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Case Report

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# Endonasal resection of a sinonasal hemangiopericytoma

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## Summary

**Aim** Hemangiopericytomas (HP) are rare perivascular neoplasms with variable biological behaviour. The prognosis, by histology alone, is difficult. The clinical course of disease and the localization of the tumour are of importance. Sinonasal HP is usually of low malignant potential. Currently, a less invasive, endonasal, approach is chosen for resection of such tumours. One case of sinonasal HP treated by endonasal surgery is presented.

**Case** A 61-year old man presented with nasal obstruction and stated that he had undergone endonasal surgery elsewhere twice before for "nasal polyps", 19 and eight years previously. Anterior rhinoscopy revealed a polypoid lesion in the right nasal cavity. CT showed a mass of the right ethmoidal and sphenoidal sinus with no sign of bone destruction. We performed an endonasal total resection of the tumour. The histological diagnosis was of sinonasal HP. There was no local or remote metastasis. Histological reports of the earlier surgeries were compared and identified the same tumour.

**Conclusions** The presented case shows a long-term benign course of recurrent sinonasal HP following endonasal resection. After more invasive approaches, such as lateral rhinotomy, local recurrence has been reported to appear within comparable periods of time. If the tumour is of limited extension, without infiltration of neighbouring structures, it can be removed via an endonasal approach.

**Key words** **hemangiopericytoma • endonasal • paranasal sinuses**

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## Background

Hemangiopericytomas (HP) are rare perivascular tumours representing approximately one per cent of all vascular neoplasms [1]. First described by Stout and Murray in 1942, they are thought to derive from pericytes [2]. Microscopically, HP is characterized by a proliferation of spindle-shaped to ovoid cells between vascular channels. Immunohistochemically, cases of sinonasal HP express mostly vimentin and factor XIIIa [3]. HP can occur throughout the body, though less than one third are found in the head and neck region [4]. The prediction of biological behaviour by histopathological criteria is difficult, while the clinical course and the localization of the tumour are also of importance. In comparison with other localizations, sinonasal HP is usually of low malignant potential [5]. The treatment of choice is wide surgical excision, via lateral rhinotomy or the Caldwell-Luc approach, for example. Recently, endonasal removal has been selected as a less invasive tumour resection method [6,7].

## Aim

We present one case of sinonasal HP treated by endonasal surgery.

## Case Report

A 61-year old male patient attended the clinic complaining of a slowly progressive nasal obstruction on the right side for six months. The patient stated that he had undergone endonasal surgery elsewhere because of "nasal polyps" 19 and eight years previously. No epistaxis was noted. Nasal examination revealed the presence of a polypoid structure in the right nasal cavity. A CT scan confirmed the involvement of the right ethmoid and sphenoid sinuses, with no sign of bone destruction (Figure 1). Cerebral infiltration was ruled out by MRI. An endonasal microscopic/endoscopic tumour resection was performed. The polypoid neoplasm was removed completely. No postoperative complications were noted. The histopathology report was of sinonasal HP (Figure 2). Immunohistochemically, the tumour was positive for vimentin and actin (Figure 3). Three per cent of the nuclei showed positive staining with Ki-67 indicating low proliferative activity. There were no metastases to the lung, the liver, the cervical lymph nodes or to the bones. The histologies of the former surgeries were revised. In both cases the same tumour was identified.

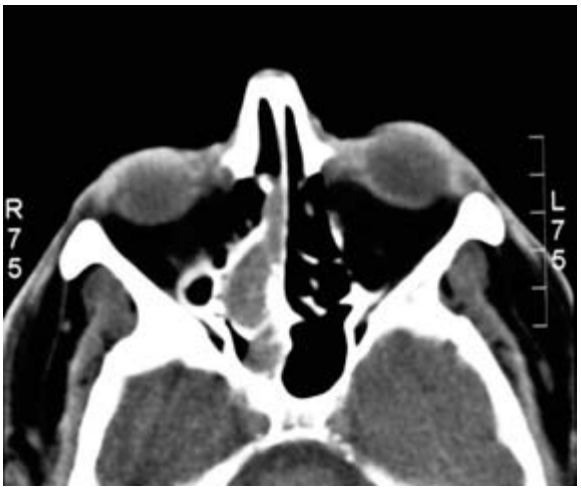


**Figure 1.** CT scan of the paranasal sinuses. The neoplasm fills the right ethmoid and sphenoid sinuses, with no sign of bone erosion.

