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Original Research Article

CLINICOPATHOLOGICAL SPECTRUM AND DIAGNOSTIC CORRELATION OF SINONASAL MASSES: A PROSPECTIVE STUDY OF 25 CASES

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ABSTRACT

Background: Sinonasal masses include inflammatory, infective, benign and malignant lesions that may have similar clinical and endoscopic appearances. Clinical examination, endoscopy, imaging and histopathology are therefore important for diagnosis. **Objective**: To evaluate the demographic and clinicopathological spectrum of sinonasal masses and correlate clinical, endoscopic and radiological findings with histopathological diagnosis. **Materials and Methods:** This prospective observational study included 25 consecutive patients with sinonasal masses presenting to a tertiary care centre between January and June 2026. Clinical findings, diagnostic nasal endoscopy (DNE) and CT findings were documented for all patients. All patients underwent biopsy or surgical excision, followed by histopathological examination, with immunohistochemistry where indicated. **Results:** Among 25 patients, 14 (56%) were female and 11 (44%) were male, with an age range of 8–59 years and a mean age of 35.0 ± 13.2 years. Non-neoplastic lesions constituted 80% (n=20), benign neoplasms 12% (n=3), and malignant neoplasms 8% (n=2). Sinonasal polyposis was the commonest diagnosis (60%, n=15), followed by antrochoanal polyp (12%, n=3) and inverted papilloma (8%, n=2). One case each of unilateral inflammatory polyp, rhinosporidiosis, pyogenic granuloma, small round cell tumour and diffuse large B-cell lymphoma was identified. **Conclusion:** Non-neoplastic lesions predominated, but infective and neoplastic lesions also presented with overlapping features. DNE and CT helped assess lesion morphology and extent, while histopathology remained essential for definitive diagnosis.

INTRODUCTION

Sinonasal masses comprise a broad group of inflammatory, infectious, benign neoplastic and malignant lesions involving the nasal cavity and paranasal sinuses. The complex anatomy of this region and the similarity in clinical presentation often make it difficult to differentiate these lesions clinically. Nasal obstruction, nasal discharge, epistaxis, facial pain, headache and an intranasal mass can be seen in both inflammatory and neoplastic conditions 1. The reported frequency of sinonasal masses also varies between studies depending on the population and the type of hospital studied, while reliable population-based prevalence data remain limited.

In a study of 112 patients from western Maharashtra, Lathi et al. reported that 71.4% of sinonasal masses were non-neoplastic, with allergic and inflammatory polyps forming the major group. Among benign neoplasms, haemangioma and inverted papilloma were commonly encountered 1. Rawat et al., in a prospective study of 264 cases, reported inflammatory or tumour-like lesions in 68.56%, benign neoplasms in 22.72% and malignant lesions in 8.71% 2. Kulkarni et al. studied 117 lesions and found that 86% were non-neoplastic, with nasal polyps being the commonest lesion3. Similarly, a South Indian study of 202 sinonasal polyps reported a predominance of non-neoplastic lesions, with allergic polyps accounting for a substantial proportion 4.

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Antrochoanal polyps are benign inflammatory lesions that usually arise from the maxillary sinus and extend through the ostium into the nasal cavity and choana. They are seen more often in children and young adults and commonly present with unilateral nasal obstruction 5. Infectious lesions such as rhinosporidiosis may also present as friable, polypoidal nasal masses 6. Histologically, lymphoplasmacytic inflammation and transepithelial migration of sporangia may be observed, and the characteristic sporangia can be identified on routine haematoxylin and eosin sections 6.

Sinonasal inverted papilloma is an important benign epithelial tumour because of its locally aggressive behaviour, tendency for recurrence and risk of malignant transformation 7. Recognition of its characteristic endoscopic and histopathological features is therefore important for appropriate treatment and follow-up 7. Lobular capillary haemangioma, commonly known as pyogenic granuloma, is another benign vascular lesion that may present with epistaxis and nasal obstruction8. In a five-year prospective study of 151 sinonasal masses from a rural tertiary care centre in Bengaluru, non-neoplastic lesions formed the majority, while lobular capillary haemangioma was identified among the benign neoplastic lesions, highlighting the varied histopathological spectrum of sinonasal masses 9.

The WHO Classification of Tumours provides the current framework for classifying sinonasal and other head and neck neoplasms. The 5th edition classifies tumours systematically according to anatomical site and taxonomic levels such as category, family, type and subtype, with nasal, paranasal and skull base tumours forming a separate section 10. This classification incorporates histopathological features together with relevant molecular findings and diagnostic criteria10. As clinical and radiological findings may overlap, correlation of clinical findings with endoscopic, radiological and histopathological features is important in the evaluation of sinonasal masses 11. DNE allows direct assessment of the site and nature of the lesion, while CT of the paranasal sinuses helps define its extent, sinus involvement and bony changes 12. Histopathological examination remains essential for establishing the definitive diagnosis.

