*The Journal of Laryngology and Otology*
April 2000, Vol. **114,** pp. 287–289

# Cavernous haemangioma of the nasal bones: an alternative management option

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**Abstract**
The authors present a case of bilateral cavernous haemangiomas affecting the posterior ends of both inferior turbinates of the nose. The condition was treated by angiographically controlled embolization. Review of the literature back to 1967 has revealed no other report of embolization being used specifically for this condition. All previous treatments have involved surgery; we describe an alternative therapeutic option.

**Key words: Haemangioma, cavernous; Nasal mucosa; Embolization, therapeutic**

## Introduction

Cavernous haemangioma of the nose is rare.[1] It can present with severe epistaxis or haemoptysis. Unlike many haemangiomas that present at or soon after birth, cavernous haemangiomas of the nose frequently do not present until adulthood, with a mean age of presentation of around 40 years of age.[1] The standard approach to dealing with such haemangiomas hitherto has been surgical resection of the tumour, and ligation or cautery to the feeding vessels.

## Case report

A 47-year-old woman was seen on 11 March 1999 after referral by her General Practitioner, with a one-month history of haemoptysis. This occurred every morning, and also at other times throughout the day, and consisted of moderate amounts of bright red colour. Past medical history included excision of a malignant melanoma from her right forearm two years previously. Histology had shown this to be 2.1 mm thick and of a nodular variety. To date she has remained free from recurrence, but was extremely concerned that the haemoptysis might constitute evidence for a metastatic deposit.

On examination there was no obvious source of bleeding in the mouth or oropharynx. Her extreme anxiety made indirect laryngoscopy and post-nasal space examination difficult but no obvious abnormality was seen.

The haemoglobin concentration was 13.3 g/dl with a haematrocrit of 0.39. Chest X-ray was normal.

She was admitted to the Countess of Chester Hospital on 16 March 1999 for a panendoscopy including bronchoscopy under general anaesthetic. This was normal apart from dusky looking posterior ends to both inferior turbinates. On palpation these bled very easily and profusely and were clinically suspicious of haemangiomas but metastatic malignant melanoma could clearly not be excluded. Biopsies were therefore taken from both sides and sent for histology. The ensuing bleeding was severe and was controlled only by the insertion of post-nasal packs, together with anterior nasal packing with Vaseline® gauze. Coagulation studies were performed which showed a normal prothrombin time and activated partial thromboplastin time of 12.9 and 31.3 s respectively. The plasma fibrinogen level was elevated at 5.65 g/dl (normal range 2.0–4.7). She was also cross-matched for four units of blood.

Two days later the patient was taken back to theatre for removal of the packs under general anaesthesia but the bleeding re-commenced immediately and the packs were re-inserted.

Histology was obtained urgently and was reported as showing bilateral cavernous haemangiomas, extending to the deep resection margin; there was no evidence of metastatic malignant melanoma in either specimen (Figures 1 and 2).

The patient's case was discussed with the Department of Radiology who arranged selective external carotid angiography, via a transfemoral approach, on the 22 March 1999. This confirmed the presence of an abnormal capillary circulation arising from both inferior turbinates posteriorly

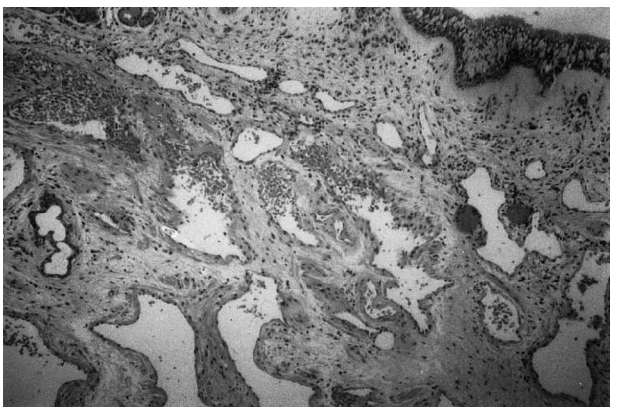

Fig. 1
Cavernous haemangioma (H&E; ×10).

