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Original Research Article

Unilateral nasal mass beyond 4th decade: A comprehensive clinicopathological study

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ABSTRACT

Background: Unilateral nasal mass may be a common presentation in children and young adults, and the majority of them are inflammatory polyps. But as the age advances, unilateral nasal complaints should alert the physician to the possibility of an underlying neoplastic mass lesion.
Aim and Objective: To study the etiopathology and clinical features of unilateral nasal mass in patients above 40 years of age.
Materials and Methods: The study was conducted in the department of otorhinolaryngology, Tezpur Medical College & Hospital. A total of 27 patients with unilateral nasal mass who are above 40 years of age are included in the study. The clinical features, radiological findings, and histological findings of all the patients were evaluated.
Results: Among the 27 patients, 14 had non-neoplastic lesions compared to 13 neoplastic lesions. Inflammatory polyp was the most common non-neoplastic pathology, whereas inverted papilloma was the most common neoplastic lesion. Nasopharyngeal carcinoma was the commonest malignancy detected in the study.
Conclusion: Though inflammatory polyp constitutes the majority of cases of unilateral nasal mass, there is a considerable number of neoplastic lesions, especially when considered age above 40 years. Therefore, one should not directly jump into the conclusion of inflammatory polyp when an elderly patient presents with unilateral nasal mass; rather, a thorough diagnostic protocol should be employed to rule out any neoplastic lesion. The diagnosis of inflammatory polyp should be a diagnosis by exclusion only after other possible causes are excluded.

1. Introduction

Unilateral nasal mass is a common presentation in the otorhinolaryngology department, particularly seen in children and young adults. Most often it is an inflammatory polyp. However, is the diagnosis same in case of elderly patients?.

The neoplastic lesions during their early stages may mimic an inflammatory pathology. Incidence of neoplastic lesions increases as age at presentation increases. It is the surgeons endeavor to detect a neoplastic pathology early to prevent grave complications. Thus, unilateral nasal pathology especially in adults and elderly should be regarded with caution so as not to miss the neoplastic condition.[1]

We performed a cross sectional observational study of cases of unilateral nasal masses to analyze their etiopathology, presenting symptoms, radiological findings and histopathological diagnosis.

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2. Materials and Methods

A retrospective review of all cases of unilateral nasal mass who are above 40 years of age were analyzed from April 2022 to March 2024.

The cases with bilateral nasal mass, patients below 40 years of age and recurrent cases were excluded from study.

All the patients with unilateral nasal mass above 40 years of age were subjected to detailed history and thorough clinical and otorhinolaryngological examination including anterior and posterior rhinoscopy and diagnostic nasal endoscopy. The patients were further assessed radiologically by CT scan of nose and paranasal sinuses. Inflammatory lesions were treated by endoscopic sinus surgery and the neoplastic lesions were managed depending on the histological diagnosis.

The patients were grouped according to their histopathological diagnosis into neoplastic and non-neoplastic. The demographic data, presenting symptoms and radiological findings were compared between the two groups. The data was collected on the MS Excel sheet and analyzed statistically.

3. Results

In the present study, a total of 27 patients with unilateral nasal mass who are above the age of 40 years were enrolled over a period of 2 years from April 2022 to March 2024. There were 14 females (52%) and 13 males (48%) (Table 1, Figure 6).

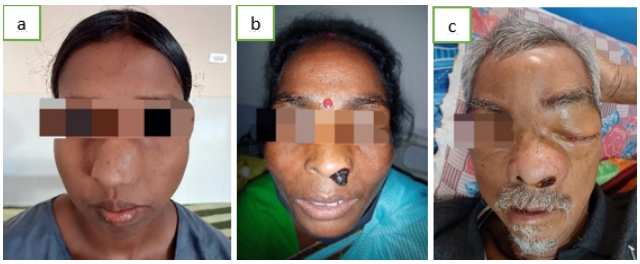

Figure 1: a: Case of Inverted Papilloma of left nostril; **b:** Septal angioma of left nostril; **c:** Left sinonasal SCC with orbital and intracranial extension