The present study was undertaken to assess the clinicopathological spectrum of sinonasal masses encountered at a tertiary care centre in Bengaluru, with correlation of their clinical presentation, DNE findings, radiological features and histopathological diagnosis.

The study aims to evaluate the demographic and clinicopathological spectrum of sinonasal masses by assessing their clinical, endoscopic, and radiological presentations, classifying them as non-neoplastic, benign neoplastic, or malignant based on definitive histopathological examination, and correlating these findings with the final histopathological diagnosis.

MATERIALS AND METHODS

Study Design and Setting: This prospective observational case series was conducted in the Department of Otorhinolaryngology and Head and Neck Surgery at a tertiary care centre in Bengaluru, India.

Study Duration and Population: The study was conducted from January to June 2026 for a period of 6 months. Twenty-five consecutive patients with clinically evident sinonasal masses were included.

Inclusion Criteria

Patients with clinically evident sinonasal masses who underwent: detailed clinical assessment; diagnostic nasal endoscopy; computed tomography (CT) evaluation of the nose and paranasal sinuses; and histopathological examination

Exclusion Criteria

Patients with incomplete clinical records or without a definitive histopathological diagnosis were excluded.

Diagnostic Protocol

Patients underwent a standardized diagnostic workup:

1. **Clinical Assessment and Endoscopic Evaluation (DNE)**

A detailed clinical history was obtained from all patients. Particular attention was given to: nasal obstruction; nasal discharge; epistaxis; headache or facial symptoms; duration of symptoms; and progression of disease. Age and sex were recorded.

Diagnostic nasal endoscopy (DNE) was performed to evaluate: laterality of the lesion; site of attachment; surface morphology; mucosal characteristics; friability; vascularity; intranasal extension; and associated structural abnormalities.

2. **Radiological Assessment**

Computed tomography (CT) of the nose and paranasal sinuses was evaluated in axial and coronal planes. The following features were documented: location and extent of the lesion; sinus involvement; soft-tissue density; sinus opacification; bony remodelling; bone thinning; erosion or destruction; and relationship to adjacent structures.

3. **Histopathological Examination (HPE)**

All biopsy and surgical specimens were subjected to histopathological examination. Formalin-fixed, paraffin-embedded tissue sections were stained with haematoxylin and eosin (H&E). Immunohistochemistry (IHC) was performed when routine microscopy suggested lymphoid or small round cell pathology requiring further characterisation.

Statistical Analysis

Data were analysed using descriptive statistics. Continuous variables were summarised using mean, standard deviation, median, mode and range, as appropriate. Categorical variables were expressed as frequencies and percentages. Inferential statistical analysis was not performed because of the small sample size and limited numbers within individual diagnostic groups.

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RESULTS

Demographic Characteristics

A total of 25 patients were included in the study. There were **14 females (56%)** and **11 males (44%).** Age of the patients ranged from **8 to 59 years**. The overall **mean age was 35.0 ± 13.2 years, median age was 36 years, and a mode of 33 years.**

Clinicopathological Spectrum

Non-neoplastic lesions constituted the largest pathological category, accounting for 20 cases (80%). Benign neoplasms accounted for three cases (12%), whereas malignant neoplasms accounted for two cases (8%).

Table 1: Clinicopathological spectrum of sinonasal masses

Category	Histopathological diagnosis	n	%
Non-neoplastic	Sinonasal polyposis	15	60
Non-neoplastic	Antrochoanal polyp	3	12
Non-neoplastic	Unilateral inflammatory polyp	1	4
Non-neoplastic	Rhinosporidiosis	1	4
Benign neoplasm	Inverted papilloma	2	8
Benign neoplasm	Pyogenic granuloma	1	4
Malignant neoplasm	Small round cell tumour	1	4
Malignant neoplasm	Diffuse large B-cell lymphoma	1	4
Total		**25**	**100**

Sinonasal polyposis was the most common individual diagnosis, followed by antrochoanal polyp.

Table 2: Demographic distribution according to pathological category

Category	n	%	Female	Male	Mean age ± SD (years)	Median	Range
Non-neoplastic	20	80	13	7	34.4 ± 13.1	35.5	8–59
Benign neoplasm	3	12	1	2	29.0 ± 14.1	27	16–44
Malignant neoplasm	2	8	0	2	49.5 ± 0.7	49.5	49–50
Total	**25**	**100**	**14**	**11**	**35.0 ± 13.2**	**36**	**8–59**

Non-neoplastic lesions showed female predominance, whereas benign and malignant neoplastic lesions showed male predominance. Both malignant cases occurred in male patients.

