Sinonasal Myopericytoma: Case Series and Literature Review

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Abstract

Background: Myopericytoma (MPC) is a rare benign mesenchymal tumor characterized by perivascular proliferation of spindle cells with myoid differentiation. While MPC predominantly affects the extremities, sinonasal involvement is a rare clinical entity with unique diagnostic challenges. There are limited case reports describing sinonasal MPC, necessitating the need for a comprehensive literature review to guide clinical features and management.
Case Series: We report two cases on sinonasal MPC: a 67-year old male with an incidental 1.4 cm left nasal cavity mass arising from the inferior turbinate, and a 37-year old male that presented with recurrent epistaxis and a 0.6 cm right anterior nasal septal mass, initially diagnosed as a pyogenic granuloma. Both patients underwent successful endoscopic surgical excision. Histopathology revealed perivascular spindle cell proliferation with smooth muscle actin positivity, confirming MPC. At follow-up, both remained recurrence-free.
Methods: A literature review was conducted for articles published between 1996-2025 using PubMed, Embase, Cochrane, and Google Scholar databases. Search terms included "myopericytoma," "sinonasal," "head and neck," and various combinations. Additional references were identified through bibliographies. Demographics, clinical presentation, treatment, immunohistochemical profiles, and outcomes were extracted.
Results: We identified five reported sinonasal MPC cases in the literature plus our two institutional cases, yielding 7 total cases. The mean age was 47.3 years with a female predominance (5/7, 71.4%). The nasal septum was the most affected site (n=3), followed by the nasal cavity floor (n=2) and inferior turbinate (n=2). Tumor size ranged from 0.5- to 1.5-cm. Clinical presentation included epistaxis in two patients, nasal obstruction in one patient, while three cases were asymptomatic. Histopathological examination revealed characteristic perivascular spindle cell proliferation with concentric arrangement around thin-walled vessels in all cases. Immunohistochemistry demonstrated smooth muscle actin positivity in all cases where reported, while CD34 and desmin expression showed variable patterns across the cohort. Complete surgical excision was achieved in all cases using endoscopic approaches, with specific techniques tailored to tumor location. One patient experienced recurrence following incomplete initial excision, while all cases with complete excision remained disease-free during available follow-up periods.
Conclusion: Sinonasal MPC represents a rare entity with significant diagnostic challenges due to morphological overlaps with common sinonasal vascular lesions. Accurate diagnosis requires comprehensive immunohistochemical evaluation, with smooth muscle actin positivity serving as the primary diagnostic marker, while CD34 and desmin show variable expression patterns. Complete endoscopic excision with histopathological confirmation and appropriate immunohistochemical staining is the optimal management, with surveillance recommended to detect any recurrence.

Introduction

- Myopericytoma (MPC) is a rare mesenchymal tumor with perivascular myoid cell proliferation.(1-3)
- Predominantly affects distal extremities; head and neck involvement uncommon.(4)
- Non-specific presentation mimics common sinonasal lesions; frequently misdiagnosed.
- **Objective:** Present two institutional cases and conduct a comprehensive literature review to define clinical characteristics, diagnostic features, and treatment outcomes of sinonasal MPC.

Case Series

Case 1: Left Nasal Cavity Myopericytoma

- **67-year-old male** incidentally noted to have a left nasal cavity mass on examination. Patient denied any sinonasal complaints including epistaxis, nasal obstruction, or rhinorrhea.
- **Initial evaluation:** Nasal endoscopy revealed a slight S-shaped septum with an exophytic growth in the floor of the left nose emanating from the inferior edge of the inferior turbinate, suspicious for possible exophytic papilloma. Computed tomography (CT) demonstrated a 1.4×0.7×0.9 cm polypoid lesion along the left inferior nasal cavity floor.
- **Surgical intervention:** Endoscopic resection with concurrent septoplasty and inferior turbinate reduction. Intraoperative findings revealed a polypoid vascular lesion arising from the inferior turbinate and lateral nasal wall, which was excised en bloc **(Fig. 1A)**.
- **Pathology:** Final histopathology demonstrated multiple fragments of nasal mucosa with bundles of spindle cells arranged concentrically around thin-walled vascular channels **(Fig. 3A-B).** Immunohistochemistry demonstrated diffuse cytoplasmic positivity for smooth muscle actin **(SMA, Fig. 3C)** with negative staining for S100, desmin, and STAT6 **(Fig. 3D).**

Case 2: Right Nasal Septal Myopericytoma

- **37-year-old male** presenting with recurrent right-sided epistaxis over several months.
- **Initial evaluation:** Nasal endoscopy revealed a pedunculated granulomatous mass on the right anterior nasal septum. Initial biopsy diagnosed as pyogenic granuloma, and the patient underwent repeated cauterization with temporary improvement. CT revealed a persistent 0.6×0.4×0.3 cm enhancing lesion on the anterior nasal septum.
- **Surgical intervention:** Patient underwent definitive endoscopic excision with concurrent septoplasty.
- **Pathology:** Histopathology demonstrated concentric proliferation of myoid spindle cells surrounding thin-walled vessels. Immunohistochemistry showed positive staining for smooth muscle actin (SMA), with CD34 and CD31 highlighting the vasculature. The cells were negative for desmin, S100, and STAT6.

