ISSN: 2755-9858

Journal of Otolaryngology Research & Reports

SCIENTIFIC Research and Community

Case Series

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Baleful Lesions of the Baffle Plate - A Case Series of the Rare Malignant Tumours of Nose and Paranasal Sinuses

Aakash Kumar Bhaskar[1], Gerald Parisutham Sebastian[2*], A Amirthagani[3], C Balasubramanian[4] and Sathish Ponni[5]

[1]Junior Resident Department of Otorhinolaryngology Thanjavur Medical College and Hospital, Thanjavur, Tamil Nadu, India

[2]Associate Professor Department of Otorhinolaryngology, Thanjavur Medical College and Hospital, Thanjavur, Tamil Nadu , India

[3]Associate Professor, Department of Otorhinolaryngology, Thanjavur Medical College and Hospital, India

[4]Professor, Department of Otorhinolaryngology, Thanjavur Medical College and Hospital, India

[5]Assistant Professor, Department of Otorhinolaryngology, Thanjavur Medical College and Hospital, India

ABSTRACT

Malignant sinonasal tumours are atypical, histologically diverse neoplasms accounting for less than 5% of head and neck malignancies, with nonspecific early symptoms that frequently delay diagnosis. This observational study describes five consecutive patients managed at a tertiary centre with distinct entities: olfactory neuroblastoma (esthesioneuroblastoma), sinonasal squamous cell carcinoma (SNSCC), adenoid cystic carcinoma (AdCC), extranodal NK/T-cell lymphoma nasal type (ENKTL), and a rare vascular lesion classified as hemangioblastoma. Patients presented with unilateral nasal obstruction, epistaxis, or facial pain. Diagnosis relied on endoscopy, cross-sectional imaging (CT/MRI), and histopathology with immunohistochemistry. Management was multimodal and histology-specific (endoscopic resection ± radiotherapy for epithelial/neuroendocrine tumours; chemotherapy ± radiotherapy for lymphoma; resection for the vascular lesion). Outcomes varied by histology, staging and grade, underscoring the need for multidisciplinary care, accurate histopathological examination, immunohistochemistry and long-term surveillance given the risk of late recurrence in several of these entities.

***Corresponding author**

Gerald P Sebastian, Associate Professor, Department of Otorhinolaryngology Thanjavur Medical College and Hospital, Thanjavur, Tamil Nadu, India.

Received: November 09, 2026; **Accepted:** November 13, 2026; **Published:** November 25, 2026

Keywords: Sinonasal Malignancies, Immunohistochemistry, Diagnostic Nasal Endoscopy, Epithelial/Neuroendocrine Tumors, Multi-Disciplinary Management

Introduction

Sinonasal malignancies arise from the nasal cavity or paranasal sinuses and comprise a heterogeneous group of epithelial, neuroendocrine, salivary-type, haematolymphoid, and mesenchymal neoplasms. Their incidence is low (approximately 0.5-1 per 100,000 population), representing <3–5% of all head and neck cancers. Squamous cell carcinoma is the most common subtype, followed by adenocarcinomas, olfactory neuroblastoma, salivary type carcinomas (including adenoid cystic carcinoma), and lymphomas (particularly extranodal NK/T-cell lymphoma, nasal type, which shows geographic variation and strong Epstein–Barr virus association).

Clinical presentation is often nonspecific (unilateral nasal obstruction, epistaxis, rhinorrhoea, facial pain or pressure, hyposmia/anosmia, or orbital symptoms), leading to delayed diagnosis and frequent advanced local stage at presentation. Local invasion into the orbit, skull base, or intracranial compartment is common; regional nodal and distant metastases occur less frequently at diagnosis but influence prognosis. Staging systems include AJCC/TNM for most carcinomas, modified Kadish or Hyams systems for olfactory neuroblastoma, and Lugano staging for lymphomas. Prognosis varies widely: olfactory neuroblastoma generally has relatively favourable 5-year survival (often 60–80% overall, stage- and Hyams grade dependent), SNSCC approximately 50–60% 5-year overall survival, AdCC characterised by perineural invasion and late distant failure with intermediate long-term survival, and ENKTL outcomes dependent on stage and EBV status with historically poorer results that have improved with modern asparaginase-containing regimens and radiotherapy.