The mean age of the malignant group was 49.5 ± 0.7 years, based on individual ages of 49 and 50 years.

Table 3: Demographic and clinical characteristics according to diagnosis

Diagnosis	n	Female	Male	Mean age (years)	Major clinical/endoscopic/radiological findings
Sinonasal polyposis	15	10	5	38.2	Bilateral nasal obstruction; ethmoidal/pansinus polypoidal disease
Antrochoanal polyp	3	1	2	12.0	Unilateral obstruction; maxillary sinus lesion extending into the nasal cavity
Unilateral inflammatory polyp	1	0	1	41.0	Unilateral obstruction with bleeding; enhancing lesion
Rhinosporidiosis	1	1	0	37.0	Epistaxis and intranasal mass; final diagnosis confirmed on HPE
Inverted papilloma	2	0	2	35.5	Unilateral obstruction; antral extension
Pyogenic granuloma	1	1	0	16.0	Nasal obstruction and discharge; localised lesion with bony changes
Small round cell tumour	1	0	1	49.0	Progressive obstruction and discharge; clinically polypoidal lesion
Diffuse large B-cell lymphoma	1	0	1	50.0	Severe obstruction and epistaxis; destructive sinonasal mass

Pathological Cross-Tabulation

Cross-tabulating primary complaints against diagnostic classification highlights the clinical overlap across categories:

Nasal Obstruction: was the predominant presenting complaint and was observed across different pathological categories.

Active Nasal Bleeding (Epistaxis): Documented in the malignant neoplasm group (100%), the pyogenic granuloma case (100%), the rhinosporidiosis category (100%), and select advanced inflammatory polyps.

Bone Erosion Matrix: Focal bone thinning or erosion was explicitly noted in the pyogenic granuloma group and the malignant lesion.

Nasal obstruction was the predominant presenting complaint. Endoscopy and CT demonstrated considerable overlap between inflammatory, infective and neoplastic lesions, although CT was useful for assessing the extent of disease and bony involvement.

Sinonasal masses comprise a heterogeneous spectrum of inflammatory, infective, benign neoplastic and malignant lesions. In the present prospective study of 25 patients, non-neoplastic lesions constituted 80% of all cases, followed by benign neoplasms (12%) and malignant neoplasms (8%). The predominance of non-neoplastic lesions in our series is comparable with previous clinicopathological studies of sinonasal masses.[1]

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A similar predominance of non-neoplastic lesions has also been reported in other Indian series[2]. However, the relative frequency of individual lesions varies with the study population, geographical region, sample size, referral pattern and inclusion criteria. Although non-neoplastic lesions predominated in our series, infective and neoplastic lesions were also encountered and require appropriate evaluation.

NON-NEOPLASTIC LESIONS

Sinonasal Polyposis

Sinonasal polyposis was the most common lesion in our study, accounting for 15 cases (60%). The mean age of patients with sinonasal polyposis was 38.2 years, with 10 females and five males. Because of the limited sample size, this sex distribution should be interpreted descriptively.

Nasal obstruction was the predominant clinical presentation. Importantly, obstruction was also seen in other pathological categories, showing that this symptom alone cannot reliably distinguish inflammatory lesions from infective or neoplastic pathology. DNE and CT commonly demonstrated polypoidal disease involving the ethmoidal region and/or multiple paranasal sinuses. Histologically, the polyps showed respiratory epithelium with goblet cell hyperplasia and a thickened basement membrane overlying loose, markedly oedematous stroma with inflammatory cell infiltration (Fig. 2). These findings are consistent with the usual histological appearance of inflammatory sinonasal polyps.[4]

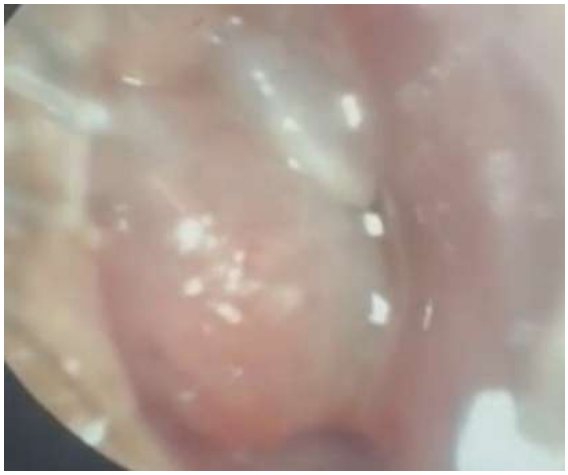


Figure 1: Diagnostic nasal endoscopic image showing sinonasal polyposis with polypoidal tissue extending anteriorly up to the level of the inferior turbinate

The predominance of polyposis in our series is also comparable with previous Indian studies, in which non-neoplastic inflammatory lesions formed the major proportion of sinonasal masses.[1] However, differences in the proportion of polyps between studies may reflect differences in referral patterns and inclusion criteria.

