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An Unusual Vascular Spindle Cell Tumour of the Nasal Cavity in a Postpartum Woman: A Diagnostic Challenge

Sanket Prabhune [1], Amruta Hippalgaokar [2], Aditya M P [1]

1. Department of Otorhinolaryngology, Krishna Vishwa Vidyapeeth (Deemed to be University), Karad, IND 2. Department of Anaesthesiology, Krishna Vishwa Vidyapeeth (Deemed to be University), Karad, IND

Corresponding author: Aditya M P, mp.aditya18@gmail.com

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Abstract

Vascular tumours of the nasal cavity are rare, and spindle cell tumours of vascular origin are exceedingly uncommon at this site. We report a case of a postpartum woman presenting with a recurrent bleeding mass in the left nasal cavity, which was diagnosed as a spindle cell tumour of vascular origin. The lesion was completely excised via a minimally invasive transnasal endoscopic approach. This report highlights the clinicopathological features, diagnostic challenges, management, and prognosis of this rare entity, along with a brief review of the literature.

Categories: Radiology, Otolaryngology, Pathology
Keywords: endoscopic excision, epistaxis, nasal cavity, postpartum, sinonasal mass, spindle cell tumour, vascular neoplasm

Introduction

Spindle cells are mesenchymal in origin and constitute a component of connective tissue. They typically appear as elongated cells with fusiform or ovoid nuclei. The term “spindle cell neoplasm” encompasses a heterogeneous group of lesions ranging from reactive proliferation to benign and malignant tumours. These lesions most commonly occur in the upper aerodigestive tract but may also involve the skin, scalp, orbit, and neck [1].

Spindle cell tumours of vascular origin are rare and exceedingly uncommon within the nasal cavity [2,3]. Vascular origin refers to neoplastic proliferation showing differentiation towards vascular or perivascular tissue components, often accompanied by the formation of vascular channels. These lesions may demonstrate overlapping histopathological and clinical features, making accurate diagnosis challenging. In the sinonasal region, their presentation with epistaxis, nasal obstruction, and a highly vascular mass can mimic several other lesions, including haemangiomas, angiomatous polyps, and other vascular neoplasms.

Histopathological examination plays a crucial role in establishing the diagnosis by evaluating cellular morphology, stromal characteristics, and vascular architecture. Immunohistochemistry further assists in identifying the nature of spindle cell proliferation and differentiating vascular-origin tumours from other mesenchymal neoplasms. Markers such as smooth muscle actin (SMA), CD34, desmin, and S-100 may aid in the diagnostic evaluation, depending on the suspected tumour type [1].

We report the case of a postpartum woman who presented with a progressively enlarging, highly vascular nasal mass first noticed during the sixth month of gestation. The diagnostic challenge was compounded by the risk of haemorrhage associated with preoperative biopsy. Histopathological and immunohistochemical examination following endoscopic excision established the diagnosis of a spindle cell tumour of vascular origin. This case highlights the diagnostic challenges associated with rare sinonasal vascular spindle cell tumours and the importance of correlating clinical findings, imaging, histopathology, and immunohistochemistry.

Case Presentation

A 22-year-old woman presented with left-sided nasal obstruction, recurrent episodes of fresh red epistaxis, and a progressively enlarging left nasal mass of three months' duration. The swelling was first noticed during the sixth month of gestation and gradually increased in size. She reported two to three episodes of epistaxis, each involving fresh red blood, which was controlled with local pressure.

The patient was initially evaluated at our ENT department 15 days before delivery. She had no known comorbidities or significant past medical history. Her antenatal check-ups were reportedly normal, and she subsequently underwent a lower segment caesarean section (LSCS). There was no history of purulent rhinorrhoea, anosmia, facial pain, proptosis, dysphagia, odynophagia, voice change, visual disturbance,

weight loss, or oral contraceptive use.

The patient returned for follow-up 18 days postpartum. Anterior rhinoscopy revealed a reddish, polypoidal mass occupying the left nasal cavity, obscuring the nasal vestibule and protruding through the left nostril (Figure *1*).



FIGURE 1: Clinical photograph.

Showing a reddish, polypoidal mass arising from the left nasal cavity, obscuring the nasal vestibule and protruding through the left nostril.

There was no cervical lymphadenopathy. Diagnostic nasal endoscopy demonstrated a highly vascular mass arising from the left nasal cavity with contact bleeding on manipulation. A probe could be passed circumferentially around the lesion. There was a right-sided deviation of the nasal septum due to mass effect. Visual acuity was 6/6 bilaterally. Oral cavity examination was normal, with no evidence of lesion extension.