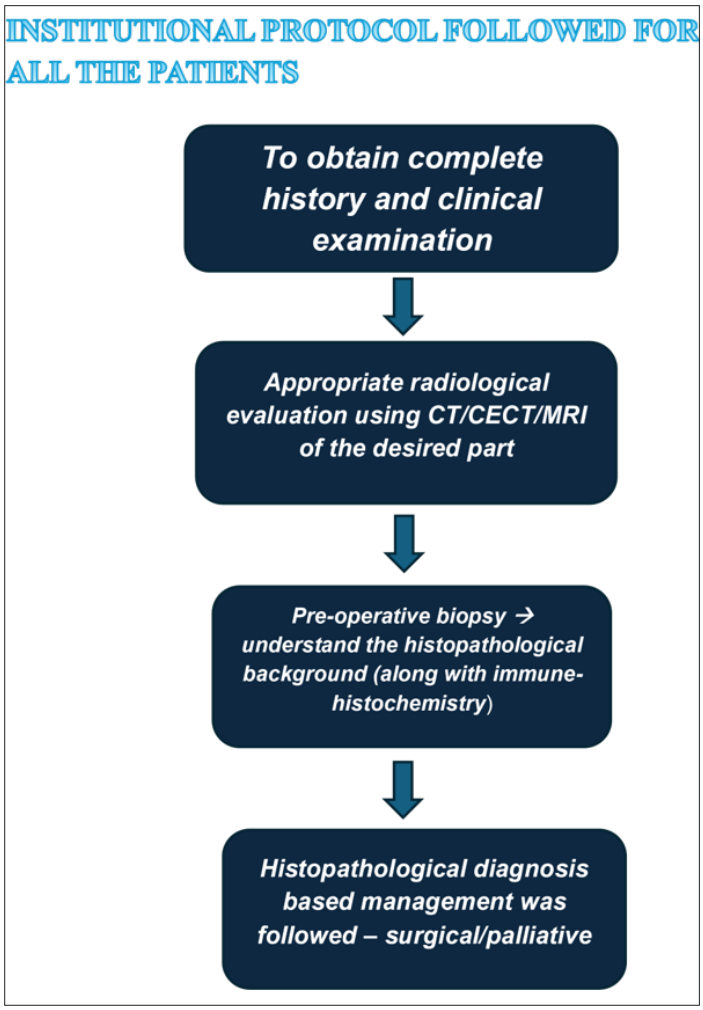
Accurate diagnosis requires high-quality imaging and expert histopathology with a broad immunohistochemical panel (and molecular testing where indicated, e.g., MYB rearrangements in AdCC, EBV in situ hybridisation for ENKTL, neuroendocrine markers for olfactory neuroblastoma). Treatment is multimodal and histology-driven: surgery (endoscopic or open craniofacial approaches aiming for negative margins) with adjuvant radiotherapy for most resectable carcinomas and olfactory neuroblastoma; combined-modality therapy (radiotherapy + chemotherapy) for ENKTL; and individualised approaches for rare entities. Long-term follow-up is essential because of the propensity for late local or distant recurrence in several of these tumours.

Case Discussion

This was a retrospective observational case series of five consecutive

adult patients evaluated and treated for primary sinonasal tumours over a period of 1 year (2025-2026) at a tertiary centre. Inclusion criteria require histologically confirmed diagnosis of one of the five specified entities, available clinical, imaging, and pathological data, and a minimum of 12 months follow-up or death. Patients with metastatic disease from distant primaries or purely intracranial lesions without sinonasal involvement were excluded.

