ORIGINAL ARTICLE

Histopathology of Nasal Masses

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Abstract

Objective: Comparison of clinical and histopathological diagnosis of nasal masses.

Material and methods: A prospective randomized study conducted over a three years period on 100 patients of nasal mass selected from the inpatient department of Otorhinolaryngology, Dayanand Medical College and Hospital, Ludhiana.

Results: A variety of pathological condition (ranging from benign lesions to malignant tumors) can present as nasal mass. The results show that the final diagnosis can be established only on histopathology.

Conclusion: It is concluded that for proper evaluation of a nasal mass, clinical and histopathological evaluation should be done conjointly in all the patients. Histopathology always gives a confirmatory diagnosis. Although rare, unexpected clinically relevant findings may be identified during routine histologic examination of nasal mass specimens.

Keywords: Nasal mass, clinical findings, histopathology.

INTRODUCTION

Various pathologies ranging from benign lesions to malignant nasal tumor may mimic a simple nasal mass. It is impossible to determine clinically what pathology lies underneath. Therefore, nasal endoscopy and histopathology are employed conjointly to help us to reach the diagnosis. The histopathological examination of the removed tissue provides the actual diagnosis of the varied conditions labelled as a nasal mass.

NASAL MASSES/POLYPS

I. Neoplastic
   i. Benign
   ii. Malignant

II. Non-neoplastic
   i. Allergic
      a. Fungal
      b. Nonfungal(AFS Syndrome)
   ii. Infective
      a. Specific
      b. Nonspecific

With this background, we carried out a prospective randomized study to classify various types of neoplastic and non-neoplastic lesions, presenting as nasal mass and compared their intraoperative endoscopic findings with histopathological findings.

MATERIALS AND METHODS

The prospective randomized study was conducted on 100 patients of nasal mass from the inpatient department of Otorhinolaryngology, Dayanand Medical College and Hospital, Ludhiana.

Apart from routine work-up and investigations, CT scan nose and paranasal sinuses (axial and coronal cuts) or MRI nose and paranasal sinus (wherever required) was done. It helped to see the extent and type of pathology, expansion and destruction of sinuses and to look for the presence of any complications (orbital or intracranial extension). Functional endoscopic sinus surgery was done in all cases followed by histopathology of the removed tissue.

OBSERVATIONS

A total of 100 cases of nasal mass were taken up for the study. The male to female ratio was 3:2. The mean age was 40.14 years.

A diagnostic nasal endoscopy was performed on all patients before embarking on endoscopic sinus surgery. Clinically, most of our patients (72%) had ethmoidal polyps. Four percent were suspected to have an antrochoanal polyp and 14% presented with a nonspecific polypoidal nasal mass. Additional information acquired on endoscopy was the finding of cheesy debris in 31% of patients (Table 1).

Table 1: Nasal endoscopic findings (At the time of surgery) (n = 100)

Clinical findings	U/L		B/L		Total	%age
	Pts	%age	Pts	%age		
Ethmoidal polyp	30	30%	42	42%	72	72%
Maxillary polyp/mass	16	16%	—	—	16	16%
Posterior choanal polyp/mass	16	16%	02	02%	18	18%
Antrochoanal polyp	04	04%	—	—	04	04%
Cheesy debris	22	22%	09	09%	31	31%
Mucopurulent discharge	12	12%	04	04%	16	16%
Concha bullosa	04	04%	—	—	04	04%
Synechiae	02	02%	02	02%	04	04%
Nonspecific nasal mass	14	14%	—	—	14	14%
Septal deviation	—	—	—	—	32	32%

Table 2: Comparison of clinical and histopathological findings in patients included in our study (n = 100)