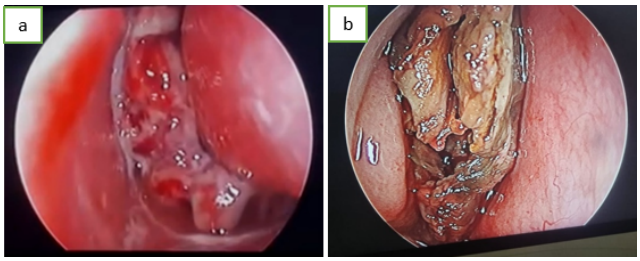

Figure 2: Endoscopic Images; **a:** Endoscopic view of inverted papilloma; **b:** Endoscopic view of sinonasal SCC

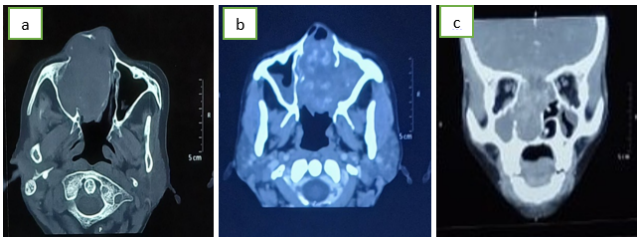

Figure 3: Radiological Images; **a:** Inverted papilloma; **b:** Squamous cell carcinoma; **c:** Squamous cell carcinoma

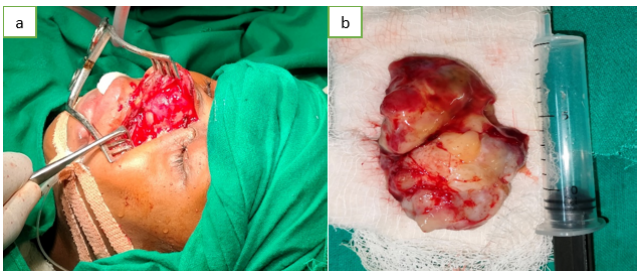

Figure 4: Operativeimages; **a:** Lateral rhinotomy in a case of inverted papilloma; **b:** Specimen of inverted papilloma

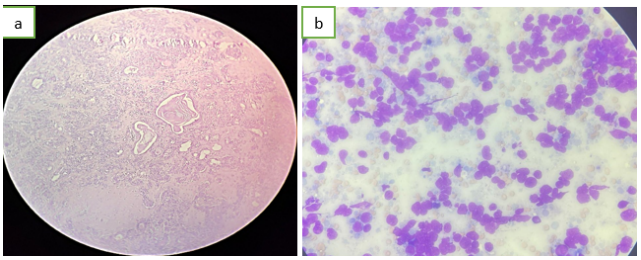

Figure 5: Histological Images; **a:** HPE slide of sinonasal SCC; **b:** HPE slide of non-Hodgkins lymphoma

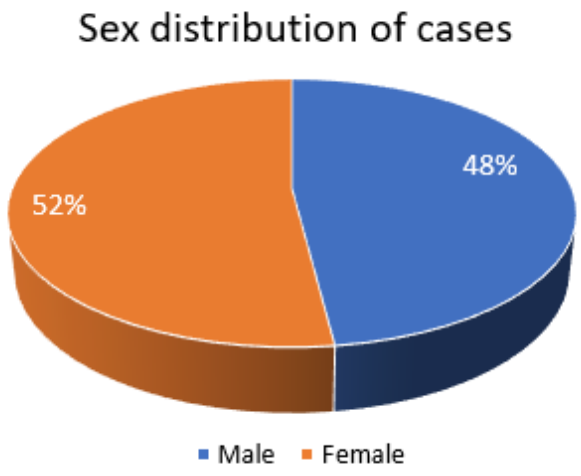

Figure 6: Sex distribution of cases

Table 1: Sex distribution

Gender	No. of cases	Percentage
Male	13	48%
Female	14	52%
Total	27	100%

Table 2: Distribution of various pathologies

Pathological type	Male	Female	Total	Percentage
Non-neoplastic	6	8	14	52%
Inflammatory polyp	3	7	10	37%
Chronic fungal rhinosinusitis	2	-	2	7.4%
Mucocele	-	1	1	3.7%
Rhinosporidiosis	1	-	1	3.7%
NEOPLASTIC	7	6	13	48%
Inverted papilloma	3	1	4	14.8%
Septal angioma	1	2	3	11.1%
Squamous cell carcinoma	2	3	5	18.5%
Non-Hodgkins lymphoma	1	-	1	3.7%
Total	13	14	27	100%