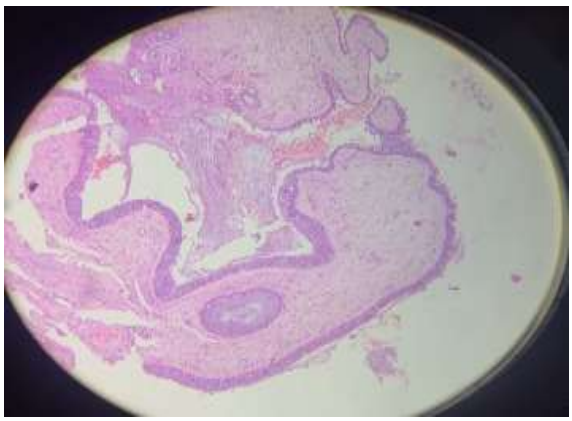


Figure 2: Histopathology of sinonasal polyposis showing pseudostratified ciliated columnar respiratory epithelium with goblet cell hyperplasia and a thickened basement membrane, overlying markedly loose and oedematous subepithelial stroma (H&E)

Antrochoanal Polyps

Antrochoanal polyps accounted for 12% of cases and occurred predominantly in younger patients, with a mean age of 12 years. Their characteristic origin from the maxillary sinus and extension through the ostium into the nasal cavity and choana helps in clinical and radiological differentiation from other unilateral sinonasal masses.[5]

The clinical and CT findings in our patients were consistent with this characteristic pattern of maxillary sinus involvement and unilateral extension. The gross specimens showed pale, polypoidal masses (Figs. 3 and 4), while histopathology demonstrated oedematous stroma with chronic inflammatory cell infiltrate (Fig. 5). Recognition of this pattern is useful because unilateral polypoidal lesions may otherwise raise suspicion of inverted papilloma or other neoplasms requiring a different surgical approach and follow-up.

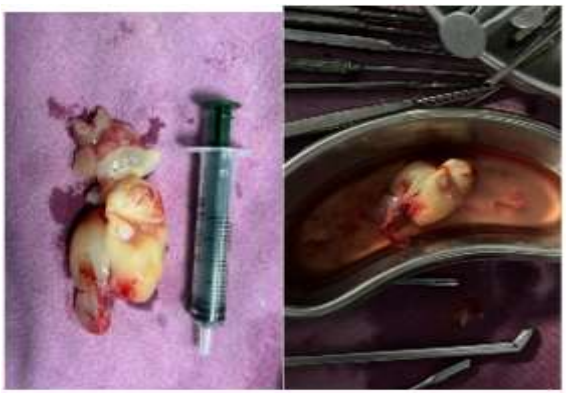


Figure 3,4: Gross specimen of a surgically excised antrochoanal polyp showing a pale, polypoidal mass. A syringe is placed alongside the specimen for size reference

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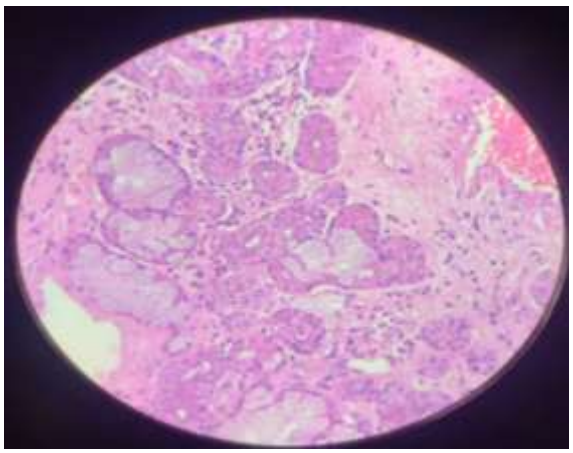


Figure 5: Histopathology of antrochoanal polyp showing respiratory epithelium with oedematous stroma and chronic inflammatory cell infiltrate (H&E)

Unilateral Inflammatory Polyp

One unilateral inflammatory polyp was identified in a 41-year-old male who presented with nasal obstruction and bleeding. CT demonstrated a well-defined enhancing lesion. This case illustrates that inflammatory lesions may occasionally show atypical clinical or radiological features and therefore cannot always be confidently differentiated from neoplastic lesions without tissue diagnosis. Histopathological examination remains important in such unilateral or unusual lesions.

