Original article:

Histopathological Findings and Clinical Examination of Masses of Nasal Cavity, Paranasal Sinuses and Nasopharynx

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ABSTRACT

Introduction: Inflammatory masses include polyps which are usually allergic in origin and the commonest nasal masses, the aim of our study was to look for various masses arising from sinonasal tract and to correlate between clinical presentation and histopathological classification.

Materials and Methods: This prospective study was conducted on 80 patients having masses of nasal cavity, paranasal sinuses and nasopharynx attending in department of Pathology.A detailed history with reference to age, sex, occupation, residence was made. Routine biochemical and haematological evaluation were done. Detailed history was taken considering the patient's complaints, mainly nasal obstruction, mass in the nose, epistaxis, rhinorrhoea, hyposmia and deformity of nose and face. The clinical details and imaging studies were obtained from medical record section.

Results: Majority of patients were in age group of 25-35yrs. 58(72.5%) patients were male and 22(27.5%) patients were female. The mean age for male was 32.2 years and that for female was 26.25 years. This shows that male were predominant sex. The incidence of various presenting symptoms were nasal obstruction (88.11%) in non-neoplastic lesion, 82 % in benign tumor and 75.33% in malignant tumor. Other symptom including nasal discharge (49.28%) in non-neoplastic lesion, 58.24 % in benign tumor and 50.3% in malignant tumor, followed by postnasal discharge (19%).

Conclusion: The presenting features, symptomatology and advance imaging techniques help to reach presumptive diagnosis, but histopathological examination remains the mainstay of final diagnosis.

Keywords: Nasal Polyps, Neoplastic Lesion, Nasal Cavity, Paranasal Sinuses, Nasopharynx.

INTRODUCTION

Neoplasms of the sinuses and nasal cavity account for 0.2-0.8% of all carcinomas.[1] Prevalence rate of nasal polyp is about 2%.[2]They may be congenital, inflammatory, neoplastic, non-neoplastic or traumatic in origin. Inflammatory masses include polyps which are usually allergic in origin and the commonest nasal masses. Most of the patient present with complaint of nasal obstruction.[3]Other symptoms include nasal discharge, post nasal discharge, mass in

nasal cavity. Clinical features and imaging techniques help us in reaching a provisional diagnosis but histopathological examination remains the main stay for making a final definitive diagnosis.[4]

Inflammatory polyps are a common cause of nasal obstruction, with a prevalence of 4% in the general population.[5]Benign tumours are relatively common, but malignant neoplasms are rare. Malignant tumours account for 0.2% to 0.8% of total malignancies and only 3% of all malignant tumours of upper aerodigestive tract.[6]Nasal obstruction is the most common symptom. Other symptoms include nasal discharge, epistaxis and disturbances of smell.[7]

Tumours of schwan cell origin, neurofibroma and neurilemoma occurs in nasal fossa very rarely.[8] The neoplasm deserving most attention is the olfactory neuroblastoma.[9] The sinonasal malignancy may be found to be arising from the tissues & structures of the nasal cavity &paranasal sinuses.[10] Even pathologies, which are arising from cranial cavity, may also appear as mass in the nasal cavity or paranasal sinuses.[11] The presentation of sinonasal malignancy depends on the primary site, the direction and extent of spread. The most common initial symptoms are nasal obstruction, epistaxis, proptosis, epiphora, diplopia, loose teeth, facial pain & swelling, buccal or palatal swelling. The presence of nodal involvement drastically reduces the prognosis and 5 years survival rate come down from 27.2% to 6.8%.[12]

The presenting features, symptomatology and advanced imaging technique help to reach a presumptive diagnosis but histopathological examination remains the mainstay of final definitive diagnosis.[13]The aim of our study was to look for various masses arising from sinonasal tract and to correlate between clinical presentation and histopathological classification.

MATERIALS AND METHODS

This prospective study was conducted on 80 patients having masses of nasal cavity, paranasal sinuses and nasopharynx attending in the department of pathology, SGRRIMHS, Dehradun

Written consent for the study was taken from all the patients. Ethical clearance from institutional ethical committee was obtained. A detailed history with reference to age, sex, occupation, residence was made. Inclusion criteria for selection of cases was medically untreatable cases of masses in nasal cavity, paranasal sinuses and nasopharynx requiring surgical treatment and are fit for surgery. Routine biochemical and haematological evaluation were done. Detailed history was taken considering the patient's complaints, mainly nasal obstruction, mass in the nose, epistaxis, rhinorrhoea, hyposmia and deformity of nose and face. Occupational history, personal habits and socioeconomic status of patients were documented. Nasal endoscopy, CT nose and paranasal sinuses, coronal and axial view. FNAC and biopsy were conducted. The tissues were processed for histopathological examination and stained by haematoxylin and eosin stain.