Clinical diagnosis	No. of patients	Histopathology	No. of patients
Non-neoplastic (n = 84)			
Ethmoidal polyps			
Allergic fungal polyp	21	Positive fungal hyphae Eosinophil rich infiltrate Nonspecific/fungus negative	8 (38.10%) 8 5
Nonspecific sinonasal polyps	55	Eosinophil rich infiltrate Nonspecific inflammatory Other diagnosis (one inverted papilloma, two granulomatous TB)	14 39 (71%) 2
Antrochoanal polyp	4	Nonspecific inflammatory	4 (100%)
Mucormycosis	4	Mucormycosis	4 (100%)
Total consistent			55 (65.48%)
Neoplastic lesions (n = 16)			
Benign			
Inverted papilloma (Figs 1 and 2)	4	Inverted papilloma Adenoid cystic carcinoma	3 (75%) 1
Hemangioma	4	Hemangioma Angioleiomyoma	3 (75%) 1
Angiofibroma (Figs 3 and 4)	3	Angiofibroma	3 (100%)
Malignant			
Lymphoma	3	Lymphoma Others (aspergillosis)	2 (66.67%) 1
Nasal cavity carcinoma	2	Adenocarcinoma (Figs 5 and 6) Rosai Dorfman disease	1 (50%) 1
Total consistent			12 (75%)

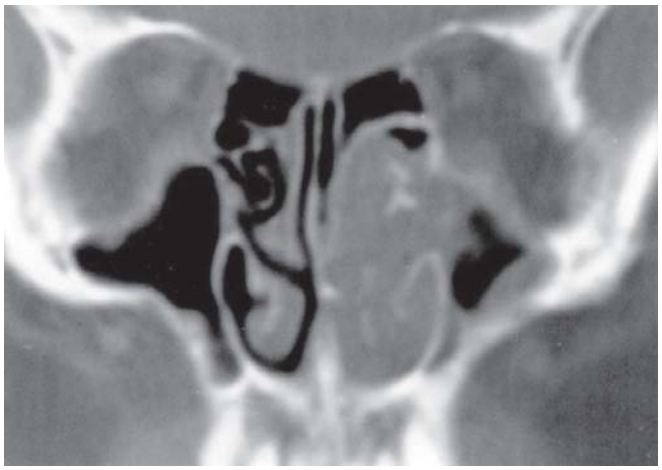

Fig. 1: CT scan coronal section showing soft tissue mass in right ethmoids and nasal cavity (inverted papilloma)

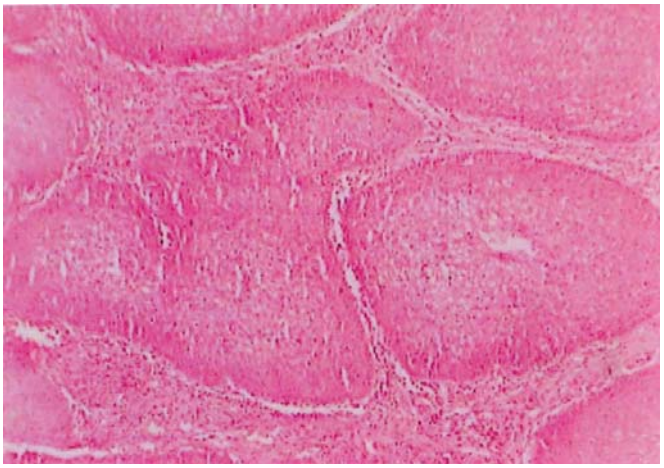

Fig. 2: HPE (10 × 10) showing inverted papilloma

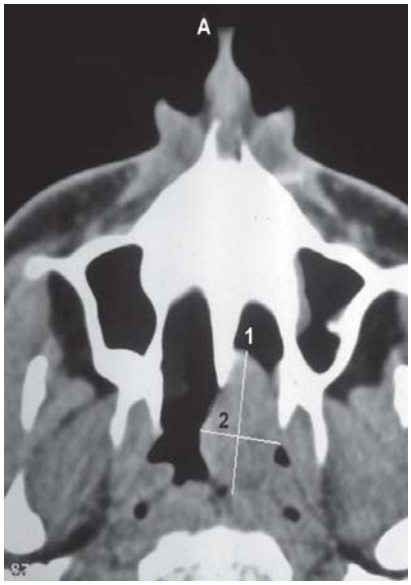

Fig. 3: Axial CT scan showing soft tissue mass in left nasopharynx in a young male (Angiofibroma)