Data extracted from medical records included demographics, presenting symptoms and duration, endoscopic findings, CT and MRI characteristics, biopsy results (histology, immunohistochemistry, and ancillary studies), clinical/radiological stage, treatment modality and intent, complications, recurrence, and survival status. Imaging protocols included contrast-enhanced CT of the paranasal sinuses and neck and multiplanar MRI with and without gadolinium. Histopathological review was performed using current WHO criteria; immunohistochemistry panels were tailored to differential diagnosis (e.g., synaptophysin, chromogranin, S100 for olfactory neuroblastoma; cytokeratins, p40/p63 for SCC; CD56, CD3, EBER for ENKTL; MYB, c-kit where relevant for AdCC; vascular markers for the hemangioblastoma/vascular lesion). Multidisciplinary tumour board discussion guided management. Follow-up consisted of clinical examination, endoscopy, and interval imaging according to institutional protocol. Descriptive statistics were used given the small sample size.



Patient Demographics
The Five Patients Comprised
Patient 1: Olfactory neuroblastoma (Kadish stage B/C, Hyams grade II–III).

Demographic Details – Age/Sex – 54 years Male

Chief Complaints
- Nasal obstruction
- Epistaxis

Occupation: Taxi Driver, known smoker, alcoholic, not a tobacco chewer

Diagnostic Nasal Endoscopy Findings: Pale red mass visualized at the level of middle turbinate extending superiorly from the roof of left nasal cavity

HRCT Paranasal Sinus findings: Heterodense lesion visualized in left nasal cavity, left ethmoid sinus, left sphenoid sinus

MRI Brain Findings: Ill-defined T2 hyperintense lesion shows diffusion restriction seen in left anterior and posterior ethmoid sinuses, left nasal cavity, left sphenoid sinus and left medial pterygoid plate. Thinned out planum sphenoid and medial wall of left orbit

Histopathological Examination Findings: Fragments of polypoidal mucosa with respiratory epithelium along congested vascularity with mixed inflammatory infiltrate

- Olfactory neuroblastoma;
- Poorly differentiated sinonasal carcinoma;
- Lymphoma

Immunohistochemistry: Positive for CD-99, Chromogranin, Synaptophysin (diffusely positive), PAN-CK (weakly positive), CD-45 (weakly positive)



Figure 1: T2W-MRI Brain Imaging for Olfactory Neuroblastoma

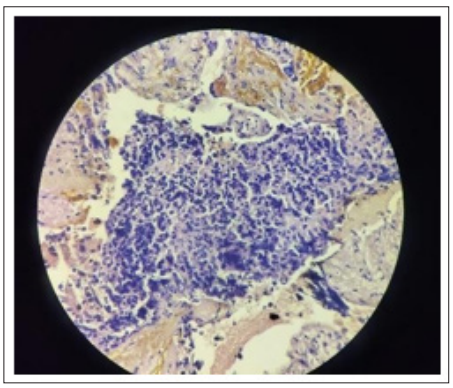


Figure 2: Pseudorosette like Arrangement - Small Blue Round Cell Tumour

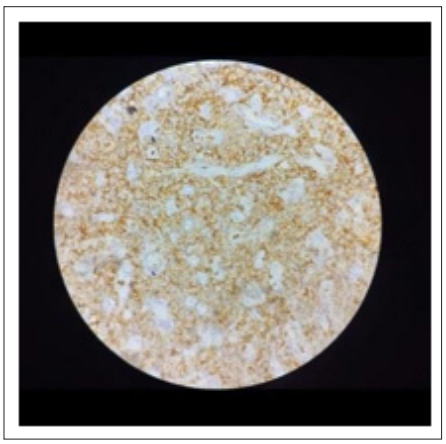


Figure 3: Immuno-Histochemistry Synaptophysin - Showing Diffuse Positivity

Diagnosis: Olfactory Neuroblastoma/Esthesioneuroblastoma Kadish Stage B

Management: Patient was planned for Endoscopic resection of the tumour which was performed uneventfully and he was subjected to post-operative radiotherapy

Follow Up: Patient was followed up at 1 week, 2 weeks, 1 month, 6 months and 1 year – with no recurrence using diagnostic nasal endoscopy and repeat CT of the paranasal sinuses

Patient 2: Sinonasal Squamous Cell Carcinoma
Demographic details: Age/Sex – 65/Male
Chief Complaints

- Unilateral nasal obstruction
- Epistaxis
- Unilateral double vision

Occupation: Farmer, known bidi smoker and alcoholic, also a chronic tobacco chewer

Diagnostic Nasal Endoscopy: Slough covered proliferative mass visualized at the level of floor of right nasal cavity extending superiorly from the middle meatus.