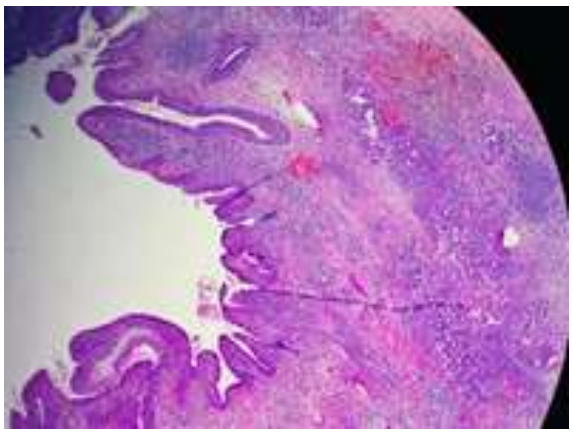


Figure 6: Histopathology of an inflammatory sinonasal polyp showing polypoidal mucosa with oedematous stroma and inflammatory cell infiltrate (H&E, low-power view)

Rhinosporidiosis

One patient, a 37-year-old female, was diagnosed with rhinosporidiosis and presented with epistaxis and an intranasal mass. DNE showed a reddish, friable, polypoidal mass (Fig. 7), which is a typical clinical appearance of rhinosporidiosis. The disease commonly involves the nasal cavity and nasopharynx and may present with a vascular or friable mass associated with epistaxis.[6]



Figure 7: Diagnostic nasal endoscopic image showing a reddish, friable, polypoidal mass suggestive of rhinosporidiosis

In the present case, the clinical and radiological appearance was suspicious, and the diagnosis was confirmed on histopathological examination. The presence of rhinosporidiosis in this series emphasizes the need to consider infective and granulomatous conditions when evaluating vascular or friable sinonasal masses. Histopathology is particularly useful when the clinical appearance overlaps with other polypoidal lesions.

BENIGN NEOPLASMS

Identification of the tumour attachment site is important during surgical planning. Complete removal of the involved mucosa and appropriate management of the attachment site and underlying bone, when indicated, are important in reducing recurrence.[7]

Inverted Papilloma

Two cases of inverted papilloma were identified, accounting for 8% of all cases and two of the three benign neoplasms. Both patients were male, with a mean age of 35.5 years. Both lesions were unilateral and associated with nasal obstruction, with extension towards the maxillary antrum.

Inverted papilloma arises from Schneiderian mucosa and is characterised histologically by an endophytic growth pattern, in which the epithelium proliferates inward into the underlying stroma while maintaining an intact basement membrane[13]. In our specimen, HPE demonstrated thickened squamoid/transitional epithelium showing endophytic proliferation into the stroma, with mucous cells and intraepithelial neutrophilic microabscesses and no dysplasia (Fig. 10). These features support the diagnosis of inverted papilloma.

The clinical importance of inverted papilloma extends beyond its classification as a benign tumour because of its tendency for local recurrence and its association with malignant transformation.[7] Therefore, unilateral polypoidal lesions require careful assessment even when they clinically resemble inflammatory polyps.

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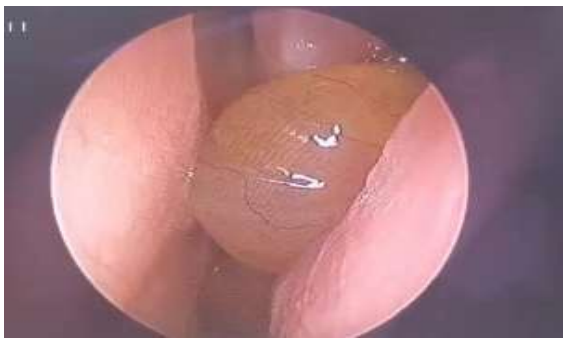


Figure 8: Diagnostic nasal endoscopic image showing a pale polypoidal mass arising from the left middle meatus with congested nasal mucosa. On probing, the mass was attached to the lateral wall of the left nasal cavity and did not bleed on touch



Figure 9: Gross specimen of surgically excised inverted papilloma

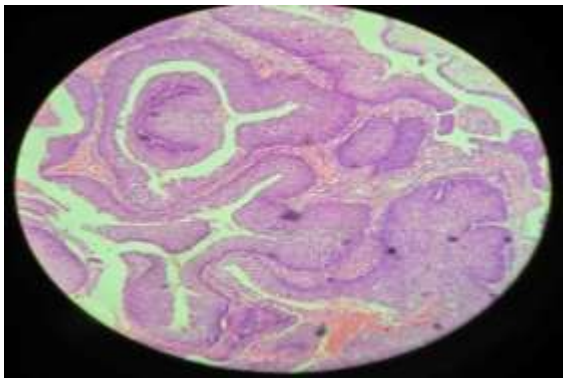


Figure 10: Histopathology of inverted papilloma showing endophytic proliferation of thickened squamoid/transitional epithelium extending into the underlying stroma with an intact basement membrane, mucous cells and intraepithelial neutrophilic microabscesses, without dysplasia (H&E)

CT is useful not only for assessing the extent of inverted papilloma but also for evaluating its relationship with adjacent bone.[13] Focal hyperostosis on CT may indicate the tumour attachment site and can assist surgical planning. Glikson et al. reported that the location of focal hyperostosis coincided with the actual tumour attachment site in 90% of patients.[14] Thus, the bony changes seen on CT should be assessed carefully rather than interpreted only as evidence of aggressive disease. In our study, the lesions showed antral extension, and the gross specimen demonstrated the characteristic polypoidal appearance (Fig. 9).

