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Clinicopathological spectrum and management of sinonasal masses – A prospective observational study in a tertiary care center

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ABSTRACT

Background: Sino nasal mass (SNM) is a common clinical entity in the ENT outpatient department. It affects all age groups. SNMs are mainly non-neoplastic inflammatory polyp, benign tumor, and malignant tumor, out of which inflammatory polyp is the most common entity. Radiological investigation plays a major role in SNM. Surgery is the treatment of choice in almost all cases. Functional endoscopic sinus surgery (FESS) is the most commonly employed approach for surgery. **Aims and Objectives:** The aim of the current study is to analyze the clinicopathological aspects and enumerate the various management strategies of SNMs in patients attending the department of ENT in a tertiary care hospital in the upper Assam region. **Materials and Methods:** The present study was conducted in Assam Medical College between May 2022 and October 2023. During the period of this prospective observational study, 100 patients presented with SNMs. **Results:** Total 100 patients were reviewed, out of which 59 patients were male and 41 females. Overall, the most common affected age group was 31–40 years. Seventy-seven cases were non-neoplastic sinonasal polyps, 16 cases were benign tumors and seven were malignant tumors. Sixty-four patients had undergone FESS, 20 patients had endoscopic sinus surgery with or without medial maxillectomy and eight patients had lateral rhinotomy. Malignant cases were managed by radiotherapy and chemoradiation mainly. **Conclusion:** Sinonasal polyp is a very common entity among all SNMs. Computed tomography scan is the main diagnostic tool. FESS is the most commonly used surgical procedure with less complication.

Key words: Sinonasal mass; Polyp; Functional endoscopic sinus surgery

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INTRODUCTION

Sino nasal masses (SNMs) are a commonly encountered clinical entity in ENT outpatient departments which can affect all age groups. They cover a broad spectrum of pathologies ranging from non-neoplastic polyps to neoplastic tumors.[1] These masses can be congenital or develop over time. Dermoid cysts, gliomas, and other congenital masses are primarily midline swellings that might appear extranasally or intranasally.[2,3] Acquired SNMs can be inflammatory polyp resulting from allergic, trauma, granulomatous lesion, and benign and malignant neoplasm.[4] Polyps are the most commonly observed SNM.[5] Angiofibroma is a benign tumor in male adolescents that exhibits aggressive biological behavior.[6] Hemangiomas can occur anywhere in the nasal cavity, however, they are most frequently seen on the anterior portion of the septum, where they are referred to as bleeding polypus of the septum.[7] The presentation of SNM varies depending on the type, spread, and extent of the primary disease. As a result, the patients may exhibit the following symptoms: orbital features (epiphora, proptosis, and diplopia), aural features (fullness and hearing impairment), nasal features (obstruction, discharge, nasal mass, epistaxis, and smell

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abnormalities), and/or orofacial involvement features (palatal or buccal swelling, loose teeth, facial pain, and swelling).[8] A tentative diagnosis can only be reached after a thorough history, clinical examination, diagnostic nasal endoscopy, and advanced imaging (MRI or computed tomography [CT] scan). Histopathological examination (HPE) is necessary for final diagnosis and for management accordingly.[9] Treatment options vary and they include topical and oral steroids, biopsy, and planning for surgical management. In case of malignancies, treatment protocol will be according to staging.[10]

Aims and objectives

The aim of the current study is to analyze the clinicopathological aspects and enumerate the various management strategies of SNMs in patients attending the department of ENT in a tertiary care hospital in the upper Assam region.

MATERIALS AND METHODS

The present study is a hospital-based prospective observational study carried out at the Department of ENT, Assam Medical College and Hospital, a tertiary care hospital in upper Assam, India. A total of 100 cases were reviewed from May 2022 to October 2023.

All cases that are newly diagnosed as SNMs were included in the study, whereas previously treated/recurrence cases were excluded. Furthermore, patients lost to follow-up and with incomplete documentation were excluded from the study.