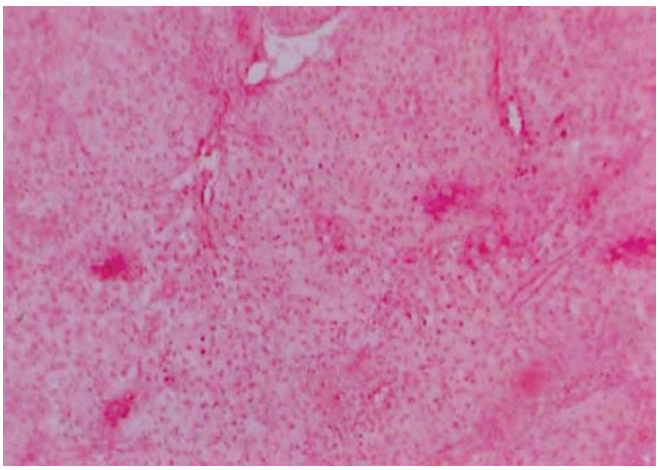

Fig. 4: HPE (10 × 10) showing angiofibroma with dense fibrous stroma with thin walled vessels

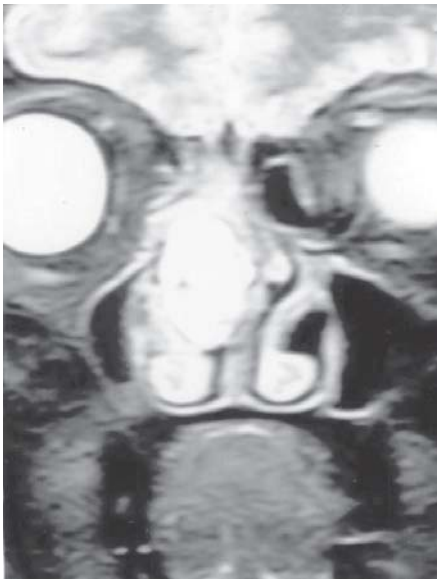

Fig. 5: Coronal T2 weighted image showing mixed intensity lesion involving right nasal cavity and ethmoid sinuses (adenocarcinoma)

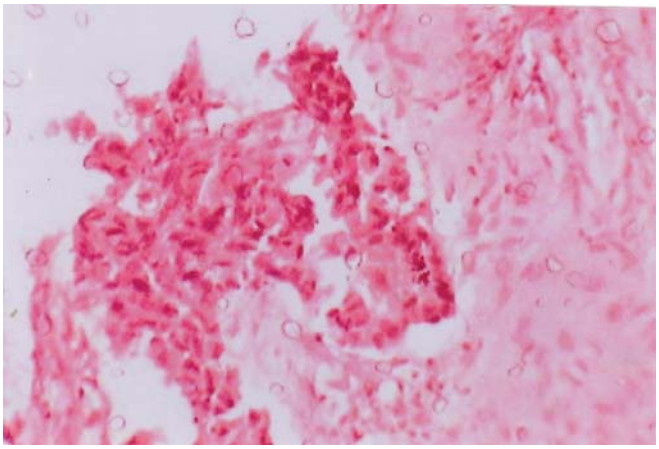

Fig. 6: HPE (10 × 40) showing adenocarcinoma with complex papillary pattern

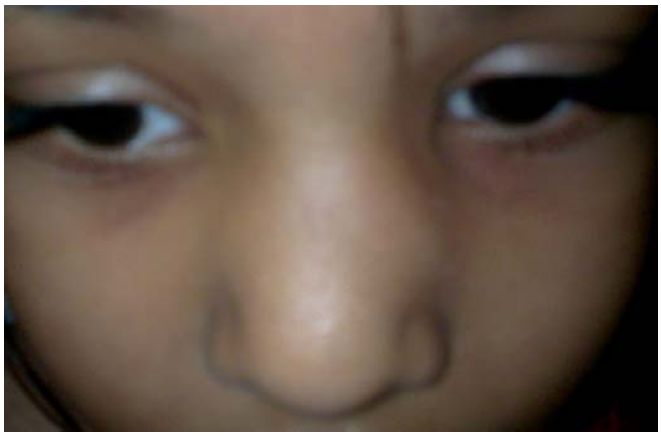

Fig. 7: Clinical picture of girl showing left nasal mass that was diagnosed with Rosai-Dorfman disease