Laboratory investigations were performed as part of the preoperative assessment. The reports demonstrated the following values: haemoglobin: 11.2 g/dL; total leukocyte count: 9200 cells/µL; platelet count: 392,000 cells/µL; and coagulation profile: international normalized ratio (INR): 1.12, bleeding time: 3.4 minutes, and clotting time: 5.5 minutes.

Contrast-enhanced computed tomography (CECT) of the nose and paranasal sinuses revealed a well-defined heterogeneously enhancing soft tissue lesion measuring 16 x 13 x 20 mm (anteroposterior x transverse x craniocaudal). The lesion was confined to the left nasal cavity without evidence of bony erosion or extension into the paranasal sinuses (Figure *2*).

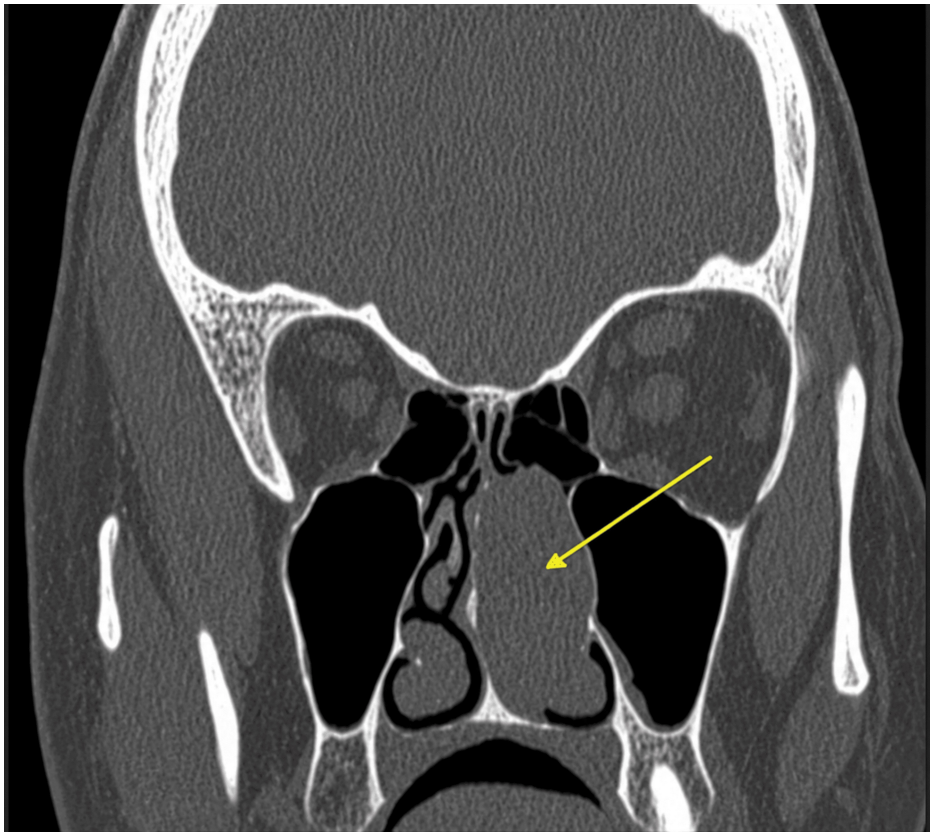


FIGURE 2: Contrast-enhanced computed tomography findings.

Demonstrating a well-defined enhancing lesion confined to the left nasal cavity (arrow).

Because of the highly vascular appearance of the lesion on endoscopy and imaging, preoperative biopsy was avoided to minimise the risk of significant haemorrhage. Differential diagnosis included angiomatous polyp, lobular capillary haemangioma, inverted papilloma, and juvenile nasopharyngeal angiofibroma.

The patient subsequently underwent endoscopic excision of the lesion under general anaesthesia. The tumour was completely excised endoscopically with adequate haemostasis. The estimated intraoperative blood loss was approximately 30 mL. Grossly, the specimen was a well-circumscribed, pedunculated mass measuring 3 x 2.1 x 1.8 cm with a light-brown cut surface (Figure 3).

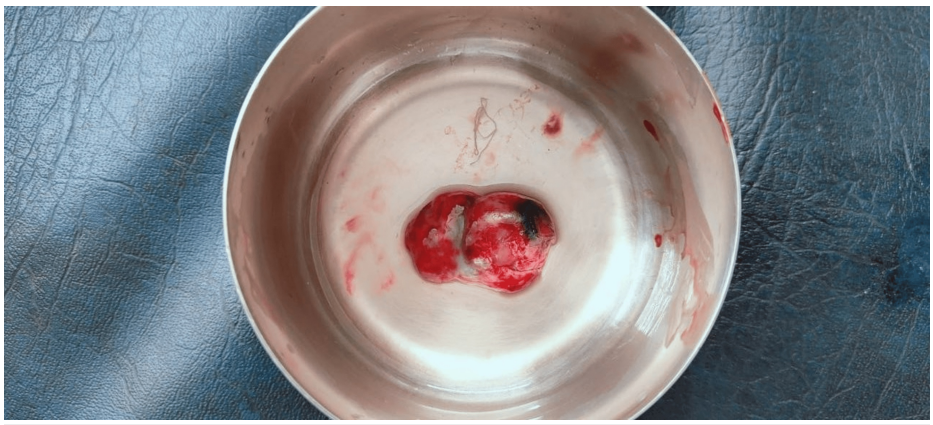


FIGURE 3: Gross specimen following complete endoscopic excision, showing a well-circumscribed, pedunculated mass measuring 3 x 2.1 x 1.8 cm.