A thorough workup was done for all cases that included detailed history, clinical findings, diagnostic nasal endoscopy, radiological investigations such as X-ray nose and paranasal sinuses (PNS), (CT scan) PNS coronal, axial and sagittal sections and magnetic resonance imaging and HPE.

All patients with polyp and benign tumors were planned for surgery whereas management of malignant tumors was decided after doing proper staging. In the case of polypoidal masses oral steroids were started 5 days before surgery. All surgeries were performed under general anesthesia. The extent of the surgical procedure was determined by CT findings, and the extent of mucosal disease and anatomic variations noted during surgery. Following surgery, intranasal merocele packing, posterior nasal packing and antral packing given where required. Pack removal is done after 72 h. Then, regular alkaline nasal douching and cleaning of nasal crusts with endoscopic view was done for a week. In case of polypoidal lesion, intranasal steroid therapy and alkaline nasal douching combined with budesonide respules were started after pack removal. Patients were followed up postoperatively at 1-week, 2-week, 4-week, 2-month, and 3-month interval.

RESULTS

A total of 100 patients with SNM were included in the study during the study period. Out of 100, 59 patients were males, and 41 patients were females with a ratio of 1.4: 1 (M: F) (Table 1).

In our study, the most common age group involved was from 31 to 40 years (26%), followed by 41–50 years (19%), and 21–30 years (17%) (Table 2).

Out of 100 cases, the most commonly encountered was inflammatory non-neoplastic polyp (77 cases, 77%), followed by benign neoplastic tumors (16 cases, 16%) then malignant neoplastic tumors (7 cases, 7%). In inflammatory polyps, the most common was ethmoidal polyp (50 cases, 65%) followed by antrochoanal polyp (22 cases, 28.5%), Figure 1 shows an AC polyp in a 22 years old female. Fungal sinonasal polyposis was found in 5 patients (6.5%).

The most common benign neoplastic lesions to be found were inverted papilloma (7 cases, 44%), followed by angiofibroma (5 cases, 31%), and hemangioma (4 cases, 25%).

Nasopharyngeal carcinoma was the most common malignant lesion (4 cases, 57%), followed by maxillary sinus cancer (3 cases, 43%) (Table 3).

The most common clinical features were nasal obstruction (72%), followed by nasal discharge (42%), nasal bleeding (27%), olfactory disturbance (25%), hypo nasality of speech (27%), facial swelling (16%), [Figure 2] and orbital involvement (9%). There was overlapping of symptoms (Table 4).

According to Figure 3, in inflammatory polyps, functional endoscopic sinus surgery (FESS) was done in 66 cases, followed by endoscopic sinus surgery with medial maxillectomy (nine cases) and lateral rhinotomy approach (two cases) as shown in Figure 4.

Angiofibroma was excised by endoscopic sinus surgery with medial maxillectomy (two cases), transpalatine approach with endoscopic removal from sphenoid sinuses (one case), [Figure 5] and lateral rhinotomy approach (two cases).

In inverted papilloma cases, lateral rhinotomy with medial maxillectomy with removal of mass (four cases) and endoscopic sinus surgery with medial maxillectomy (three cases) were done.

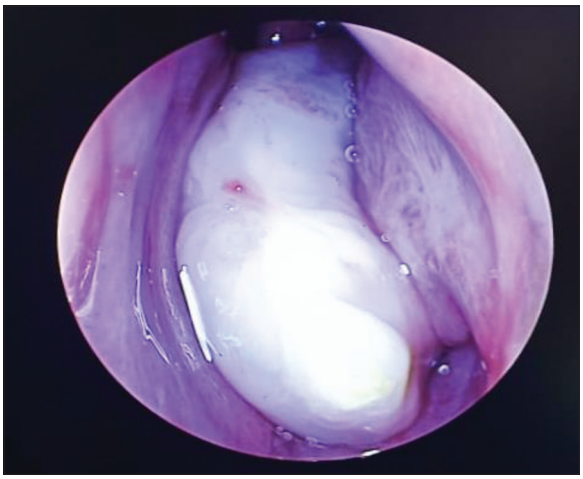

Figure 1: Endoscopic image showing left-sided antrochoanal polyp in a 22-year-old female

