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Endoscopic resection of large endonasal hemangioma: Case report

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ABSTRACT

INTRODUCTION: Hemangiomas are common vascular benign tumors of the head and neck region. However, it is uncommon for them to arise in the paranasal sinus mucosal tissues. Paranasal sinus hemangiomas have nonspecific characteristics clinically and radiologically, even though it has to be considered as a differential diagnosis to avoid the misdiagnosis of sequelae.

PRESENTATION OF THE CASE: We present a case of a 37 year-old female diagnosed with a paranasal large size hemangioma treated with functional endoscopic sinus surgery (FESS).

DISCUSSION: The case had a rare anatomical location of the hemangioma, along with a minimally invasive approach for a large size hemangioma. Owing to that fact, it might be challenging to differentiate between paranasal sinus hemangiomas and other benign or malignant pathologies.

CONCLUSION: While paranasal sinus hemangiomas occur rarely, they have arisen from the paranasal sinus mucosa. They have an average size of 1 cm, and have been reported to be as large as 8 cm, similarly to this case. When larger in size, hemangioma resections are usually approached through open surgery, whereas, in this case, the hemangioma was resected completely by FESS.

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1. Introduction

Hemangiomas are common benign vascular tumors of the head and neck region [1,3–7]. However, it is uncommon for them to arise in the paranasal sinus mucosal tissues [3–7]. They represent only 10% of head and neck tumors and 25% of non-epithelial sinonasal neoplasms [2]. It is difficult to distinguish hemangiomas from other expansible maxillary sinus lesions due to their non-specific early clinical presentation, along with non-specific imaging findings [4,5,7].

Hemangiomas growing in the sinonasal cavity are very unusual [3–5]. However, the lesions are often benign in nature [1,4,5]. In practice, small hemangiomas are usually resected through functional endoscopic sinus surgery (FESS), while the larger ones are excised by open surgery for adequate exposure, control of bleeding and wide margin resection [1,3–7]. Although in this case the hemangioma was large enough to be considered for open surgery, it was excised through FESS successfully.

2. Case report

A 37 year-old female was referred to our tertiary hospital with a history of gradual onset epistaxis from the right nose for 5 months associated with a facial fullness sensation. Two months later the patient started to complain of right facial pain, frontal fullness and sleep disturbances. Her remaining clinical history was unremarkable. Upon physical examination, the right nose showed a red dusky mass and congestion with clear secretion. Imaging studies included computed tomography (CT) of the paranasal sinuses that showed a right nasal mass sized eight centimeters causing sinonasal obstruction and underlying sinusitis, but the appearance of the mass was nonspecific (Fig. 1). The paranasal sinuses on magnetic resonance imaging (MRI) demonstrated a sinonasal angiomatous polyp of the right nasal cavity (Fig. 2).

The patient had a preoperative embolization of the hemangioma's feeding vessel, which was the internal maxillary artery (Fig. 3). Twenty-four hours later the patient underwent an excision of the mass through functional endoscopic sinus surgery (FESS). A left endoscopic septoplasty was done to access the left nasal cavity. The tumor shrunk and showed a wide pedicle originating from the posterior two thirds of the inferior turbinate. Bipolar diathermy was applied to the pedicle's attachment, followed by resection using endoscopic scissors. The vascular mass was resected en bloc with minimal bleeding (Figure 4). The posterior portion of the inferior turbinate was resected to obtain a free margin apart from the tumor. A right maxillary sinusotomy was performed to clear the inflamma-

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Fig. 1. Paranasal sinuses (PNS).
CT of the paranasal sinuses (PNS) without contrast shows a right nasal mass that obliterates the nasal airway. Mass shows attenuation without calcification. Medially there is a left nasal deviation with bone remodeling. Laterally there is remodeling of the medial antral wall, and the disease extends posteriorly through the choanal region and superiorly into the ethmoidal air cells. There is a secondary opacification of the right sinuses.