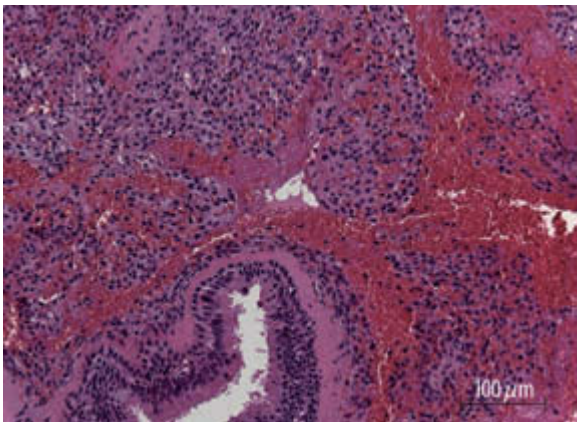


**Figure 2.** The histological appearance of sinonasal hemangiopericytoma. (Hematoxylin and eosin stain).

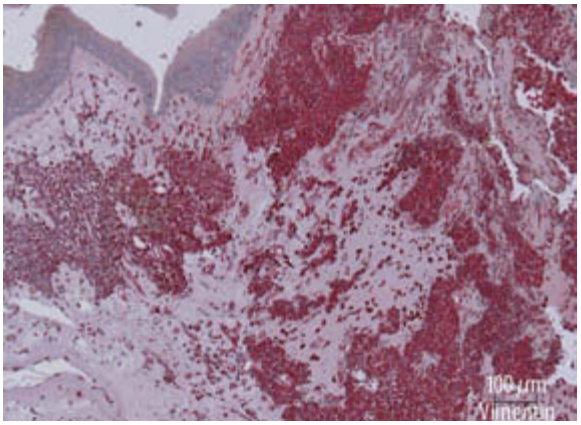


**Figure 3.** Immunohistochemistry showing expression of vimentin.

## Discussion

Despite the first description of sinonasal HP being made in 1942, endonasal tumour resection,

as a less invasive approach, has only recently been proposed [6–8]. In the case presented, eleven years after first endonasal surgery and again eight years later the patient underwent surgery for local tumour recurrence. It has been reported that, after more invasive approaches such as lateral rhinotomy, local recurrence can appear in comparable periods of time [9]. According to Marianowski et al., the local recurrence rate of sinonasal HP ranges from eight to 53 per cent [10].

Few authors have described cases of malignant sinonasal HP [11,12]. A mostly benign course has been reported [5,13–15]. The usual histological criteria for tumour malignancy are less predictive with respect to the behaviour of sinonasal HP [16]. Kowalski et al. suggested that the proliferation index, measured by using an immunoperoxidase stain for Ki-67, of ten per cent or higher may indicate a more agressive subset of HP [17]. The tumour of our patient showed a proliferation index of only three per cent.

Nasal obstruction and epistaxis are the most frequent symptoms of sinonasal HP. Macroscopically, it appears as a reddish-grey polypoid mass which bleeds easily on biopsy or manipulation and may mimic allergic polyps [13]. Examination should include axial and coronal contrast CT scans. MRI scans are helpful in determining whether or not intracranial extension is present. Preoperative angiography and embolization can facilitate surgical tumour resection [18]. Care must be taken with differential diagnosis between sinonasal HP and other soft tissue tumours such as glomus tumours or vascular leiomyoma [19].

Radiotherapy is used in cases of non-radical surgical resection, for inoperable tumours or metastases [20]. Few reports of successful combination chemotherapy in patients with metastatic disease have been published [21].

Compagno and Hyams proposed to distinguish non-aggressive "HP-like tumours" of the nasal cavity from soft tissue HP [13]. This new entity is the subject of controversy among authors [9,12]. Microscopically, these "HP-like tumours" should show a vascular architecture with ovoid to spindle-shaped cells in a more orderly distibution, without nuclear or cytoplasmic pleomorphism, mitotic activity or necrosis. In the case presented here, the neoplasm could be histologically classified as a "HP-like tumour".