Figure 2: Sinonasal mass with nasal swelling

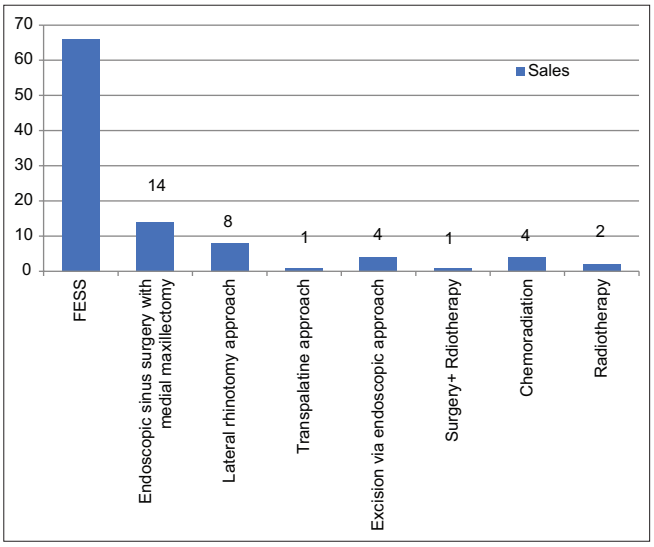

Figure 3: Various management approaches for sinonasal mass

All hemangioma patients underwent excision by endoscopic approach (four cases).

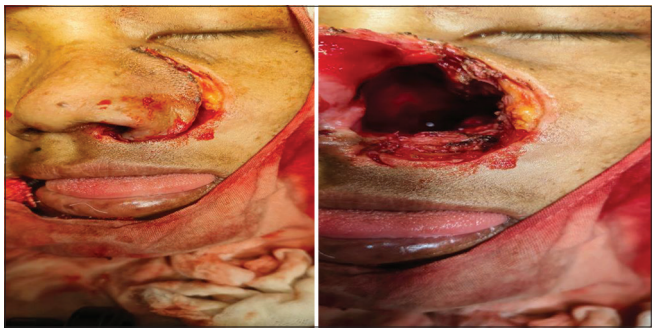

Figure 4: A patient with sinonasal polyp where lateral rhinotomy approach executed

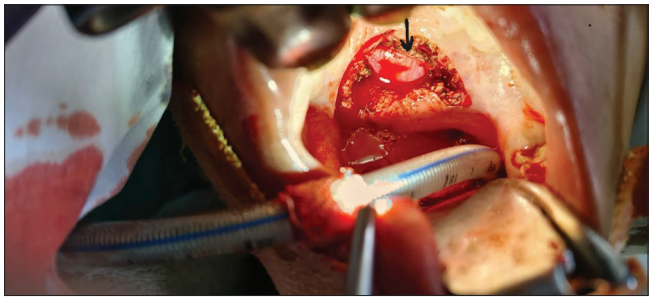

Figure 5: A patient with juvenile nasopharyngeal angiofibroma where the transpalatine approach was executed

Table 1: Gender-wise distribution of cases

Sex	No of cases	Percentage
Male	59	59
Female	41	41

Table 2: Overall age-wise distribution of cases

Age (years)	No of cases	Percentage
0–10	0	0
11–20	11	11
21–30	17	17
31–40	26	26
41–50	19	19
51–60	16	16
61–70	6	6
>70	5	5

In the case of malignancy, surgery combined with radiotherapy was executed in (1%) of cases, while (4%) were subjected to chemoradiation and rest (2%) radiotherapy alone

Post-operative complications were noted like crusting in 63 patients, synechiae in 12 patients, which were successfully treated.