Endoscopic appearance alone cannot establish the diagnosis of inverted papilloma, as inflammatory polyps and other lesions may have a similar appearance. Preoperative biopsy is useful, although sampling limitations may occur; therefore, clinical, endoscopic, radiological and histopathological findings should be interpreted together.[7]

Pyogenic Granuloma

One case of pyogenic granuloma was identified in a 16-year-old female who presented with nasal obstruction and discharge. CT demonstrated a localised lesion with associated bony changes. The lesion appeared as a pale polypoidal mass on DNE (Fig. 12), with attachment to the lateral wall of the left nasal cavity and no bleeding on probing. The gross specimen showed a localised polypoidal lesion (Fig. 13).

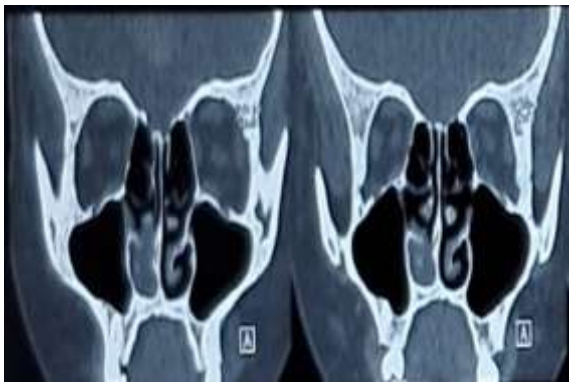


Figure 11: CT of the nose and paranasal sinuses showing a soft-tissue density lesion with bone erosion involving the anterior part of the right nasal cavity

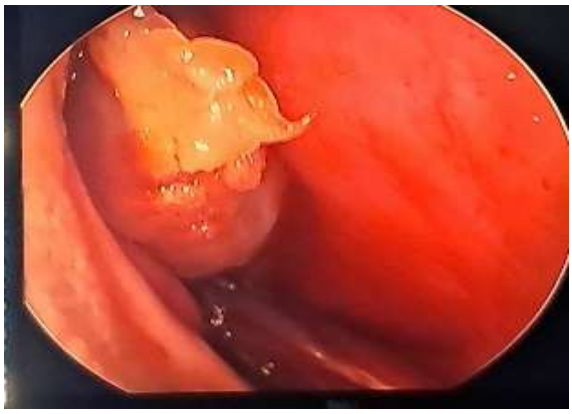


Figure 12: Diagnostic nasal endoscopic image showing a pale, polypoidal mass measuring approximately 3 × 3 cm. The mass was mobile on probing, with the probe passing around it except laterally. The lesion was sensitive to touch but did not bleed on contact

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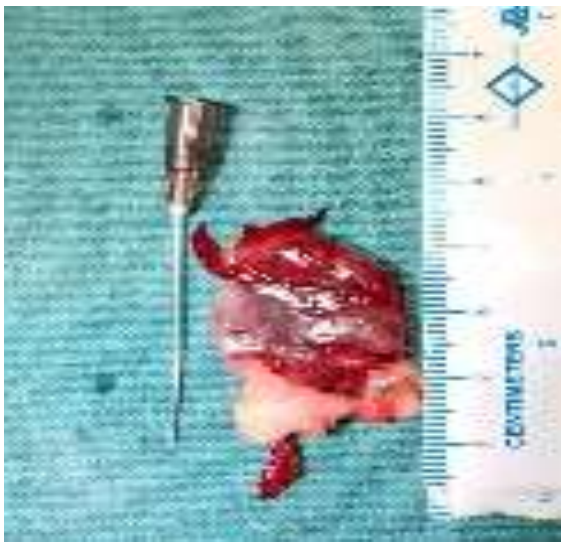


Figure 13: Gross specimen of surgically excised pyogenic granuloma

Pyogenic granuloma, histologically termed lobular capillary haemangioma, is a benign vascular lesion that may present as a friable intranasal mass and is often associated with epistaxis or nasal obstruction8. Histopathology in our case showed surface ulceration with debris and neutrophils, with proliferating capillaries arranged in a lobular pattern within the underlying connective tissue and a mixed inflammatory infiltrate (Fig. 14). These findings are characteristic of lobular capillary haemangioma.[8]

The presence of local bony changes on imaging should not by itself be interpreted as evidence of malignancy. Imaging findings need to be correlated with the clinical and histopathological features.

