood-stained polypoid nasal swelling emanating from the middle meatus and obscuring the nasal cavity, with a mild deflection of the nasal septum to the left. No evidence of polyps or pus was found in the left nasal cavity. External appearances of the nose were normal, and there was no telecanthus noted. Cranial nerves were intact. No other synchronous haemangiomas were found.

INVESTIGATIONS

A CT scan was performed, which revealed an extensive soft tissue abnormality in the nasal cavity, with occlusion of the osteomeatal complex and extension into the maxillary antra and ethmoid sinuses, and suggested some degree of bony destruction of the bony margins of the osteomeatal complex, and nasal septum (figure 1). Subsequent MRI scan showed a well-defined mass measuring 3.5 cm by 2.5 cm by 3.5 cm emanating from the right ethmoidal air cells (figure 2). It extended close to the cribriform plate but there was no evidence of intracranial extension. MRI also revealed the maxillary antral opacification to be complete but discrete from the nasal mass; this was separate from the nasal mass and consistent with combined retained secretions and mucosal thickening. Mucosal thickening was also noted in the ethmoid and left sphenoid sinuses. No features of malignancy were noted on MRI.

A biopsy was taken with care under general anaesthesia. This was suggestive of angioma.

DIFFERENTIAL DIAGNOSIS

The possibility of malignancy should be considered with any unilateral nasal lesion. The differential diagnosis of such a mass includes pyogenic granuloma, inverted papilloma, olfactory neuroblastoma, lymphoma, adenocarcinoma, squamous cell carcinoma, angiosarcoma, Kaposi sarcoma, arteriovenous fistula, melanoma, bony and cartilaginous tumours, and may represent metastatic disease.

TREATMENT

The patient was referred to the regional tertiary referral centre, where he underwent en bloc endoscopic resection following embolisation. Histological

Figure 1 (A,B) Coronal (A) and axial (B) CT images demonstrating extensive soft tissue abnormality in the nasal cavity and nasopharynx with occlusion of the osteomeatal complex bilaterally and partial destruction of the nasal septum.

To cite: Lightbody KA, Wilkie MD, Luff DA. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-008695

Figure 2 Axial (A) and coronal (B) T2-weighted MRI images demonstrating a well defined, hyperintense mass within the nasal cavity. The medial wall of the right antrum is bowed laterally and the septum to the left. There is no evidence of intracranial extension.

findings subsequently confirmed a completely excised capillary haemangioma. A second polypoid mass resected from the right maxillary sinus was confirmed histologically to be an inflammatory polyp, and thus the patient was treated with fluticasone nasal spray 100 µg twice daily and saline sinus rinses for 3 month postoperatively.

OUTCOME AND FOLLOW-UP

The gentleman made a good recovery and was asymptomatic at follow-up at 6 months.

DISCUSSION

Haemangiomas are benign vascular tumours that, while being common lesions of the head and neck, rarely affect the nasal cavity or sinuses. In contrast to the majority of haemangiomas, which are present at or soon after birth, haemangiomas of the nose and paranasal sinuses typically present in adults, with a mean age at presentation of around 40 years.¹ In keeping with this, our patient presented aged 66 years. He was not known to have had the lesion prior to this, as his nasal cavity had been evaluated during his sinus surgery around 10 years previously.

Haemangiomas may be classified by histological appearance into two main categories according to the size of main vessel seen at microscopy—capillary and cavernous—although there is no clinical relevance between the two. The microscopic view of a capillary haemangioma shows capillary-sized blood vessels lined with flattened epithelium separated by a collagen stroma.² Of the two subtypes of haemangioma, the capillary haemangioma is the more frequently encountered haemangioma within the nose and paranasal sinuses; however, the typical anatomical location for these is attached to the nasal septum rather than arising from the nasal sinuses as we found in our case. Osborn's¹ study of 51 patients presenting with nasal haemangiomas over a 10 year period, published in 1959, remains the largest study to date, and this focuses solely on intranasal haemangiomas rather than those affecting the paranasal sinuses.