For malignant lesions, four patients have completed the necessary treatment protocol and are disease-

Table 3: Distribution of cases according to type of lesion

Type of lesion	No of cases	Percentage
Non-neoplastic Inflammatory polyp		
Ethmoidal polyp	50	50
Antrochoanal polyp	22	22
Fungal polypoidal mass	5	5
Total	77	77
Benign neoplastic tumor		
Inverted papilloma	7	7
JNA	5	5
Hemangioma	4	4
Total	16	16
Malignant tumor		
Nasopharyngeal carcinoma	4	4
Maxillary sinus cancer	3	3
Total	7	7

Table 4: Symptomatology of sinonasal masses

Symptom	No of cases
Nasal obstruction	72
Nasal discharge	42
Facial swelling	16
Nasal bleeding	27
Olfactory disturbance	25
Hyponasality of speech	27
Orbital symptoms	9

free at present. One patient with malignant lesions died during the treatment period due to extensive involvement.

DISCUSSION

In our study of SNM, most of the patients presented with nasal obstruction and discharge. A thorough clinical examination including complete ENT examination should be done in the outpatient department. Other investigations include radiological and endoscopic studies. Early intervention and diagnosis can lessen the burden of illness and mortality for these patients.

SNMs had predilection for males with a ratio of 1.4:1 (M: F). It was higher in a study conducted by Rawat et al., where M: F ratio is 2.1:1.[9] While a study done by Bakari et al., the male-to-female ratio was found to be 1:1.2 with slightly high female dominance.[11]

The most common age group involved was from 31 to 40 years (26%). Agarwal and Panigrahi in his study found the most affected age group to be 41 – 50 years (29.4%).[12] While Bakari et al. in his study found the most common group to be affected was 41–50 years.[11] Lathi et al., found the most vulnerable group to be the 2nd to 4th decade.[13]

Out of 100 cases, (77%) cases were inflammatory non-neoplastic polypoidal masses, (16%) of cases were benign neoplastic tumors and (7%) cases were malignant in nature. Similarly, Lathi et al., reported 71.4% non-neoplastic and 28.6 % neoplastic cases in their study of 112 patients with Sino-nasal masses.[13] Higher incidence of non-neoplastic SNM were also found in study conducted by Thomas et al., (67.2%), Mane and Agale (82%).[14,15] Malignancies were generally observed from 5th decade.

In our study, most common symptom was nasal obstruction (79%), followed by nasal discharge (62%). In a study by Shirazi et al., the most common symptom was nasal obstruction in 87.27%, followed by nasal discharge in 69.09% and headache in 60.9% patients.[16] Maheshwari and Bansal in their study found nasal obstruction to be the most common clinical presentation (71 cases, 88.75%) then nasal discharge (58 cases, 72.5%).[1]

In our study, FESS was done in (64%) of cases and ESS with medial maxillectomy done in (19%) of cases while lateral rhinotomy approach in (9%) of cases. Lathi et al., in his study used FESS as the most common surgical intervention in benign cases (44.6%) followed by excision of the mass (25.0%).[13] Rawat et al., also used FESS as the most frequently used surgical procedure in his study.[9]

In our study, angiofibromas were excised by endoscopic sinus surgery with medial maxillectomy (two cases), transpalatine approach with endoscopic removal from sphenoid sinuses (one case), and lateral rhinotomy approach (two cases). Rawat et al., in his study, excised angiofibromas by endoscopic (one case), transpalatine (seven cases), transantral (13 cases), and maxillary swing approaches (seven cases).[9]

A new age in sinus surgery has emerged with the advent of navigation surgery, robotic surgery, intraoperative CT or MRI, and virtual endoscopy.

Limitations of the study

The time period of our study is 18 months, if it could have been a longer period, we would have been able to get a better picture.

CONCLUSION

Sinonasal polyp is a very common entity among all SNMs. CT scan is the main diagnostic tool. Although conservative management tried initially, surgery is the ultimate treatment goal in all sinonasal polyp and benign sinonasal tumors. FESS is the most commonly used surgical procedure with the least intraoperative and post-operative complications.

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