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Presented at the Annual Regional ENT meeting Chester 25 June, 1999.
Accepted for publication: 23 November 1999.

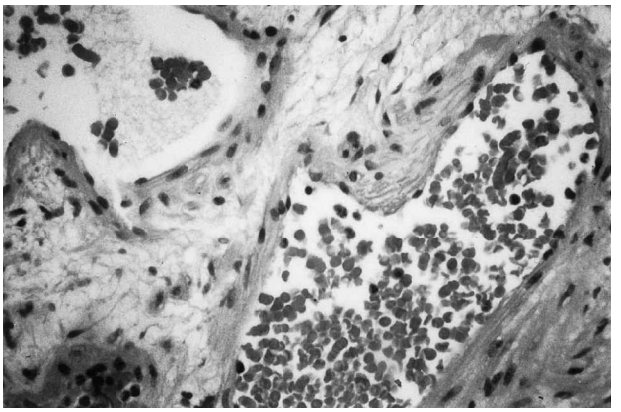

FIG. 2
Cavernous haemangioma (H&E; × 40).

(Figure 3). During the same procedure, superselective catheterization of the nasal branches of the internal maxillary arteries allowed embolization of the haemangiomas with a combination of polyvinyl alcohol (PVA) particles to occlude the capillaries and platinum coils to further reduce perfusion pressure (Figure 4).

The following day the packing was removed with no further blood loss and two days later she was discharged from hospital. Her haemoglobin had dropped from 13.3 to 10.3 g/dl and she was discharged on ferrous sulphate for one month. Blood transfusion was not considered necessary.

On subsequent clinic follow-up she had had no further bleeding and was subsequently discharged.

## Discussion

Cavernous haemangioma of the nose is rare. The largest study by Osborn[1] in 1959 reviewed 51 patients with nasal haemangiomas over a 10-year period presenting to the Royal National Throat, Nose and Ear Hospital, Grays Inn Road, London. Of these 51 cases only two were of the cavernous variety of haemangiomas the remainder were the capillary type. Neither of the cavernous haemangiomas

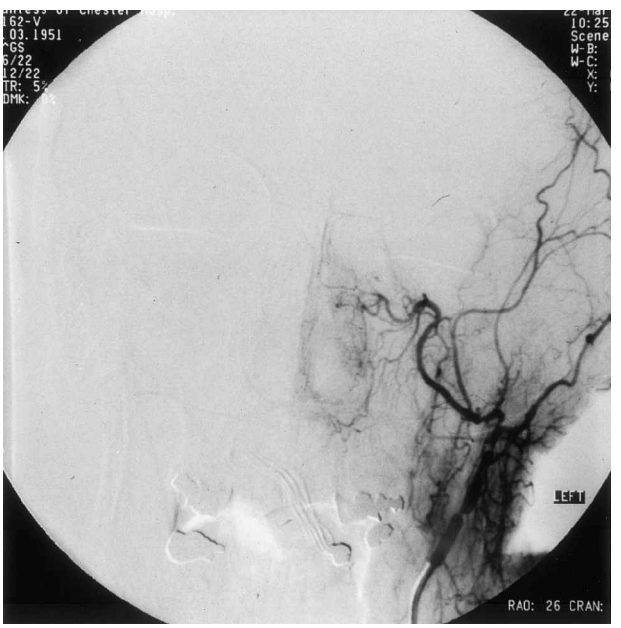


FIG. 3
Pre-embolization angiogram of left haemangioma.

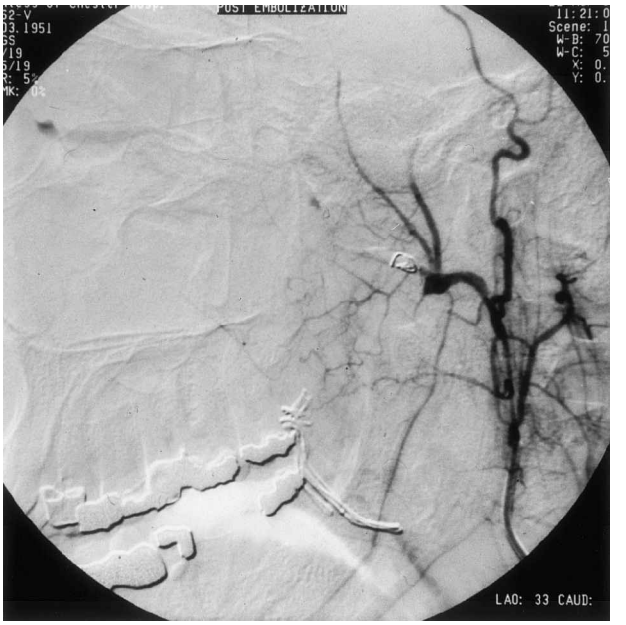


FIG. 4
Post-embolization angiogram including platinum coil.

was located within the nasal cavity; one was in the nasopharynx and the other arose from the soft palate. There has apparently been only one case report of a cavernous haemangioma arising from the inferior turbinate, which was by Shenoi in 1973.[2] His patient was a 36-year-old male, also presenting with haemoptysis. The haemangioma was found to be on the posterior end of the left inferior turbinate. The tumour was excised by a transplatal approach and the patient received a two-unit blood transfusion.

Cavernous haemangiomas of the nose are not typical of haemangiomas elsewhere on, or in, the body. They tend to present at a somewhat later age, around 40 years old,[3] and may be associated with preceding trauma.[4] It would appear to affect males and females equally,[1] although not all series' support this, Bridger[3] in 1976 reviewed 18 cases from world literature, gender was not documented for three patients, the remaining 15 showed a female to male ratio of 4:1.

Histologically cavernous haemangiomas are characterized by large blood-filled spaces lined with flattened endothelium. The endothelium frequently has papillae projecting into the lumen. There is usually only one feeding vessel, which makes embolization much more likely to be successful.

We, like many hospitals, have used embolization to treat intractable epistaxis on a number of occasions,[5] but until now the treatment of cavernous haemangiomas has always been surgical, involving resection of the tumour with a cuff of surrounding normal tissue. Shenoi[2] removed his patients' haemangioma via a transpalatal approach, that would presumably have been our approach, had we not treated our patient by embolization.

In the embolization technique employed in the present instance, an arterial catheter was fed under local anaesthesia through the right common femoral artery, up to the aortic arch, where the carotid systems are identified and catheterized. The catheter is then advanced as close as possible to the bleeding vessels (in our case as far as the sphenopalatine artery, first on one side then the other). Prior to embolization it was essential to confirm that there were no anomalous vessels communicating with intracranial arteries, this avoids inadvertent embolization of the

https://doi.org/10.1258/0022215001905364 Published online by Cambridge University Press

cranial contents. For capillary lesions with no large AV shunt PVA particles of varying size (from 250–1000 μm) can usefully be employed to achieve capillary blockade. There are many other agents that may be employed such as platinum coils, detachable balloons, cyanomethacrylate glue, ethanol and chemotherapy.

This type of embolization carries some risk of embolization of the cranial contents, resulting in stroke, and should therefore, only be performed by an appropriately trained Interventional Radiologist. In addition to this, the patient is exposed to the general dangers of angiography including contrast toxicity, haemorrhage, intimal dissection and false aneurysm formation at the puncture site.

The main benefits to the patient are that it can be performed under local anaesthesia with minimal blood loss, and an overall reduction in hospital stay.

## Conclusion

The treatment of cavernous haemangiomas arising within the nasal cavity should no longer be considered as purely surgical. Providing that there is favourable anatomy, then embolization should be considered as an alternative form of management. However, this will only be possible if appropriate angiographic facilities and expertise are available.

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Mr C. J. Webb takes responsibility for the integrity of the content of the paper.
Competing interests: None declared.