

Clinicopathological study of non-neoplastic and neoplastic sinonasal lesions

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Abstract

In this retrospective study, comprising of 88 cases, various sinonasal lesion both common and rare are studied. All lesions were described, diagnosed histopathologically and classified as per WHO classification. The sample consist of patient in the age group 10 years to 70 years. The study also compares sex differences, symptomatology and the relative incidence of various lesions. The commonest site was nasal cavity, followed by paranasal sinuses. They occur commonly in second and third decade with predominance in males. Out of 88 sinonasal lesion, 73 were non-neoplastic, 10 were benign and 5 were malignant. Amongst non-neoplastic lesion Inflammatory polyp was most common and Inverted papilloma was most common amongst benign lesion. Amongst the malignant lesion commonest lesion was squamous cell carcinoma. Sinonasal lesion have wide range of possibilities, so high degree of suspicion with early histopathological examination to exclude or confirm malignancy is essential.

Keywords: Sinonasal lesion; Inflammatory polyp; Inverted papilloma; Squamous cell carcinoma.

Introduction

The nasal cavity, paranasal sinuses and nasopharynx form a functional unity that is reflected in the communality of the pathologic processes that involve the region. The first two component which are often grouped under the term sinonasal.⁽¹⁾ Sinonasal disease is one of the most common clinical head and neck pathologies. The majority of sinonasal lesions are inflammatory with neoplasms comprising approximately 3% of all head and neck tumours.⁽²⁾ Though the nasal cavity and paranasal sinuses occupy a relatively small anatomical space, they are the site of origin of some of the more complex, histologically diverse group of tumors in the entire human body. Thus they provide a challenging as well as interesting area for detail study to the histopathologist.⁽³⁾ So we were more interested in documenting such neoplasms from a tertiary care hospital in Marathwada region of Maharashtra, India.

Materials and Method

The present study was observational study and carried out at tertiary care hospital in Marathwada region of Maharashtra, India. It comprises all sinonasal lesions biopsies received over a period of three years (88 cases). Specimens studied grossly & microscopically with routine, special stains & ancillary technique as & when require. All lesions were described, diagnosed histopathologically & classified as per WHO classification. Clinical and radiological details were correlated.

The statistical tests were done using the software Med Cal.⁽⁴⁾

Results

In the study population, males (66%) were more commonly affected than females (34%). Maximum

patients with sinonasal mass were found in the age group of 21-40 years (57.85%). No case was found among female above 70 years of age. It was also observed that there was increased incidence among males (>20 years) than female. In both sexes, it was observed that most common non-neoplastic lesions were found in the age group 21-30 yrs, whereas malignant lesions mostly found in the age group 41-50 years. No significant age association was found with benign lesion. In our study, it was observed that non-neoplastic lesions were more common than the malignant lesions accounting for 73 cases (83%) and 05 cases (6%) respectively and 10 cases (11%) were benign.

In our study commonest clinical presentation was nasal obstruction (31.81%), followed by epistaxis (23.86%). Other symptoms like headache, pain, proptosis, purulent nasal discharge etc. were present in 13.63% cases. Most common anatomical location was nasal cavity (75%), followed by paranasal sinuses (20.45%) and nasal septum (4.54%). In our study most of the non-neoplastic lesions were arising from nasal cavity, whereas most of the benign and malignant lesions were arising from paranasal sinuses.

In the present study it was seen that papilloma (11.38%) is the most prevalent benign lesions followed by angiofibroma (3%). Squamous cell carcinoma is the most common malignant lesion (40%) followed by nasopharyngeal carcinoma (20%).

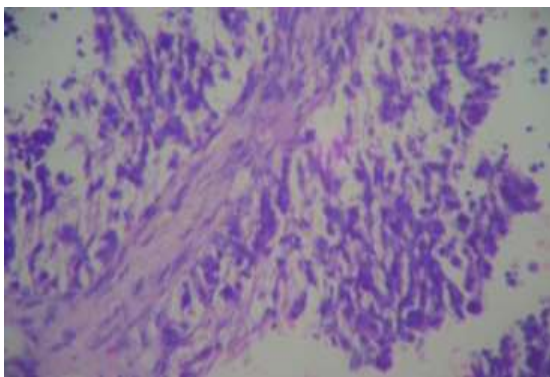


Fig. 1: H&E smear of olfactory neuroblastoma showing uniform nuclei with punctate, coarse chromatin