Special stains were used wherever required. The clinical details and imaging studies were obtained from medical record section. Detailed microscopic study was done and then the final diagnosis was given. Typing of the neoplastic lesions was carried out following WHO classification. Immunohistochemistry was carried on cases with diagnostic difficulties.

RESULTS

Majority of patients were in age group of 25-35yrs. 58(72.5%) patients were male and 22(27.5%) patients were female. The mean age for malewas 32.2 years and that for female was 26.25years. This shows that male were predominant sex. The incidence of various presenting symptoms were nasal obstruction (88.11%) in non-neoplastic lesion, 82 % in benign tumor and 75.33% in malignant tumor. Other symptom including nasal discharge (49.28%) in non-neoplastic lesion, 58.24 % in benign tumor and 50.3% in malignant tumor, followed by postnasal discharge (19%).Youngest patient affected was 18 years and oldest was 72 years. Overall, inflammatory nasal polyps were most common lesions (76.25%)**Figure 1.** The masses were predominantly bilateral in case of nonneoplastic masses but were unilateral in case of benign and malignant neoplastic masses. There were no bilateral or multilateral masses seen in benign or malignant mass. Most of the masses originated from middle meatus, followed by lateral wall of nasal cavity. Histopathologically, predominant feature was allergic polyps, followed by inflammatory fungalrhinosinusitis and rhinosporidiosis were other non-neoplastic lesions. The most common malignant tumor was Sinonasal Carcinoma **Figure 2. Table 1** showing theHistopathological diagnosis of lesions and table 2 were showing its clinical features.

Table 1: Histopathological diagnosis of lesions

Histopathological diagnosis	**No. of cases (%)**
Benign tumours	
Inverted papilloma	3 (3.75%)
Angiofibroma	1 (1.25%)
Solitary fibrous tumour	1 (1.25%)
Malignant tumours	
Squamous cell carcinoma	1 (1.25%)
Sino-nasal undifferentiated carcinoma	2 (2.5%)
Non-neoplastic lesions	
Inflammatory nasal polyp	61 (76.25%)
Fungal rhinosinusitis	9 (11.25)
Rhinosporidiosis	2 (2.5%)

Table 2: Clinical features

Clinical features	Non-neoplastic lesions (%)	Benign tumours(%)	Malignant tumours(%)
Nasal obstruction	88.11	82	75.33
Nasal discharge	49.28	58.24	50.3
Anosmia/ Hyposmia	41.31	17.2	26.9
Breathlessness	15.32	0.3	0.21
Epistaxis	19.66	48.32	75.24
Headache	23.21	8	30.7
Facial swelling	0.84	7.6	38.4