Contrast Enhanced Computed Tomography of Paranasal Sinuses

- Heterodense soft tissue opacification noted arising from right posterior ethmoidal air cells extending inferiorly upto floor and laterally causing osteomeatal complex widening with bony erosion of medial wall of right orbit and causing displacement of nasal septum to left
- Shows loss of fat plane with right medial rectus muscle, with bony erosion of anterior wall of right sphenoid sinus and right cribriform plate

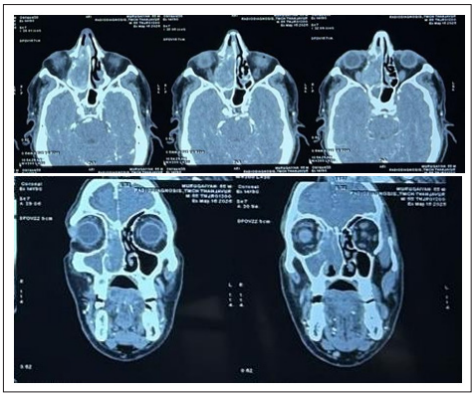


Figure 4: Contrast Enhanced CT of Paranasal Sinuses Showing Medial Orbital Wall Erosion and Medial Rectus Muscle Involvement

Histopathological Examination Findings: Stratified squamous epithelium with dysplastic squamous cells arranged in nests with moderate amount of eosinophilic cytoplasm and hyperchromatic nuclei exhibiting pleomorphism invading the stroma along with **keratin pearl formation**

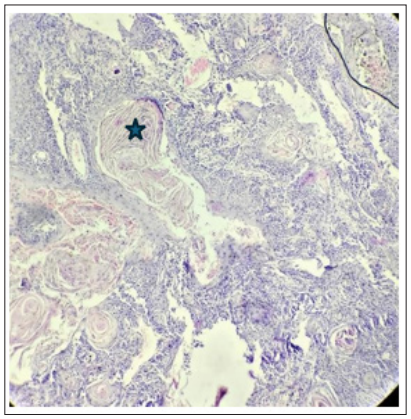


Figure 5: An Illustrative Image of the Surrounding Dysplastic Squamous Cells with Stratified Epithelium Along with Keratin Pearl (Marked with A Star), Pathognomonic for Squamous Cell Carcinoma

An Illustrative Image of the Surrounding Dysplastic Squamous Cells with Stratified Epithelium Along with Keratin Pearl (Marked with A Star), Pathognomonic for Squamous Cell Carcinoma

Diagnosis: Well Differentiated Sinonasal Squamous Cell Carcinoma

Management: Patient was planned for Palliative Radiotherapy – following dental prophylaxis, patient was referred to Department of Radiation Oncology for initiation of radiotherapy.

Follow-Up: defaulted radiotherapy and patient did not return for follow-up following 5 cycles of radiotherapy

Patient 3: Adenoid Cystic Carcinoma
Age/Sex – 36/Female
Chief Complaints
- Epistaxis
- Unilateral facial pain
- Unilateral nasal obstruction

Occupation: Tailor, not a known smoker/alcoholic/tobacco-chewer

Diagnostic Nasal Endoscopy: A pinkish polypoidal mass visualized arising from the septum extending posteriorly upto the nasopharynx

Computed Tomography of Paranasal Sinuses: Heterodense mass arising the from midline septum of size 4.2x2.8 cm extending posteriorly upto ipsilateral nasopharynx reaching upto anterior wall of sphenoid sinus superiorly