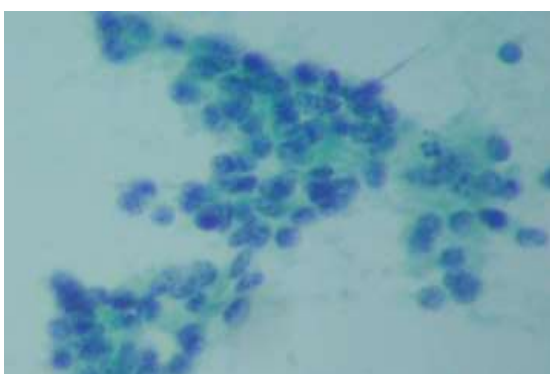


Fig. 2: FNAC smear of olfactory neuroblastoma showing cohesive aggregates of monotonous cells with hyperchromatic nuclei

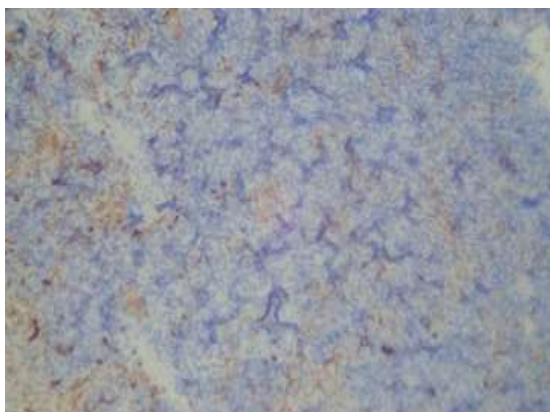


Fig. 3: CD 56 positivity in olfactory Neuroblastoma

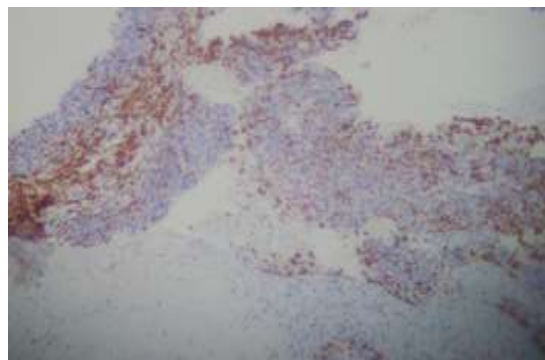


Fig. 4: Synaptophysin positivity Olfactory Neuroblastoma

Discussion

All available literature regarding various sinonasal lesions were reviewed. Mass in nasal cavity, paranasal sinuses and nasopharynx form a heterogeneous group of lesions with a wide range of histopathological features. A variety of these non-neoplastic and neoplastic lesions are quite impossible to differentiate clinically and they are mostly clinically diagnosed as nasal polyp.⁽⁵⁾

In our study it was seen that, males (66%) were more commonly affected than females (34%). In a similar type of study, which was carried out by Chan SH et al,⁽⁶⁾ also showed that males (68.29%) outnumbered the females (31.71%). In the study conducted by Zylka S, Bieñ S, Kamiński B, Postuła S, Ziolkowska M. et al,⁽⁷⁾ the age range was from 8 to 82 years. They found maximum patient (59.8%), in the age above 60 years, amongst which most common age group was 71-80 years(33.3%). Whereas minimum cases was seen in our study in the age group of 71-80 years, it might be due to lack of awareness and poor socioeconomic conditions.

Regarding age, our current study revealed 2nd and 3rd decades of life is the most vulnerable period for sinonasal lesion and it is consistent with the findings observed by Bakari et al.,⁽⁸⁾ and Zafar et al.⁽⁹⁾ Malignant lesions is seen in 6th & 7th decades and it is in concordance with the study of Patel et al.⁽¹⁰⁾

Non-neoplastic lesions made 73% of the total cases of sinonasal lesion in our study. Similarly a high proportion of non-neoplastic lesions (89%) are also reported in the study by Zafar et al.⁽⁹⁾ Nasal polyps are the commonest lesion of nasal cavity. Its exact pathogenesis is not known but they have strong association with allergy, asthma, aspirin sensitivity and infection. Among sinonasal lesion, the incidence of nasal polyp was 65.9% in concordance with Tondon et al.⁽¹¹⁾ (64%) and Dasgupta et al.⁽⁵⁾ (62.5%).

In our study, three cases of fungal infection (5.49%) were seen in 3rd decade, comparable to Modh et al.⁽¹²⁾ During three year of study period, we found only one case of Rhinosporidiosis (1.09%) similar to Pradhananga et al⁽¹³⁾ (0.69%). This is a chronic

granulomatous lesion, caused by *Rhinosporidium Seeberi*.