The preoperative radiological dimensions and gross specimen measurements were recorded separately, reflecting measurements obtained through different assessment methods. The difference between these measurements is acknowledged.

Histopathological examination revealed a polypoidal lesion with surface ulceration. The underlying tissue demonstrated a proliferation of bland spindle cells embedded within a collagenous stroma, accompanied by numerous branching vascular channels (Figure 4).

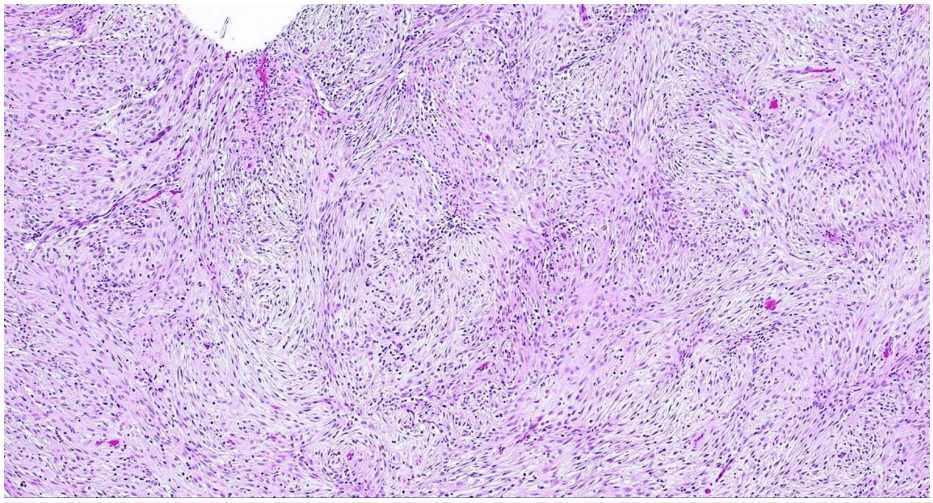


FIGURE 4: Histopathological section showing spindle cells with prominent vascular channels (H&E, x40).

No mitotic figures or tumour necrosis were identified. These findings were consistent with a benign spindle cell neoplasm of vascular origin. Immunohistochemical analysis demonstrated diffuse cytoplasmic positivity for SMA together with strong CD34 expression, supporting the diagnosis of a spindle cell haemangioma (Figure 5).

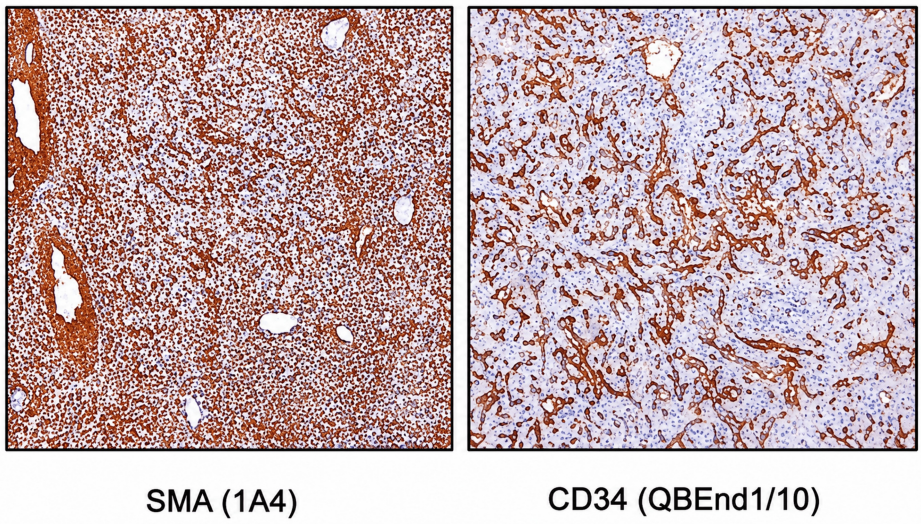


FIGURE 5: Immunohistochemistry findings.

Demonstrating diffuse positivity for smooth muscle actin (SMA; clone 1A4; ×100) and CD34 (clone QBEnd1/10; ×200), supporting the diagnosis of a spindle cell tumour of vascular origin.