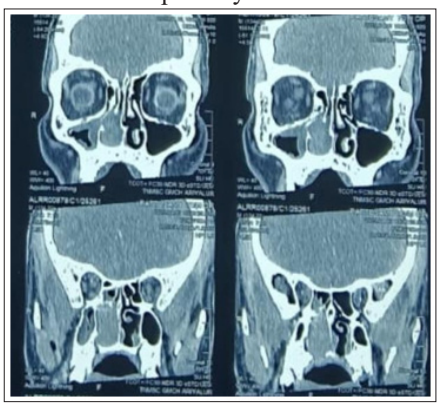


Figure 6: Histopathological Findings

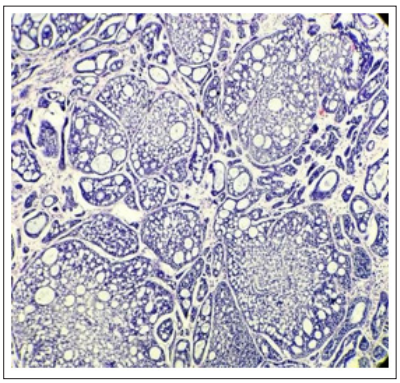


Figure 7: An Illustrative Image 'Swiss Cheese Appearance' of Adenoid Cystic Carcinoma

An Illustrative Image 'Swiss Cheese Appearance' of Adenoid Cystic Carcinoma

Diagnosis: Sinonasal Adenoid Cystic Carcinoma

Management: Patient was planned for Palliative Radiotherapy and referred to Department of Radiation Oncology

Follow Up: Patient defaulted radiotherapy after 2 cycles and did not return for follow up

Patient 4: Extranodal NK/T-Cell lymphoma, Nasal Type, Left Nasal Cavity
Age/Sex – 66/Female
Chief Complaints
- Unilateral Nasal Obstruction
- Reduced smell sensation
- Epistaxis

Occupation: Home-maker, not a known smoker/alcoholic/tobacco-chewer
Diagnostic Nasal Endoscopy: A whitish mass visualized at the septum corresponding to the level of middle turbinate – extending superiorly up to roof of left nasal cavity

Computed Tomography of Paranasal Sinuses: Homogenous soft tissue opacification visualized in left nasal cavity involving the septum extending superiorly to involve the frontal recess and posterior ethmoid sinuses

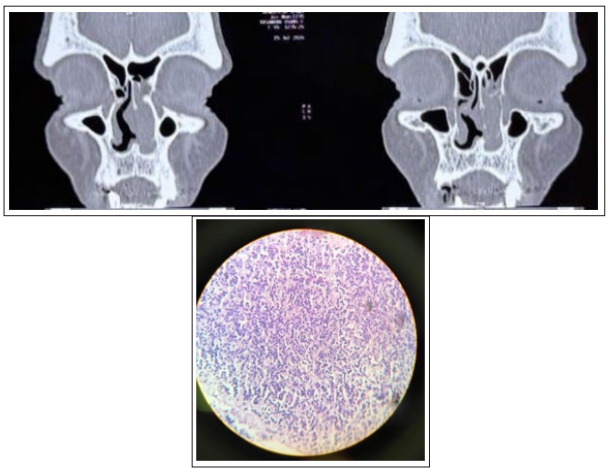


Figure 8: Sheets of Small Blue Round Cells with Lymphocytic Proliferation Surrounded with Areas of Necrosis

Histopathological Examination Findings: Stratified squamous epithelium with underlying stroma shows proliferation of sheets of monotonous population of lymphocytes with peripheral areas of necrosis

Immuno-Histochemistry: Positive for CD-3, CD-56, CD-99; Focal positive for CD-30, CD-20 positive in reactive B cells

Diagnosis: Extranodal NK/T-cell lymphoma, nasal type, left nasal cavity

Management: Patient was planned for endoscopic excision of the mass followed by radiotherapy.

Follow-Up: Endoscopic excision of the mass was done and patient was referred to Department of Radiation Oncology, for radiotherapy following excision and dental prophylaxis.