Nasal papilloma is said to be a commonly occurring benign neoplastic lesion. We have observed five cases of inverted papilloma, forming 50% of all benign neoplastic lesions, these findings are slightly higher as compared to the findings of Humayun et al.⁽¹⁴⁾ (33.33%). We have reported three cases (30%) of angiofibroma in adolescent males, presenting with profuse recurrent epistaxis as the chief complaint and it is comparable with the finding of three cases (27%) by Parajuli S et al.⁽¹⁵⁾ They are typical lesions reported in young people with histological findings of blood filled spaces separated by fibrous tissue. Capillary hemangiomas constituted 20% of benign neoplasms as observed 19.4% by Modh et al.⁽¹²⁾ These lesions presented as bleeding nasal polyps. This neoplasm has been regarded as a hamartoma or malformation rather than a true neoplasm.

Malignant lesions of sinonasal tract are rare.⁽¹⁶⁾ Malignant polypoidal lesions masquerade as simple nasal polyps or chronic inflammatory masses, causing delay in the diagnosis. Squamous cell carcinoma is the commonest histological type.⁽¹⁷⁾ In our study, squamous cell carcinoma constituted 40% and it is comparable with the findings of Modh et al.⁽¹²⁾ and Panchal et al.⁽¹⁸⁾ It was more common in 6th and 7th decades of life as documented by Ghosh and Bhattacharya.⁽¹⁹⁾

Olfactory neuroblastoma is a rare neuroectodermal tumour arising from olfactory sensory epithelium in upper nose. There was a single case of olfactory neuroblastoma and the findings are in concordance with Parajuli S et al.,⁽¹⁵⁾ accounting for 7.69% of malignant tumours.

In our study, we found that anatomically most of the sinonasal lesion was located in the nasal cavity (75%) followed by paranasal sinuses (20.45%). These findings are comparable to the study conducted by Narayana Swami and Chandre Gowda.⁽²⁰⁾

In the study conducted by Bielamowicz S et al.⁽²¹⁾ 1993 on 61 patients, reported that the most common symptom at presentation was nasal obstruction (71%), followed by epistaxis (27%). Plinkert PK 1997⁽²²⁾ also reported that the most common presenting symptoms was unilateral nasal obstruction. These findings are similar to our findings where the most common presentation was nasal obstruction (31.81%), followed by epistaxis (23.86%).

In the present study, various lesions were categorized into non-neoplastic and neoplastic lesions and are compared with previous studies. Among non-neoplastic lesions, inflammatory polyp was the most common lesion. Among benign neoplastic lesions, inverted papilloma was the commonest one and squamous cell carcinoma was most common malignant lesion. Surgical excision is the main modality of treatment in most of non-neoplastic and benign neoplastic lesions and wide surgical excision with

radiotherapy and chemotherapy in malignant lesions. Regular follow up is necessary for early detection of recurrence or metastases.

Table 1: Age and Sex distribution

Age group (Yrs)	Male(%)	Female(%)
10-20	11(12.5%)	08(9%)
21-30	19(21.5%)	09(10.22%)
31-40	13(14.77%)	10(11.36%)
41-50	05(5.68%)	03(3.40%)
>50	09(10.22%)	01(1.13%)
Total	58(66%)	30(34%)

Table 2: Distribution of sinonasal masses according to the clinical presentation

Clinical presentation	No of cases(%)
Nasal obstruction	28(31.81%)
Epistaxis	21(23.86%)
Both (Nasal obstruction & Epistaxis)	12(13.63%)
Mass in sinonasal area	15(17.04%)
Other	12(13.63%)
Total	88(100%)

Table 3: Distribution of benign sinonasal lesions

Benign lesions	No of cases(%)
Inverted papilloma	05(50%)
Angiofibroma	03(30%)
Hemangioma	01(10%)
Osteoid osteoma	01(10%)
Total	10(100%)

Table 4: Distribution of malignant sinonasal lesions

Malignant lesion	No. of cases(%)
Squamous cell carcinoma	02(40%)
Olfactory neuroblastoma	01(20%)
Malignant melanoma	01(20%)
Nasopharyngeal carcinoma	01(20%)
Total cases	05(100%)

Conclusion

Sinonasal lesions are a common problem in today's environment as diagnostic and therapeutic dilemma. It has wide range of histological diversity. Most common age group of presentation is 2nd to 4th decade with male preponderance & Nasal cavity is common site of involvement. Patients present with nasal obstruction and epistaxis. Radiological investigations help only in presumptive diagnosis, therefore histomorphological study is a must for confirmation. Early diagnosis & categorisation helps to know clinical outcome, treatment & prognosis.

Conflict of Interest: None to declare

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