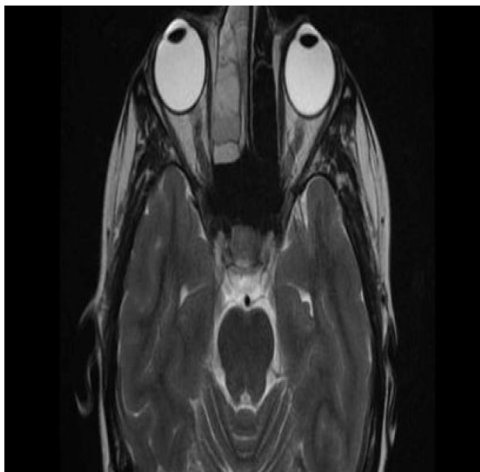


Fig. 2. Paranasal sinuses (PNS).
MRI of the PNSs shows a large solid polyp filling and expanding the right nasal cavity. The polyp can be seen compressing and displacing the turbinates laterally, with a small polyp present in the middle meatus. There is a secondary obstruction of all the PNSs on the right side with fluid. The nasal septum is deviated to the left side with a patent left nasal cavity and normal turbinates. The PNSs of the left side are all clear.

tory tissue. The patient was discharged one-day post operatively without any major complications. Histopathological examination revealed a hemangioma of capillary type. one year follow up was satisfactory, and the patient’s symptoms totally resolved without any complications (Figs. 5 and 6).

3. Discussion

Hemangiomas are the most common vascular malformations of the head and neck [1,3–7]. They develop from a hamartomas proliferation of vascular endothelial cells [1,5]. Hemangiomas can grow from mucosal, submucosal or osseous tissues of the nasal cavity or sinuses [6]. The median age of onset is 40 years old, but they can occur in all ages [2,7]. There is a peak incidence in

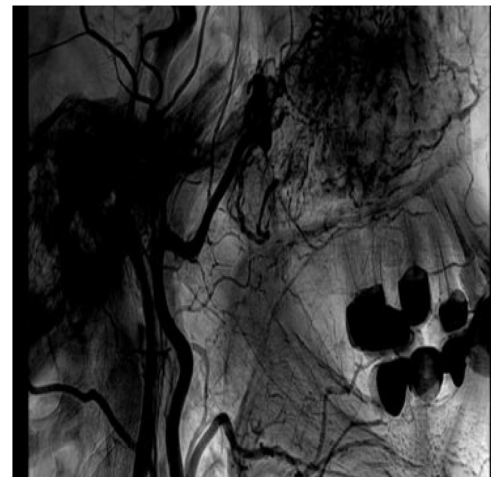


Fig. 3. Angiography.
Right head and neck angiograph with embolization, injection to the right internal carotid artery failed to demonstrate supply to the nasal tumor. Injection to the external carotid artery shows supply from the internal maxillary branches to the nasal tumor. The tumor is moderately to highly vascular.



Fig. 4. Post-resection and embolization gross hemangioma appearance.



Fig. 5. CT of the paranasal sinuses (PNS) with contrast 1 year post the surgery with no signs of recurrence.

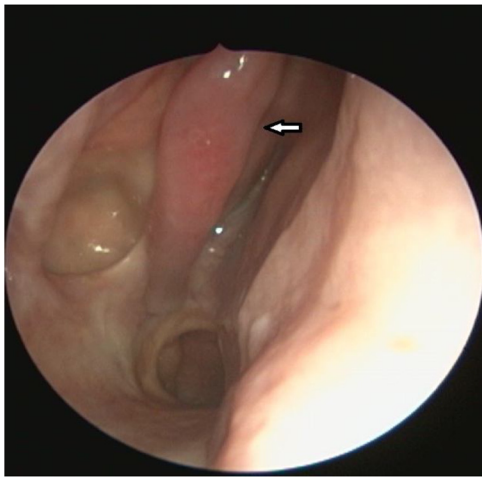


Fig. 6. Endoscopic view of right nasal fossa 1 year after the surgery with no signs of recurrence. (arrow: right middle turbinate).