Patient 5: Rare Sinonasal Vascular Neoplasm Reported as Hemangioblastoma
Age/Sex – 38/Male
Chief Complaints

- Epistaxis
- Unilateral nasal obstruction
- Unilateral facial pain

Occupation: Software Engineer, known smoker and occasional alcoholic

Diagnostic Nasal Endoscopy: A reddish mass visualized at the level of right middle meatus extending inferiorly upto the superior surface of the inferior turbinate and posteriorly upto nasopharynx

Contrast Enhanced Computed Tomography of Paranasal Sinuses: Well, defined enhancing polypoidal lesion arising from right maxillary sinus, widening the sinus associated with bony remodelling, pushing the septum to left, extending posteriorly to nasopharynx, with no evidence of intra-orbital extension

Immuno-Histochemical Marker CD34 Positive: Fragments of polypoidal mucosa with respiratory epithelium along congested vascularity with mixed inflammatory infiltrate

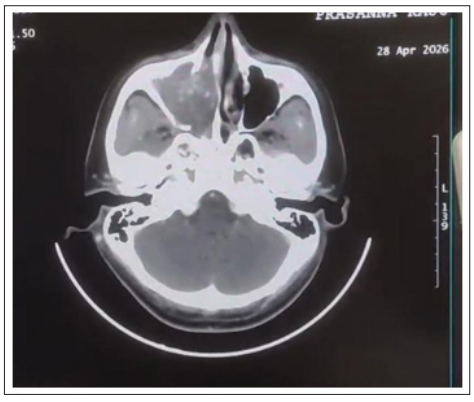


Figure 9: Enhancing Vascular Mass Visualized Arising from Right Maxillary Sinus

Diagnosis: Vascular Neoplasm - Hemangioblastoma

Management: Coblation assisted endoscopic excision of mass under general anesthesia

Follow Up: Patient was followed up at 1 week, 1 month, 6 months and 1 year.

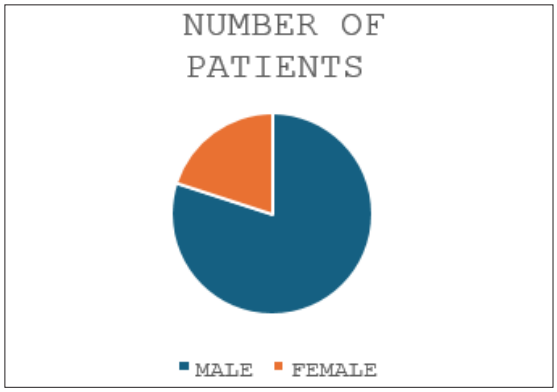


Figure 10: Number of Patients Involved in the Study, Gender Based Categorization

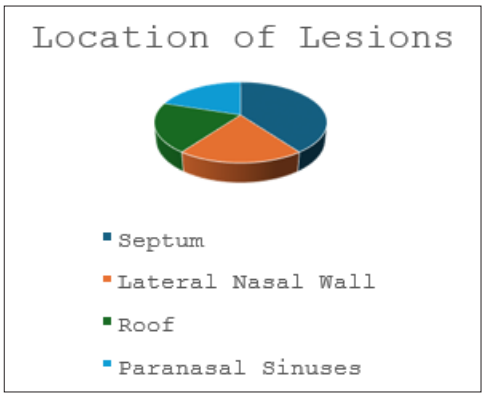


Figure 11: Location Based Categorization of Lesions

Table 1: Tabulated Summary of All the Study Participants

DEMOGRAPHICS	STATISTICS
GENDER	
Male	3
Female	2
AGE	
30-50 years	2
40-60 years	2
60-80 years	1
LOCATION OF LESION	
Midline – Septum	2
Paranasal Sinuses	1
Lateral Nasal Cavity	1
Roof	1
ORBITAL EXTENSION	
YES	1
NO	4
ASSOCIATED CRANIAL NERVE PALSIES	
YES	1 (Abducens Nerve palsy)
NO	4
MANAGEMENT	
Surgical	3
Palliative	2

Discussion

The five cases illustrate the clinical and pathological diversity of sinonasal tumours and the practical challenges of diagnosis and management. All patients presented with unilateral nasal symptoms of several months' duration, consistent with the literature that nonspecific complaints contribute to diagnostic delay. Endoscopy typically revealed a unilateral mass or polypoid lesion; imaging demonstrated variable bone erosion, orbital or skull-base involvement, and helped define resectability and plan approaches.