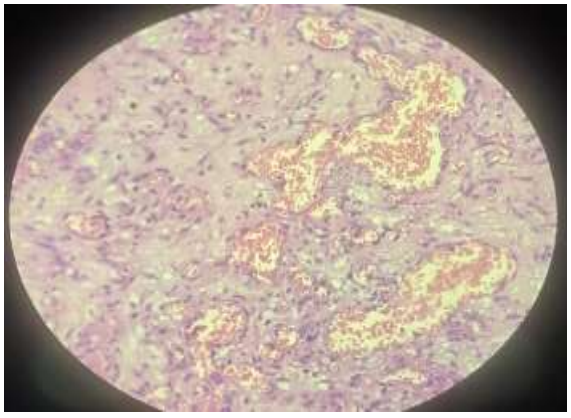


Figure 14: Histopathology of pyogenic granuloma showing polypoidal tissue with surface ulceration, associated debris and neutrophils. The underlying connective tissue shows proliferating capillaries arranged in a lobular pattern with a mixed inflammatory cell infiltrate (H&E)

MALIGNANT NEOPLASMS

Malignant lesions accounted for 8% of cases in the present study. Both malignant lesions occurred in male patients aged 49 and 50 years, with a mean age of **49.5 ± 0.7 years**. Although statistical comparison was not appropriate because of the small number of malignant cases, they occurred in an older age group compared with the overall study population.

Small Round Cell Tumour

One 49-year-old patient had a small round cell tumour and presented with progressive unilateral nasal obstruction and discharge. Clinically, the lesion appeared polypoidal. This case illustrates the limitation of relying on gross or endoscopic appearance alone, as a polypoidal lesion may represent a malignant neoplasm.

Histopathology showed subepithelial neoplastic cells with mild nuclear pleomorphism, small round nuclei with fine chromatin and scant cytoplasm (Fig. 15). In small round cell neoplasms, routine morphology may not always be sufficient for precise classification, and appropriate immunohistochemistry is therefore important for establishing the diagnosis and guiding further management.

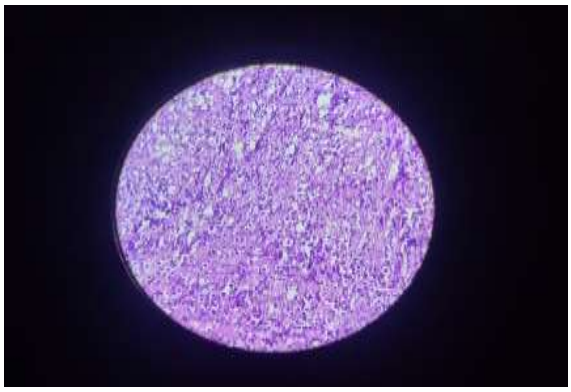


Figure 15: Histopathology of small round cell tumour showing subepithelial neoplastic cells with mild nuclear pleomorphism, small round nuclei with fine chromatin and scant cytoplasm (H&E)

Diffuse Large B-Cell Lymphoma (DLBCL)

One 50-year-old patient had DLBCL and presented with severe unilateral nasal obstruction and epistaxis. Imaging demonstrated a destructive sinonasal mass. Histopathology showed diffuse infiltration by large atypical lymphoid cells with effacement of the normal tissue architecture (Fig. 16). The corresponding lymph node also showed architectural effacement by atypical lymphoid cells. IHC showed positivity for CD20, BCL2, BCL6 and other relevant B-cell markers, confirming DLBCL.

Sinonasal lymphomas may present with nonspecific symptoms and can clinically resemble other sinonasal masses. Histopathological examination with appropriate immunohistochemical characterisation is essential for definitive diagnosis. The presence of two different malignant pathologies in our small series demonstrates the histological diversity that may be encountered among sinonasal masses.

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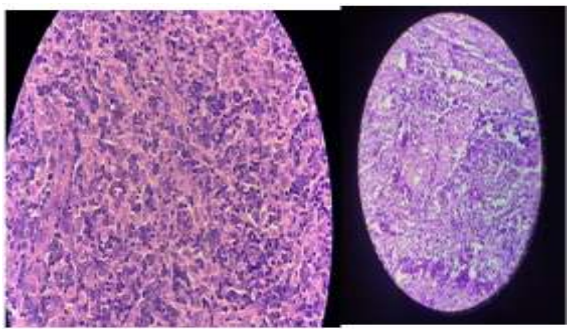


Figure 16: Histopathology of DLBCL showing diffuse infiltration of tissue by large atypical lymphoid cells with effacement of the normal tissue architecture (H&E)

COMPARISON WITH PREVIOUS STUDIES

The predominance of non-neoplastic lesions in our study is in keeping with previous Indian studies.[1] Lathi et al. reported non-neoplastic lesions in 71.4% of 112 cases,[1] while Rawat et al. reported inflammatory or tumour-like lesions in 68.56% of 264 cases.[2] Kulkarni et al. similarly found that 86% of 117 lesions were non-neoplastic.[3] Recent Indian studies have also reported a predominance of non-neoplastic lesions among sinonasal masses.[12] The present study showed a higher proportion of non-neoplastic lesions (80%), with sinonasal polyposis accounting for 60% of all cases.