Table 3: Distribution of presenting symptoms

Symptoms	Non-neoplastic	Neoplastic	Total	Percentage
Nasal obstruction	13	11	24	88.8%
Nasal discharge	13	2	15	55.5%
Hyposmia	3	5	8	29.6%
Epistaxis	2	9	11	40.7%
Headache	7	8	15	55.5%
Facial pain	4	7	11	40.7%
Orbital complications	0	2	2	7.4%

Table 4: CT Scan findings

Findings on CT scan	Non-neoplastic	Neoplastic	Total	Findings
Intrasinus densities	13	11	24	88.8%
Bone expansion	2	10	12	44.4%
Bone erosion	2	7	9	33.3%
Involvement of adjacent structure	1	4	5	18.5%

Table 5: Age distribution of cases (>60 VS <60)

Age	Non-neoplastic	Neoplastic	Total
<60 Years	14	8	22
>60 Years	0	5	5

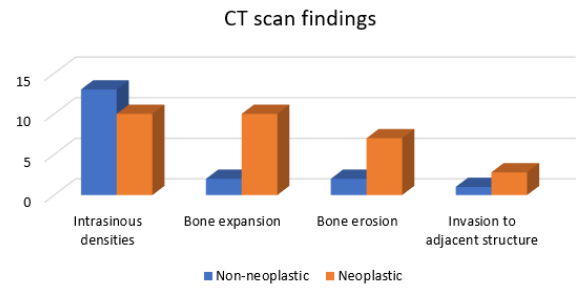

Figure 7: CT scan findings

Out of the 27 patients, 14 (52%) had non-neoplastic lesions while 13 (48%) had neoplastic pathology. Inflammatory polyp (37%) was the most common non-neoplastic lesion, whereas squamous cell carcinoma (Figure 1c) (18.5%) was the most common malignant neoplasm and inverted papilloma (Figure 1a) (14.8%) was the most common benign neoplasm (Table 2). There were 5 patients above 60 years of age and interestingly, all five had neoplastic lesions (Table 5).

Nasal obstruction (88.8%) was the most common presenting symptom in both the groups. Epistaxis and extra-nasal symptoms like facial pain, visual disturbances were

frequently encountered in the neoplastic group (Table 3).

The most common CT scan findings (Figure 3a,b,c) among both the groups is intrasinous densities (88.8%). Bone erosion and invasion to adjacent structure was a frequent association of neoplastic lesion (Table 4, Figure 7).

4. Discussion

The presence of unilateral nasal mass particularly in elderly patients poses a clinical challenge on account of varied differences in underlying etiology. Comprehensive evaluation of patients age, clinical presentation, diagnostic nasal endoscopy and CT findings help in the diagnosis of unilateral sinonasal disease.[2] A biopsy and histopathological examination may be considered whenever in doubt.

The majority of sinonasal pathology are inflammatory with neoplasm accounting for about 3% of all head and neck tumors.[3]

Unilateral nasal masses can be broadly classified into non-neoplastic and neoplastic lesions. Non neoplastic lesions can be inflammatory or granulomatous. Neoplastic lesions can be benign (Figure 1b) or malignant.[4]

While nasal masses can present in younger populations, the likelihood of neoplastic etiologies, including benign and malignant tumours, increases with age.[5] Unilateral inflammatory polyp is a benign condition that primarily affects children and young adults. Larsen et al.[6] in their study on incidence of unilateral nasal polyps noted that average age of diagnosis was 27 years. Erkul E et al.[7] reported that neoplastic lesions of Nose and PNS are seen in patients in 5^{th}-7^{th} decade of life, with male to female ration of 2:1. In our study, there is no significant differences of incidence among gender and almost equal number of neoplastic and non- neoplastic cases were encountered as age is considered above 40 years only.