Olfactory neuroblastoma arose high in the nasal cavity near the cribriform plate, showed characteristic lobular architecture, neuropil, and neuroendocrine marker positivity, and was managed with endoscopic resection plus adjuvant radiotherapy, reflecting current preference for combined modality therapy that yields relatively favourable survival.

SNSCC, the most frequent histology overall, required aggressive local control (surgery ± radiotherapy ± systemic therapy in selected advanced cases); however, our patient did not consent for surgery and rather preferred radiotherapy. prognosis remains intermediate and stage-dependent.

Sinonasal Adenoid cystic carcinoma demonstrated the classic propensity for perineural invasion however patient lost follow-up after initiating radiotherapy.

Extra-Nodal NK/T cell Lymphoma presented with destructive nasal disease, was confirmed by morphology, CD3/56/99/20 positivity, and required combined-modality therapy (radiotherapy plus non-anthracycline, preferably asparaginase-containing chemotherapy) rather than surgery alone.

The fifth lesion, labelled hemangioblastoma, is atypical for the sinonasal tract; true hemangioblastomas are rare outside the CNS, and most reported sinonasal vascular tumours are capillary or cavernous hemangiomas managed by endoscopic excision with excellent local control. Inclusion of this case highlights the importance of accurate vascular-marker immunohistochemistry and clinical–radiological correlation to avoid over-treatment.

Key Themes Emerging from this Small Series and the Broader Literature Include

- The critical role of expert histopathology assnd immunohistochemistry in distinguishing entities with overlapping small-round-cell or epithelial morphology;
- The value of multidisciplinary decision-making and histology-specific protocols;
- The shift toward endoscopic approaches when oncologically sound, reducing morbidity while preserving survival outcomes in selected patients; and
- The necessity of prolonged follow-up because of late recurrences, particularly in olfactory neuroblastoma and AdCC.

Limitations of the present observational study are its small sample size, single-centre retrospective design, short-to-medium follow-up for some patients, and the inclusion of a diagnostically unusual fifth entity. Nonetheless, the series reinforces that malignant (and rare vascular) sinonasal tumours demand early specialist referral, precise classification, and individualised multimodal therapy. Future multi-institutional registries and molecular characterisation will further refine prognostication and therapeutic options for these uncommon but clinically significant neoplasms.

Conclusion

Sinonasal malignancies encompass a spectrum of rare tumours with overlapping presentations but divergent natural histories and treatment requirements. Accurate diagnosis, multidisciplinary management, and long-term surveillance remain the cornerstones of care and may avoid defaulters in follow up. Observational series such as this continue to provide practical insights that complement larger registry and guideline-based evidence [1-8].

References

1. Robin TP, Jones BL, Gordon OM, Phan A, Abbott D, et al. (2017) A comprehensive comparative analysis of treatment modalities for sinonasal malignancies. Cancer 15: 3040-3049.
2. Nicolai P, Castelnuovo P, Bolzoni Villaret A (2011) Endoscopic resection of sinonasal malignancies. Current oncology reports 13: 138-144.
3. Carlton DA, David Beahm D, Chiu AG (2019) Sinonasal malignancies: endoscopic treatment outcomes. Laryngoscope Investigative Otolaryngology 4: 259-263.
4. Khademi B, Moradi A, Hoseini S, Mohammadianpanah M (2009) Malignant neoplasms of the sinonasal tract: report of 71 patients and literature review and analysis. Oral and maxillofacial surgery 13: 191-199.
5. Kawaguchi M, Kato H, Tomita H, Mizuta K, Aoki M, et al. (2017) Imaging characteristics of malignant sinonasal tumors. Journal of clinical medicine 6: 116.
6. Bracigliano A, Tatangelo F, Perri F, Di Lorenzo G, Tafuto R, et al. (2021) Malignant sinonasal tumors: update on histological and clinical management. Current Oncology 28: 2420-2438.
7. Jakimovska F, Stojkovski I, Kjosevska E (2024) Nasal cavity and paranasal sinus cancer: diagnosis and treatment. Current oncology reports 26: 1057-1069.
8. Harvey RJ, Dalgorf DM (2013) Sinonasal malignancies. American journal of rhinology & allergy 27: S35-S38.

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