The present series also included a broad pathological spectrum, including rhinosporidiosis, inverted papilloma, pyogenic granuloma, small round cell tumour and diffuse large B-cell lymphoma. Differences in the exact percentages between studies should be interpreted cautiously because of variations in sample size, geographical distribution, referral pattern and inclusion criteria.

IMPORTANCE OF DIAGNOSTIC NASAL ENDOSCOPY

Diagnostic nasal endoscopy was useful in assessing laterality, site of attachment, surface morphology, friability, vascularity and intranasal extension. In the present series, DNE demonstrated the typical polypoidal appearance of sinonasal polyposis, the reddish friable appearance of rhinosporidiosis, and the attachment characteristics of the unilateral lesions.

However, DNE could not independently establish the histological nature of a lesion. Inflammatory polyps, rhinosporidiosis, inverted papilloma and some malignant lesions may all appear as polypoidal masses. Therefore, endoscopic findings should be interpreted along with imaging and histopathology.

IMPORTANCE OF COMPUTED TOMOGRAPHY

CT provided useful information regarding lesion location, sinus involvement, anatomical extent, bony remodelling, erosion or destruction and relationship with adjacent structures. In the present series, antrochoanal polyps showed characteristic maxillary sinus involvement, while the malignant lesion demonstrated destructive bony changes. The CT image included in the present study also demonstrates that bony erosion or remodelling may be an important radiological finding in the assessment of sinonasal masses.

In inverted papilloma, CT may additionally help identify focal hyperostosis at the tumour attachment site, which has been shown to correlate with the true site of origin and can assist surgical planning [14,15]. Nevertheless, imaging findings may overlap between inflammatory, infective and neoplastic lesions. CT should therefore be regarded primarily as an important tool for anatomical assessment and surgical planning rather than a substitute for histopathological diagnosis.

IMPORTANCE OF HISTOPATHOLOGICAL EXAMINATION

The main finding from the present study is the considerable overlap in the clinical and radiological appearance of different pathological categories. The spectrum included sinonasal polyposis, antrochoanal polyp, unilateral inflammatory polyp, rhinosporidiosis, inverted papilloma, pyogenic granuloma, small round cell tumour and diffuse large B-cell lymphoma.

The gross and microscopic photographs in the present study further demonstrate this variation. While several lesions had a similar polypoidal appearance clinically or grossly, their histopathological features were distinctly different. Sinonasal polyps showed oedematous inflammatory stroma, antrochoanal polyp showed oedematous stroma with chronic inflammatory infiltrate, inverted papilloma showed characteristic endophytic epithelial proliferation, pyogenic granuloma showed lobular capillary proliferation, and the malignant lesions showed atypical cellular infiltrates.

Therefore, clinical appearance alone has limited specificity. Histopathological examination remains essential to determine whether a lesion is non-neoplastic or neoplastic, establish the precise histological diagnosis, assess malignant features and determine the need for further immunohistochemical evaluation. The findings of the present study support an integrated approach combining clinical assessment, DNE, CT and tissue diagnosis for the evaluation of sinonasal masses.

CONCLUSION

Sinonasal masses represent a heterogeneous spectrum of pathological entities ranging from common inflammatory lesions and infective conditions to benign and malignant neoplasms. In this prospective study of 25 patients, non-neoplastic lesions constituted the majority of cases (80%), followed by benign neoplasms (12%) and malignant neoplasms (8%). Sinonasal polyposis was the most common individual diagnosis, accounting for 60% of cases. Nasal obstruction was a common presenting symptom but was nonspecific and occurred across different pathological categories. The identification

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of rhinosporidiosis, inverted papilloma and malignant lesions among clinically polypoidal sinonasal masses highlights the importance of maintaining a broad differential diagnosis, particularly in unilateral or atypical lesions. Diagnostic nasal endoscopy and CT provide complementary information regarding lesion morphology, extent and anatomical relationships. However, histopathological examination remains essential for definitive diagnosis. A systematic approach integrating clinical evaluation, endoscopy, imaging and histopathology is therefore recommended for the accurate diagnosis and management of sinonasal masses.

Declarations

Informed Consent

Written informed consent was obtained from all participants and/or their legally authorised representatives, wherever applicable.

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