## Conclusions

The presented case is an example of a benign, long-term course of recurrent sinonasal HP following endonasal resection. If such tumours are of limited extension without infiltration into neighbouring structures they may be removed by application of an endonasal approach. Very late recurrences and metastases are possible, lifelong follow-up is recommended [12].

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## References:

1. Walike JW, Bailey BJ: Head and neck hemangiopericytoma. Arch Otolaryngol, 1971; 93: 345–53
2. Stout AP, Murray MR: Haemangiopericytoma. Ann Surg, 1942; 116: 26–33
3. Catalano PJ, Brandwein M, Darsit KS et al: Sinonasal hemangiopericytomas: a clinicopathologic and immunhistochemical study of seven cases. Head Neck, 1996; 18: 42–58
4. Abdel-Fattah HM, Adams GL, Wick MR: Hemangiopericytoma of the maxillary sinus and skull base. Head Neck Surg, 1990; 12: 77–83
5. Thompson LD, Miettinen M, Wenig BM: Sinonasal-type hemangiopericytoma: a clinicopathologic and immunophenotypic analysis of 104 cases showing perivascular myoid differentiation. Am J Surg Pathol, 2003; 27: 737–49
6. Castelnuovo P, Pagella F, Delù G et al: Endoscopic resection of nasal haemangiopericytoma. Eur Arch Otorhinolaryngol, 2003; 260: 244–7
7. Serrano E, Coste A, Percodani J et al: Endoscopic sinus surgery for sinonasal haemangiopericytomas. J Laryngol Otol, 2002; 116: 951–4
8. Bhattacharyya N, Shapiro NL, Metson R: Endoscopic resection of a recurrent sinonasal haemangiopericytoma. Am J Otolaryngol, 1997; 18: 341–44
9. Hughes KV, Bard MC, Lewis JE et al: Haemangiopericytoma of the nasal cavity: a review of 15 cases over a 40-year period. Am J Rhinol, 1992; 6: 203–9
10. Marianowski R, Wassef M, Herman P, Huy PT: Nasal haemangiopericytoma: report of two cases with literature review. J Laryngol Otol, 1999; 113: 199–206
11. Szmeja Z, Muszynski M, Obrebowski A, Zengteler G: Two cases of haemangiopericytoma of the maxilla and nose. Otolaryngol Pol, 1982; 36: 365–71

12. Weber BP, Schrader M, Inniger R: Maligne Hämangioperizytome im Kopf-Hals-Bereich. HNO, 1990; 38: 326–33

13. Compagno J, Hyams VJ: Hemangiopericytoma-like intranasal tumors. A clinicopathologic study of 23 cases. Am J Clin Pathol, 1976; 66: 672–83

14. Gorenstein A, Facer GW, Weiland LH: Hemangiopericytoma of the nasal cavity. Otolaryngol Head Neck Surg, 1978; 86: 405–15

15. Chawla OP, Oswal VH: Haemangiopericytoma of the nose and paranasal sinuses. J Laryngol Otol, 1987; 101: 729–37

16. Millman B, Brett D, Vrabec DP: Sinonasal hemangiopericytoma. Ear Nose Throat J, 1994; 73: 680–2

17. Kowalski PJ, Paulino AF: Proliferation index as a prognostic marker in hemangiopericytoma of the head and neck. Head Neck, 2001; 23: 492–6

18. Weber W, Henkes H, Metz KA et al: Haemangiopericytoma of the nasal cavity. Neuroradiology, 2001; 43: 182–86

19. Güdrün R: Haemangiopericytoma in otolaryngology. J Laryngol Otol, 1979; 93: 477–94

20. Mira JG, Chu FC, Fortner JG: The role of radiotherapy in the management of malignant hemangiopericytoma. Report of 11 new cases and review of the literature. Cancer, 1977; 39: 1254–59

21. Wong PP, Yagoda A: Chemotherapy of malignant hemangiopericytoma. Cancer, 1978; 41: 1256–60