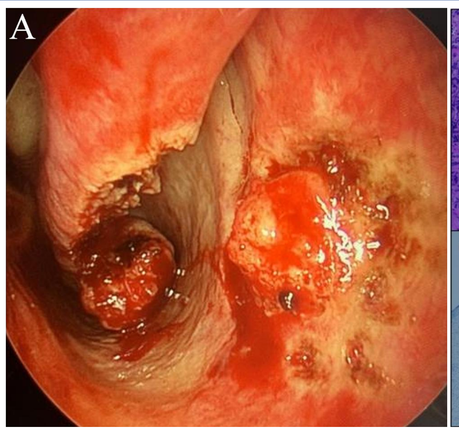

Figure 1A. Intraoperative view (Case 1) of a polypoid vascular lesion arising from left nasal floor and inferior turbinate prior to excision.

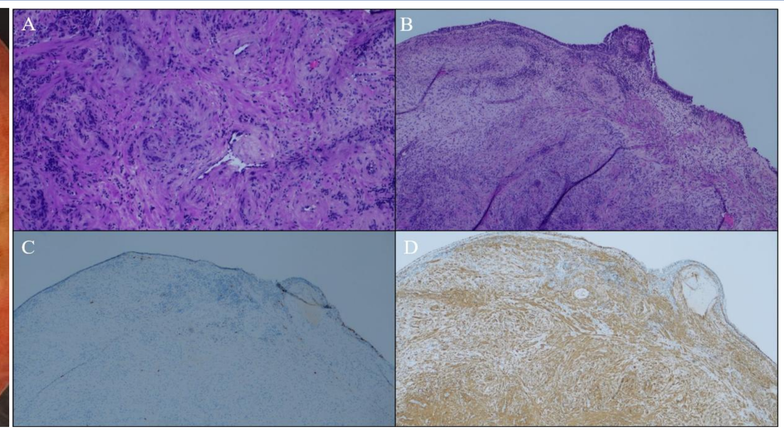

Figure 2. Histopathology of Case 1. **(A)** Low-power (40×) view showing spindle cells arranged around thin-walled vessels. **(B)** Higher-power (100×) view highlighting perivascular spindle cell proliferation. **(C)** Immunohistochemistry negative for S100 (40×). **(D)** Immunohistochemistry showing diffuse positivity for smooth muscle actin (SMA) (40×).

Results

Author/Year	Age	Sex	Location	Size (cm)	SMA	CD34	Desmin	Ki-67	Treatment	Recurrence	F/U (mo)
Wilson, 2007[5]	18	M	Inferior turbinate + maxillary sinus	NR	+	–	–	2-3 mitoses /10 HPF	Lateral rhinotomy + medial maxillectomy	Yes	6
Laga, 2008[7]	64	M	Nose, Sinus (multiple)	1.5, 1.0, 0.8, 0.3	+	–	–	NR	Excision	No	19
Arden, 2018[8]	40	F	Anterior Nasal Septum	0.8	+	+	–	NR	Complete excision	No	NR
Tan, 2022[9]	61	F	Right Nasal Septum	0.5×0.3×0.2	+	–	Patchy +	1%	Excisional biopsy	No	65
Bandi, 2024[10]	82	F	Left nasal floor+ septum	1.0	+	+	–	NR	Endoscopic excision	No	36
Case 1	67	M	Left inferior turbinate + lateral nasal wall	1.4×0.7×0.9	+	+	–	NR	Endoscopic excision + septoplasty	No	1
Case 2	37	M	Right nasal septum	0.6×0.4×0.3	+	+ (vasculature)	–	NR	Endoscopic excision + septoplasty	No	12

Table 1. Summary of all reported sinonasal myopericytoma cases including demographics, tumor characteristics, immunohistochemical profile, treatment modality, and clinical outcomes. Abbreviations: smooth muscle actin (SMA), cluster of differentiation 34 (CD34), not reported (NR), high-power field (HPF), follow-up (F/U), male (M), female (F).

Discussion

- Sinonasal myopericytoma is typically small (mean ~1.0 cm) and most commonly involves the nasal septum. While epistaxis is common, a significant proportion of cases are asymptomatic and discovered incidentally on routine examination.(5-10)
- Recurrence has been reported in sinonasal cases and is most associated with incomplete resection. Achieving complete surgical excision with negative margins is the primary determinant of cure.(5)
- Sinonasal MPC may be mistaken for pyogenic granuloma or other benign vascular tumors. Clinical appearance alone is insufficient for diagnosis due to significant morphologic overlap.
- Definitive diagnosis requires histopathologic evaluation with a targeted immunohistochemical panel due to significant morphologic overlap with other vascular and spindle-cell tumors of the sinonasal tract.
- **Characteristic Immunoprofile includes:**
  - Smooth muscle actin (SMA) positive (diffuse cytoplasmic staining)
  - Desmin negative or only focal staining
  - STAT6 negative
  - S100 negative
  - CD34 highlighting vascular endothelium rather than tumor cells

Conclusion

- Sinonasal myopericytoma is a rare perivascular tumor that should be considered in the differential diagnosis of small vascular nasal masses.
- MPC's benign behavior contrasts with its diagnostic complexity, as clinical and radiographic features are non-specific.
- When completely excised, sinonasal MPC demonstrates excellent prognosis with low risk of true recurrence.

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