young boys, adolescent males and pregnant women, with an equal sex distribution above the age of 40 [2,6,7]. The histopathological appearance of hemangiomas has been primarily divided into either capillary or cavernous types [1,6–8]. Sinonasal cavernous hemangiomas are more common in adults [8]. Non-osseous sinonasal cavernous hemangiomas are assumed to grow from the medial wall of the maxillary sinus or from the lateral wall of the nasal cavity [2,8]. Histologically they are described as multiple, large, cystic, thin-walled, blood-filled spaces lined by endothelial cells that are separated by connective tissue stroma [6,7,9,10].

However, nearly all capillary sinonasal hemangiomas occur more commonly in children and arise from submucosal and mucosal tissues [7,8]. Capillary hemangiomas commonly arise in the nasal cavity from the vestibule or the nasal septum [7,8].

Macroscopically, hemangiomas are usually not very large in size, with a mean size of 1 cm. However, in some cases, including this one, hemangiomas as large as 8 cm have been reported [9–11]. Differential diagnoses of sinonasal cavernous hemangiomas include long-standing sinonasal polyps, inverted papillomas and mucocles, although it can simulate a malignant tumor if it is associated with bone destruction [5]. Definite diagnosis of a sinonasal tract hemangioma is histopathological. Even with the uncertainty of diagnosis, practitioners should be aware of the clinical, histological and radiological characteristics of sinonasal hemangiomas to avoid the consequences of a wrong diagnosis [5,7]. CT angiography is a valuable modality in visualizing vascular malformations and identifying the feeding vessel to the tumor, moreover, it can help in deciding the approach and possibility of using preoperative embolization [12,13]. Preoperative embolization has been shown to be effective in decreasing tumor size and minimizing intra and postoperative bleeding [3,5,7,14]. We believe that preoperative embolization of hemangiomas, when applicable, has an important value in decreasing lesion size, minimizing surgically related bleeding complications and to some extent differentiating the hemangioma from other vascular lesions. On the other hand, an endoscopic approach to large endonasal hemangiomas has shown successful outcomes in terms of providing a conservative and minimally invasive approach, along with hemostasis, well controlled bleeding, the ability to undertake a complete lesion resection with free margins and avoid short term recurrence, adequate exposure, decreased surgical morbidity, decreased hospital stays and better cosmetic outcomes [1,7,15–20]. Prognosis of hemangiomas has shown a recurrence rate in 42% of the cases and usually, they are identified in patients of an older age. Regression that occurs during

pregnancy happens after parturition, angiosarcomas arise de novo [2,6].

4. Conclusion

Sinonasal hemangiomas are common benign vascular head and neck tumors. However, they are rare in the paranasal sinuses [1–7]. Accounting for the fact that their early clinical presentation and imaging study findings are not specific, they can be easily misdiagnosed as other benign or malignant pathologies [4,5,7,9]. The preferred management of nasal hemangiomas is surgical removal [1,3,2–7]. Although, a surgical approach depends mainly on the precise location and size of the tumor [3]. However, endoscopic resection with preoperative embolization is a successful approach in terms of bleeding control, adequate exposure, wide margin resection and desirable cosmetic outcomes, considering surgeons' competencies and health care facilities readiness for such patients including angiography and trained health care team members [1,7,15–20].

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Ethical approval

Approval to publish this case report was waived by the institution.

Consent

Written informed consent was obtained from the patient for publication of the case report and accompanying images.

Author contribution

Yara Alhomaidi MD 1: Contributed to Original drafting, the design and implementation of the research, data collection.

Riyadh Alokaili MD 2: Critical revision of the article.

Esam AlBawardi MD 3: Writing, editing, and Finalized the manuscript.

Naif H Alotaibi MD 4: Treating physician, Critical revision of the article, and Drafting the article.

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Declaration of Competing Interest

The authors report no declarations of interest.

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