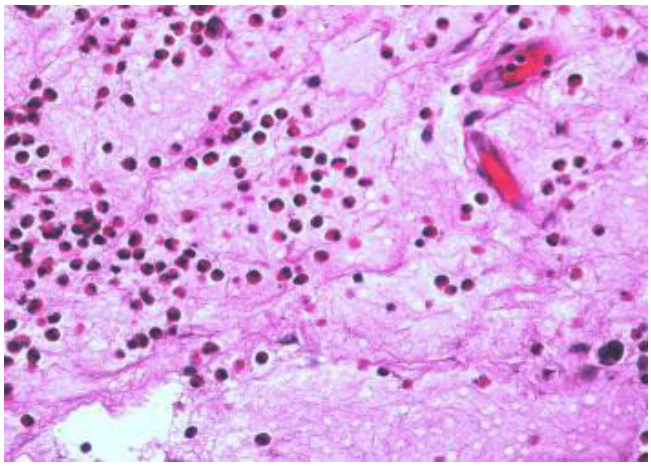

Figure 1: Inflammatory polyp

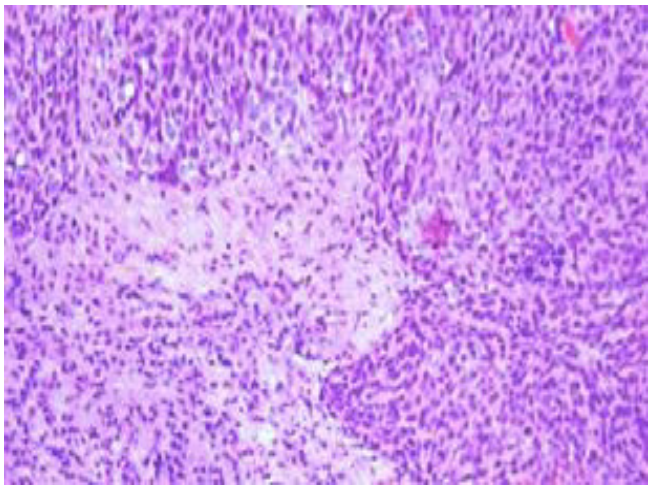

Fig 2: Sino nasal undifferentiated carcinoma

DISCUSSION

In present study majority of patients were in age group of 25-35yrs. 58(72.5%) patients were male and 22(27.5%) patients were female. The mean age for male was 32.2 years and that for female was 26.25 years. This shows that male were predominant sex. The incidence of various presenting symptoms were nasal obstruction (88.11%) in non-neoplastic lesion, 82 % in benign tumor and 75.33% in malignant tumor. Other symptom including nasal discharge (49.28%) in non-neoplastic lesion, 58.24 % in benign tumor and 50.3% in malignant tumor, followed by postnasal discharge (19%) . Youngest patient affected was 18 years and oldest was 72 years. Overall, inflammatory nasal polyps were most common lesions (76.25%).

Bakari et al showed that there is high incidence of benign non neoplastic lesions in their study, constituting about 77.6% of cases while 2.6% were malignant and 19.7% had no pathologic diagnosis.[14]The 2nd and 4th decades of life are the most vulnerable periodfor development of sinonasal masses. Bakari et al.[14] hadreported a peak incidence of 33 years, while for Zafar et al.[4]the mean age of presentation was 22.5 years. Malignancieshave been reported generally after the fourth decade of life.Non neoplastic lesions formed 80% of the total cases of NC,PNS and NP in our study. Such a high proportion of nonneoplasticlesions have been reported in previous studies.[4, 14]Zafar U et al,[4] conducted a study over a period of sevenyears in the department of Pathology and Otolaryngologyat Jawaharlal Nehru Medical College, Aligarh and revealedthat non-neoplastic lesions outnumber the neoplastic lesionswith a percentage of 89% which is similar to our study.

Davidsson and Hellquist[15]classified polyps histologically into four categories: edematous or eosinophilic polyps, fibroinflammatory polyps, polyps with seromucinous gland hyperplasia and Polyps with stromal atypia.Inverted papillomas are comparatively rare, but this morphological variant is the most commonly encountered lesion of all sinonasal neoplasms.[16] Inverted papillomaformed 31.5% of all benign neoplastic masses in our study, which was similar to a study done by Humayun et a[11] who reported 33.33% and marginally higher from the findings of Bakari et al.7 who reported as 14.5% amongst all the sinonasal masses. The rate of malignant transformation may be as high as 11%.[17] Inverted papilloma was associated with squamous cell carcinoma of the sinonasal cavity in 6 (21.4%) of the 28 cases studied by Califano et al.[18] According to Jayachandran and Meenakshi;cemento-ossifyingfibroma is a rare benign, non-odontogenic tumour-like lesion ofjaw, a subdivision of fibro-osseous lesions. The age of occurrenceis between 20 and 40 years with female-to-male predilection of2:1. In our study, the lesion was seen in maxilla of a 12-year-oldgirl. The most striking feature if this lesion on microscopy was thepresence of large, sharply defined, irregularly shaped, calcifiedspherules set in a densely fibrotic stroma.

CONCLUSION

Most common presenting symptom of sinonasal masses was nasal obstruction. Nasal polyposis was the most common benign lesion and Squamous cell carcinoma was the most common malignant lesion. Surgery was the treatment modality of choice for most of non-neoplasticsinonasal masses. The presenting features, symptomatology and advance imaging techniques help to reach presumptive diagnosis, but histopathological examination remains the mainstay of final diagnosis.

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