Comparison of clinical and histopathological findings showed that of the 84 patients with clinically non-neoplastic benign polyps, 30 patients had allergic while 54 had infective nasal polypi. But the clinical presentation was same in both the cases. Of the 16 patients with clinically neoplastic lesions, similar histopathology opinion was given in 12 patients (75%) and in a significant 25% of cases the diagnostic results varied. One case of inverted papilloma turned out to be adenoid cystic carcinoma on biopsy report. One of the rare presentations was a child with nasal mass and cervical lymphadenopathy (Fig. 7). After endoscopic excision and FNAC from lymph nodes it was reported as sinus histiocytosis, i.e. Rosai Dorfman disease (Table 2).

DISCUSSION

In our study of 100 cases, 84% had non-neoplastic and 16% had neoplastic lesions. The clinical diagnosis matched with histopathological cases in most of the cases, but biopsy report significantly altered the clinical diagnosis and management in 6% of our patients. Of the 84 patients with non-neoplastic nasal mass, the diagnosis of nonspecific sinonasal polyps, antrochoanal polyp and mucormycosis was correctly established in most of the cases.

It was observed that usually there was a discrepancy in diagnosing allergic fungal polypi. They were mainly reported as eosinophil rich polypi (Allergic fungal sinusitis-like syndrome) on biopsy. The clinical presentation of allergic fungal sinusitis is not diagnostic.[1] There are two ways to diagnose allergic fungal sinusitis (AFS)—one to have the presence of characteristic allergic mucin and the other to have evidence of fungal etiology. Patients who have allergic mucin without documentation of the presence of fungus are identified as having AFS-like syndrome.The management of allergic fungal polypi still remained the same as earlier, i.e. complete removal of fungus and polypi.

Comparison of clinical and histopathological findings showed that of the 84 patients with clinically non-neoplastic benign polyps, 30 patients had allergic while 54 had infective nasal polypi. But the clinical presentation was same in both the cases. However, Tandon et al[2] observed no difference in the histological appearance of allergic and infective polyps.

Diagnosis of neoplastic lesions was established in only 18.75% of cases (3 out of 16 patients). In most cases, it was inadequate to predict the histological subtype and to differentiate non-neoplastic *vs* neoplastic and benign versus malignant lesions. This was most probably due to the fact that there was no evidence of bone erosion or extra sinus mucosa involvement in these cases and varied clinical presentation. They were reported as nonspecific nasal masses.

One such fascinating case of clinical *vs* histological discrepancy is cited here. A 7-year-old female child presented with fever, epistaxis, massive, painless cervical lymphadenopathy and a unilateral nasal mass. Keeping the possibility of some neoplastic disorder, a biopsy was taken from the nasal mass which was reported as ?Rosai Dorfman disease, i.e. a rare, benign disorder of unknown etiology that is characterized by the overproduction of histiocytes, which accumulate in lymph nodes throughout the body as well as at sites outside of the lymph nodes like skin, upper respiratory tract, and bone.[3] In all nodal cases, at least 43% have at least one site of extranodal disease.[4]

In our study, biopsy report varied from the clinical opinion in 6% of cases. A previous study by Diamantopoulos et al[5] on 2021 patients reported that 1.1% of their patients had histopathological findings which were different from their clinical diagnosis and led to alteration in management. G Werner and GR Maria[6] identified clinically relevant unexpected diagnoses, corresponding to a frequency of 0.37%. Kale SU et al[7] in a study indicated a 99.7% correlation between clinical and histopathological diagnosis. However, histopathology still remains the gold standard for diagnosis in most cases.

CONCLUSION

Nasal polypectomy is a common ENT surgery. There is debate about whether all nasal polyps removed at operation should be sent for histopathological examination. From our study, it is concluded that histopathological evaluation is a must in all cases of nasal mass for accurate diagnosis and management as a significant lesions may be missed on clinical evaluation alone.

We had a few drawbacks in our study like the inability to use special fungal stains and to check IgE levels and skin test reports in most of our patients due to lack of affordability. But we think that these drawbacks have not significantly affected our results, since all the patients had to be subjected to ESS for complete removal.

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