The various symptoms with which a patient with unilateral nasal mass presents include nasal obstruction, nasal discharge, epistaxis, hyposmia and headache. The extra-nasal symptoms include facial pain and orbital symptoms.[1] In our study, nasal obstruction was the commonest symptom in both neoplastic and non-neoplastic groups, which can be attributed to the mass effect within the nasal cavity or may be because any sort of inflammation in the nasal mucosa, irrespective of its cause will lead to nasal obstruction.[8] Epistaxis and extra-nasal symptoms were found to be higher in the neoplastic category, which is consistent with previous studies on sinonasal masses.[9] Epistaxis may be attributed to increased vascularity or ulceration of the mass. This aligns with earlier research, which indicates that these symptoms are typical indication for further radiological and histopathological evaluation.[10]

While clinical assessment of unilateral nasal masses sometimes may not provide a clear understanding due to an array of differential diagnosis having common presenting symptoms, diagnostic nasal endoscopy has made the picture clearer (Figure 2a,b).

Unilateral nasal masses may present as single or multiple, pedunculated or sessile, polyps or masses. Multiple polyps are usually a presentation of ethmoidal polyp whereas, an antrochoanal polyp presents as a single polypoidal mass arising from maxillary sinus.[11]

Rhinosporidiosis has its characteristic mulberry appearance studded with white dots.[12] The neoplastic lesions present as proliferative mass with erosion of surrounding structure or may mimic an inflammatory polyp early in their course. It is quite difficult to differentiate an inverted papilloma from an inflammatory polyp clinically.

CT scan has an edge in visualizing the intricate anatomy of paranasal pathologies. It has been shown to be effective in identifying the extent, nature and characteristics of nasal masses like bone expansion or erosion, intrasinus densities and invasion into adjacent structures. In our study, CT scan was particularly useful in identifying bony erosion and invasion into adjacent structure, which often suggest malignancy. This is consistent with existing literature, which supports the use of CT for assessing bony involvement (Figure 3a,b,c).[13]

Histopathology remains the gold standard for distinguishing benign from malignant lesions. Benign lesions such as nasal polyp or inverted papilloma were prevalent, but malignant tumours (Figure 5b), especially squamous cell carcinoma (Figure 5a), were not uncommon in our elderly cohort. This is consistent with epidemiological studies showing that inverted papilloma and SCC constitute a significant proportion of unilateral nasal masses in older patients.[14]

Inflammatory polyps carry a risk of recurrence, particularly if associated with chronic sinusitis. Inverted papilloma, though benign, are notable for their malignant potential and recurrence rate, which has been highlighted in recent studies.[15]

The treatment strategy for nasal masses varies widely depending on the histological diagnosis, extent of disease, and patient's overall health status. For benign lesions, endoscopic resection remains the standard of care, minimizing morbidity and preserving nasal function. In cases of malignant lesions, however, a more aggressive approach, often combining surgery (Figure 4a,b) with radiotherapy, may be warranted. This aligns with current treatment protocols for sinonasal malignancies in elderly patients, where a balance between effective treatment and minimizing morbidity is essential.[16]

5. Limitation

A limitation of our study is the relatively small sample size, which may limit the generalizability of our findings. Additionally, research emphasizing on molecular markers may offer deeper insights into the pathogenesis of these

masses.

6. Conclusion

Unilateral nasal masses in elderly patients present a complex diagnostic challenge, with a significant proportion being malignant. The integration of clinical, pathological and radiological data enhances diagnostic accuracy and informs management strategies. Early diagnosis, particularly for malignancies like SCC, is essential to improve prognosis, underscoring the value of imaging and histopathological evaluation in this population.

7. Ethical Approval

Ethical approval has been taken from institutional ethical committee for this study (IEC NO.147/2022/TMC&H).

8. Conflict of interest

None.

9. Source of funding

None.

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