The postoperative period was uneventful. Nasal packs were removed after 24 hours. The patient was followed up with regular endoscopic examination. At six months, there was no clinical evidence of recurrence.

Discussion

Spindle cell neoplasms comprise a heterogeneous group of lesions characterised by spindle cell morphology and include both benign and malignant tumours. These lesions pose a diagnostic challenge due to overlapping clinical and radiological features [3].

Tumours of vascular origin with spindle cell morphology, such as spindle cell haemangioma, tufted angioma, Kaposi sarcoma and angiosarcoma variants, are rare [1]. Spindle cell haemangioma accounts for approximately 1% of vascular tumours [3]. They are more commonly seen in the extremities, and involvement of the head and neck region is uncommon [2,3]. Sinonasal involvement is particularly rare, with only isolated cases reported in the literature involving the nasal cavity, maxillary sinus, and ethmoidal sinus [2-4].

When present in the sinonasal tract, patients typically present with epistaxis, nasal obstruction, or a visible nasal mass, as seen in our case [2-4]. Radiological imaging, particularly contrast-enhanced computed tomography (CECT) and magnetic resonance imaging (MRI), is valuable for assessing the extent of the lesion, evaluating adjacent structures, and assisting in preoperative planning [3].

Histopathological examination remains the gold standard for diagnosis [1]. Immunohistochemistry, including markers such as SMA, desmin, and S-100, may aid in differentiating these tumours from other spindle cell lesions [1].

In the present case, biopsy was deferred because of the highly vascular nature of the lesion and the associated risk of significant haemorrhage. Although excision biopsy provided a definitive diagnosis, this represents a limitation, as preoperative tissue diagnosis could have aided in better surgical planning.

Complete surgical excision remains the treatment of choice, with endoscopic approaches being preferred due to superior visualisation, minimal morbidity and favourable cosmetic outcomes [3,4]. The prognosis of benign spindle cell vascular tumours is excellent with low recurrence rates following excision [2,3].

Pregnancy is associated with increased angiogenesis and significant hormonal changes that may influence the growth of vascular lesions. Although this association remains speculative, the onset of symptoms during pregnancy and rapid enlargement of the lesion raise the possibility of a hormonal contribution to tumour growth. A similar coexistence of spindle cell tumour of vascular origin in the sinonasal tract during pregnancy has previously been reported by Bhanwala et al. [5]. However, this association requires further study.

Sinonasal spindle cell tumours of vascular origin are exceedingly rare, with only a limited number of individual cases reported in the literature. The precise incidence of these tumours involving the nasal cavity remains unclear due to their rarity and limited published documentation.

The differential diagnosis of a vascular spindle-cell lesion includes several benign and malignant entities that may overlap morphologically. Correlation of the architecture and cytological features with an appropriate immunohistochemical panel is therefore important; no single marker should be interpreted in isolation [6]. Other vascular lesions of the nasal cavity, particularly lobular capillary haemangioma, may also present with epistaxis and obstruction and can be associated with pregnancy, making histopathological assessment essential for distinguishing these entities [7-10].

This report has certain limitations. Preoperative biopsy was avoided because of the highly vascular nature of the lesion and the associated risk of significant haemorrhage. Consequently, the definitive diagnosis was established only after surgical excision and subsequent histopathological and immunohistochemical examination. Immunohistochemical evaluation was limited to SMA and CD34, and additional markers were not performed. Surgical margin status was not documented in the available histopathology report. Furthermore, the possible relationship between pregnancy and tumour growth remains speculative, as a causal association could not be established. Although regular nasal endoscopic follow-up demonstrated no evidence of recurrence at six months, longer-term surveillance would be beneficial to assess the possibility of recurrence.

Conclusions

Spindle cell haemangioma involving the nasal cavity is an exceedingly rare entity that may present with nasal obstruction, recurrent epistaxis, and a progressively enlarging vascular mass. Histopathological examination supported by immunohistochemistry is essential for establishing the diagnosis. In the present case, endoscopic surgical excision provided definitive tissue diagnosis and a favourable short-term clinical outcome, with no evidence of recurrence on six-month endoscopic follow-up. However, longer-term follow-up is necessary to assess the possibility of recurrence and establish the long-term outcome of surgical management.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Aditya M P, Sanket Prabhune, Amruta Hippalgaokar

Acquisition, analysis, or interpretation of data: Aditya M P, Sanket Prabhune, Amruta Hippalgaokar

Drafting of the manuscript: Aditya M P, Sanket Prabhune, Amruta Hippalgaokar

Supervision: Aditya M P, Sanket Prabhune

Critical review of the manuscript for important intellectual content: Sanket Prabhune, Amruta Hippalgaokar

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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