A more recent study by Iwata *et al*² reviewed eight patients with intranasal haemangiomas; again, these cases did not involve the paranasal sinuses. There is limited literature describing paranasal sinus haemangiomas, particularly those affecting the ethmoid sinuses, with only sporadic case reports found describing similar cases. Loh *et al*³ described a patient with extensive haemangioma within the left ethmoid sinus with extension laterally causing erosion of the lamina papyracea, and superiorly to involve the fovea ethmoidalis. Goel *et al*⁴ described a patient with cavernous haemangioma of the right posterior ethmoid sinus which was completely excised endoscopically. Kilde *et al*⁵ described two further similar cases, both of which also had significant extension; one case with haemangioma extending into the orbit, but not involving the globe, and the second case with extension into the cranial cavity. This particular case was suitable only for limited resection due to the proximity of vital structures. All but one of these cases required extensive craniofacial surgery in order to resect the tumours. In contrast to three of these cases, and in keeping with that described by Goel *et al*, our case was amenable to complete endoscopic excision as, although it emanated from the ethmoid sinus, was relatively limited in size and with minimal extension. Due to the limited literature concerning paranasal sinus haemangioma, recurrence rates are difficult to comment on; however, reported cases have been disease-free at long-term follow-up. In keeping with this, there are no signs of recurrence in our patient after 6 months follow-up. We acknowledge, however, that this is a relatively short period of follow-up.

Macroscopic appearances of haemangioma may be similar to other vascular tumours such as inverted papilloma, carcinoma and metastatic malignancies, and for this reason it is necessary to obtain a biopsy prior to any definitive treatment procedure. Biopsies, however, should be performed with great care. The vascular nature of these lesions is such that profuse bleeding may occur; Hayden *et al* described two deaths of patients secondary to haemorrhage following biopsies of sphenoid haemangioma.⁵ Biopsies should therefore be performed under a general anaesthetic, with imaging studies performed beforehand. Bleeding may be troublesome even with appropriate preoperative planning, as we experienced in our case.

CT and MRI are both useful modalities for the imaging of such lesions; CT scans provide information on the location and extension of the tumour, and may demonstrate bony destruction, while MRI helps to delineate mass boundaries, including whether any intracranial extension has occurred. Additionally, while CT shows enhancement throughout the lesion, MRI provides better evaluation of the vascularity of lesion. Haemangiomas enhance vividly following administration of contrast, and prior to such administration, they show high signal intensity on T2-weighted images, and intermediate signal on T1-weight images.⁷ Such scans were used in our case, with CT showing extensive soft tissue mass within the nasal cavity, and MRI showing extension close to the cribriform plate, but excluding intracranial spread.

Many different treatment methods have been employed for the management of intranasal haemangiomas, including sclerotherapy, cryotherapy and YAG laser. The treatment of choice remains complete surgical excision with preoperative embolisation to reduce intraoperative bleeding and prevent excessive haemorrhage. While many previously reported ethmoidal haemangiomas have required extensive surgery in order to resect the tumours^{3–5} the anatomy in our case was such that en-bloc endoscopic resection was possible, and this is the modality that we advocate where feasible. Such an approach is minimally

invasive, and therefore reduces complications postoperatively, and has long been recommended in cases of intranasal haemangioma.

Learning points

- ▶ Unilateral nasal masses should raise the suspicion of a sinonasal tumour, benign or malignant, and warrant investigation.
- ▶ Benign conditions affecting the nasal cavity may still require surgical excision in order to prevent complications such as bony erosion.
- ▶ Capillary haemangiomas of the nasal cavity and paranasal sinuses are rare, but should be considered in the differential diagnosis of any bleeding nasal mass.
- ▶ Capillary haemangiomas are benign vascular tumours with a high propensity to cause troublesome bleeding and a full diagnostic work-up including relevant imaging $\pm$ radiologically assisted embolisation is essential.
- ▶ Capillary haemangiomas may be amenable to full surgical excision and the endoscopic approach is the preferred method where possible.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Osborn DA. Hemangiomas of the nose. *J Laryngol Otol* 1959;73:174–9.
- 2 Iwata N, Hattori K, Nakagawa T, *et al.* Haemangioma of the nasal cavity: a clinicopathological study. *Auris Nasus Larynx* 2009;29:335–9.
- 3 Loh LE, Ho KH, Thoo A, *et al.* Haemangioma of the ethmoidal sinus. *Singapore Med J* 1994;35:211–14.
- 4 Goel A, Yadav S, Goel R. Hemangioma of a posterior ethmoid sinus: report of a rare case. *Ear Nose Throat J* 2010;89:E18–19.
- 5 Kilde JD, Rhee JS, Balla AA, *et al.* Hemangioma of the sphenoid and ethmoid sinuses: two case reports. *Ear Nose Throat J* 2003;82:217–21.
- 6 Hayden RE, Luna M, Goepfert H. Hemangiomas of the sphenoid sinus. *Otolaryngol Head Neck Surg* 1980;88:136–8.
- 7 Allbery SM, Chaljub G, Cho NL, *et al.* MR imaging of nasal masses. *Radiographics* 1995;15:1311–27.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit

<http://group.bmj.com/group/rights-licensing/permissions>.

BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow