International Journal of Otorhinolaryngology and Head and Neck Surgery
Mane BS et al. Int J Otorhinolaryngol Head Neck Surg. 2025 Aug;11(4):457-460
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937
DOI: https://dx.doi.org/10.18203/issn.2454-5929.ijohns20252262

Case Report

Case study of sinonasal cavernous haemangioma manifesting as recurrent nose bleeds with a literature review

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Received: 22 April 2025
Revised: 10 June 2025
Accepted: 11 June 2025

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ABSTRACT

Cavernous hemangiomas are relatively uncommon, primarily found in adults, particularly women. These tumors frequently present with unilateral nosebleeds and nasal blockage. Furthermore, there are only a few recorded instances of cavernous hemangiomas originating from the maxillary sinus in medical literature. This case report has been written because of the rare occurrence of cavernous hemangioma in the paranasal sinus. We present a case of a cavernous haemangioma located in the right maxillary sinus of a 30-year-old male. During an anterior rhinoscopy, a large necrotic tumor was observed, which bled upon contact and obstructed the right nasal cavity. A preoperative endoscopic biopsy was conducted on the mass to eliminate the possibility of cancer, but the findings were inconclusive. A CT scan displayed a mass occupying the entire right maxillary sinus and extending into the right nasal cavity, as well as reaching the ethmoid sinuses and choana, without any evidence of bone damage or displacement of the nasal septum. The Intraoperative frozen-section pathology showed that the respiratory epithelium displayed considerable haemorrhage, necrosis, inflammation, and edema, as well as the growth of blood vessels of different sizes. For our patient, the minimally invasive transnasal endoscopic approach was successful with minimal bleeding. The tumor was completely excised, and during the one-year follow-up, the patient has not experienced any recurrence. However, the final biopsy of the lesion confirmed that it was a cavernous hemangioma.

Keywords: Cavernous, Haemangioma, Maxillary, Sinus, Choana, Epistaxis

INTRODUCTION

Haemangioma is a non-cancerous tumour that develops from vascular tissue found in skin, mucous membranes, bones, muscles, and glands.[1] Haemangiomas in the nasal cavity most commonly occur in the septum, accounting for 65% of cases.[2] The lateral wall follows with 18%, while the vestibule is affected in 16% of cases. There are 4 forms of nasal haemangiomas: proliferative, mixed, cavernous, and capillary. Cavernous haemangiomas are extremely uncommon, whereas capillary haemangiomas make up majority of sinonasal haemangiomas. Cavernous haemangiomas are more commonly found in adults, particularly among women, and typically present with unilateral nosebleeds and nasal blockage.[3] As far as we are aware, there are very few examples of cavernous haemangiomas originating from the maxillary sinus reported in medical studies. We describe a trans-nasal endoscopic excision procedure used to treat a cavernous haemangioma in the right maxillary sinus.

CASE REPORT

A 30-year-old man was sent to our ENT OPD because he had intermittent, spontaneous bleeding from his right nasal cavity for six months and right nasal blockage for two years. He had never experienced trauma. His prior medical history was normal, and he had no allergies. A huge necrotic tumour that bleeds when touched blocked the right nasal cavity on the anterior rhinoscopy. A biopsy

was performed on the mass to rule out cancer, but the results were inconclusive. A CT scan revealed a mass in the right maxillary sinus that filled the entire sinus and extended into the right nasal cavity, with ethmoid sinuses reaching up to the choana without any bone damage or nasal septal displacement (Figure 1).

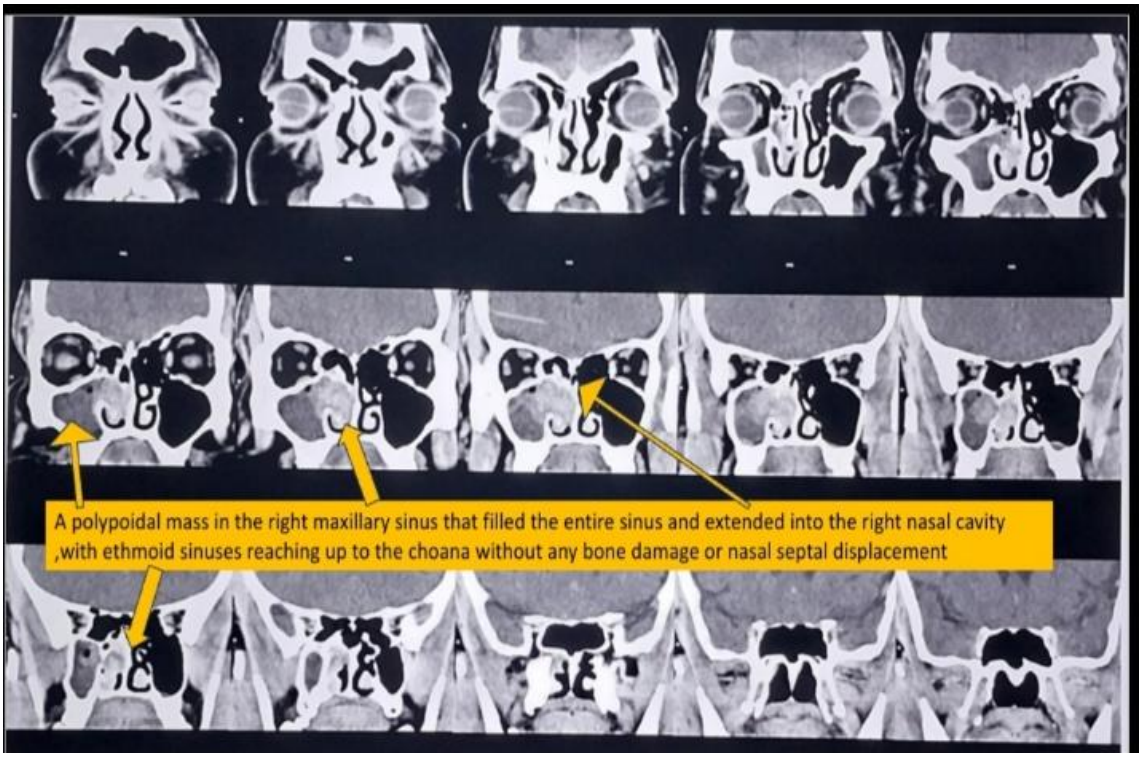

Figure 1: Contrast enhanced CT scan of PNS-coronal section showing extent of Sinonasal mass filling the entire right maxillary sinus, the right nasal cavity, with ethmoid sinuses reaching up to the choana without any bone damage or nasal septal displacement.

The entire mass was endoscopically removed from the right maxillary antrum, nasal cavity, and choana while under general anaesthesia. Because cavernous hemangioma rarely present in the paranasal sinus, this case report was recorded. Intraoperative frozen-section pathology indicated that respiratory epithelium exhibited significant haemorrhage, necrosis, inflammation, and oedema, along with the proliferation of blood vessels of varying sizes. Nevertheless, lesion's ultimate biopsy revealed that it was a cavernous hemangioma. This case report was documented due to the uncommon occurrence of cavernous hemangioma in the paranasal sinus. The opening of the middle meatus was enlarged, and haemostasis was achieved using bilateral nasal packs soaked in soframycin ointment. After 48 hours, anterior nasal packing was removed, and recovery after the operation went smoothly. Following procedure, patient was prescribed broad-spectrum oral antibiotics along with systemic and local decongestants. Additionally, nasal drops and alkaline nasal douches were administered for a duration of 7 days. The mass that was excised sent to pathology department for histopathological analysis, which revealed tan-coloured, congested soft tissue polypoidal mass measuring approximately 6×5×4 cm macroscopically (Figure 2). A large blood-filled compartment with flattened endothelium lining them and divided by fibrous stroma were visible upon microscopic inspection of tumor (Figure 3). Patient experienced a smooth recovery after surgery and remained symptom-free for 1 year without any recurrence.

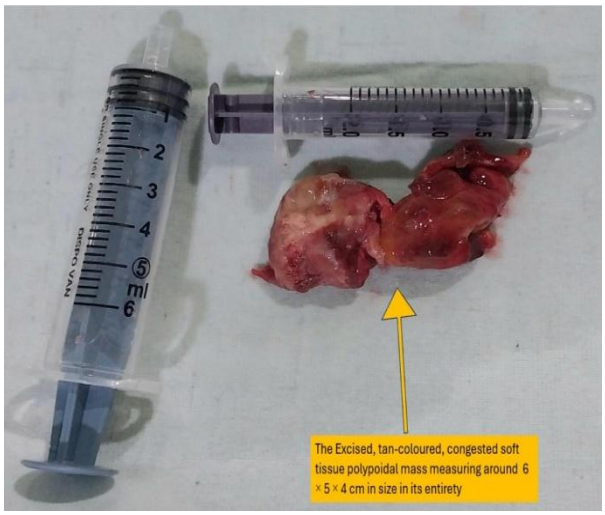

Figure 2: Resected specimen presents a macroscopic view of an excised, tan-coloured, congested soft tissue polypoidal mass that measures roughly 6×5×4 cm involving the right maxillary sinus and nasal cavity, extending up to the choana, in a 30-year-old male.

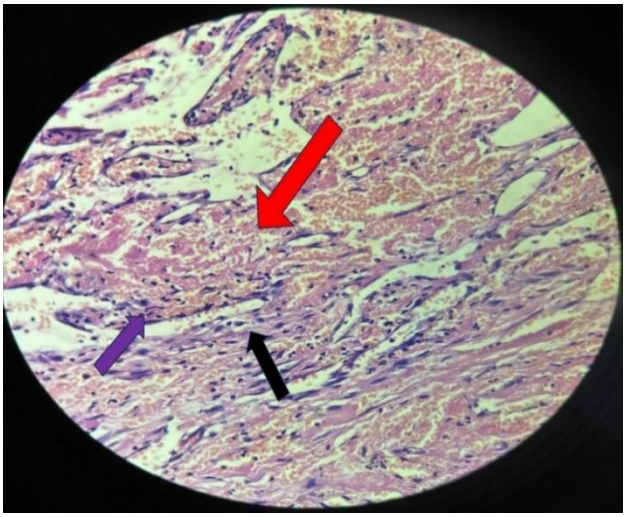

Figure 3: H and E-stained histopathological image reveals a sinonasal cavernous hemangioma characterized by large compartments filled with blood (Red arrow) that are lined with flattened endothelium (Violet arrow) and separated by fibrous stroma (Black arrow).

DISCUSSION

Haemangiomas are non-cancerous vascular tumors formed from newly developed blood vessels lined with endothelial cells. These tumors frequently occur in the head and neck region, while those found in the nasal cavity and sinuses are quite rare.[4] Haemangiomas are categorized as capillary, cavernous, or mixed vessels, depending on the predominant vessel size seen under a microscope. The capillary type, which consists of capillary-sized vessels, is the most common form found in the nasal cavity, particularly in the vestibule or nasal septum, and is more prevalent in children. In contrast, cavernous haemangiomas generally arise from the lateral wall of the nasal cavity and usually appear in a person's forties. These haemangiomas are characterized by large vascular spaces lined with endothelial cells. Over 20% of benign nonepithelial tumors affecting the nasal cavity, paranasal sinuses, and nasopharynx are identified as capillary hemangiomas. Tumors that originate in the mucosa of the turbinates often present as cavernous and tend to expand laterally. Due to its compressive nature, this vascular tumor typically progresses slowly and has a tendency to undergo self-destruction. The Inferior turbinate, vomer, perpendicular lamina, ethmoid bone, and maxillary sinus are the areas in the nasal cavity and paranasal sinuses where these conditions originate. A maxillary sinus hemangioma can develop in either the mucosal lining or the bone. A history of nosebleeds is more common in hemangiomas that arise from mucosal tissue, while a histological examination of bone-derived hemangiomas shows bone fragments alongside the hemangioma structure.[5,6] While they often show no symptoms, they can present as a reddish, sessile, or polyp-like growth that blocks the nasal passages or leads to frequent nosebleeds, especially in women. Other possible symptoms include bulging eyes, facial swelling, and nasal discharge.[2] The tumour's extent and any potential effects on surrounding structures are defined by CT and MRI, which can aid in the differential diagnosis of vascular malformations.[7] To rule out visceral affectation, MRI is utilized. Rarely, arteriography is indicated; it is employed when the prospect of embolization is taken into consideration as part of the treatment, either because the lesion is too large for a surgical approach or because of significant systemic implications. The current case involved a 30-year-old man who had regular epistaxis and nasal blockage having tan-coloured, congested soft tissue polypoidal mass in his right maxillary sinus that filled the entire sinus and extended into the right nasal cavity ,with ethmoid sinuses reaching up to the choana arising from right maxillary sinus without any bone damage or nasal septal displacement as confirmed by diagnostic nasal endoscopy and a CT scan, with consistent findings observed during the surgical procedure. Confirming the diagnosis through histological analysis of the surgical specimen is crucial. However, this process can be complicated due to the risk of significant bleeding. Prior to performing a biopsy, it is important to conduct imaging studies and standard blood tests. Sinonasal polyps, mucocele, and inverted papilloma are examples of differential diagnosis for sinonasal cavernous hemangiomas. Additionally, the presence of bone loss could indicate the possibility of a malignant tumor.[7,8] Upon microscopic examination of the tumor in our case, we observed large compartments filled with blood, featuring a flattened endothelium lining and separated by fibrous stroma.

Sometimes cavernous hemangiomas regress on their own. Patients with symptoms are usually treated surgically, with options ranging from local resection to total excision. The methods could be open, endoscopic, or a combination of both, depending on the conditions and the extent of the lesion. Endoscopic surgery is a less aggressive option, whereas more drastic methods like the caldwell-Luc approach or hemimaxillectomy with reconstruction are available for cases involving more severe maxillary affectation. Interferon alpha-2 and systemic or intralesional corticosteroids are examples of noninvasive treatments that produce results that are satisfactory but not without side effects. Radiotherapy has been described as a treatment for large tumors that involve critical tissues like the base of the skull or that show no signs of complete excision, while its applicability is debatable.[7-9] According to a 1968 Laws instance, a maxillary hemangioma vanished without returning with an 8300 Cobalt-60.[10] In our particular case, the method used was endoscopic removal and the primary complication that can arise during the procedure is bleeding. Raboso et al suggested that the surgical approach should be determined following a radiological evaluation of the extent of the condition and its blood supply, while recognizing that significant bleeding could occur. They recommended having a clear field of vision

to effectively manage any hemorrhage. Additionally, it is important to arrange for blood transfusions in advance.[11] In our patient, minimally invasive transnasal endoscopic method demonstrated effectiveness with minimal bleeding. Tumor was entirely excised, and during 1-year follow-up, patient has not experienced any recurrence.

CONCLUSION

Sinonasal cavernous hemangioma is an uncommon tumor that may be confused with a locally aggressive cancer. Gaining insight into its clinicopathological characteristics can aid in recognizing these benign tumors as a leading differential diagnosis for sinonasal neoplastic masses, particularly in younger patients who experience nasal obstruction and bleeding. For evaluating the site of the tumor and choosing the best surgical strategy for treatment, a CT scan is a useful diagnostic tool. An efficient surgical procedure for treating these tumors is endoscopic sinus surgery, either by itself or in combination with outside techniques.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Mane BS, Gavali RM. Case study of sinonasal cavernous haemangioma manifesting as recurrent nose bleeds with a literature review. Int J Otorhinolaryngol Head Neck Surg 2025;11:457-60.