International Journal of Otorhinolaryngology and Head and Neck Surgery
Sharma R et al. Int J Otorhinolaryngol Head Neck Surg. 2017 Apr;3(2):253-258
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

Original Research Article

DOI: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20170946

A clinicopathological study of masses of nasal cavity paranasal sinuses and nasopharynx

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Received: 19 February 2017
Accepted: 03 March 2017

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ABSTRACT

Background: A variety of inflammatory, non neoplastic and neoplastic masses involving nasal cavity, paranasal sinuses and nasopharynx are commonly encountered in ENT clinics. The objective was to study the demographic profile, clinical presentation, radiological findings and its correlation with the histopathological findings of masses of nasal cavity, paranasal sinuses and nasopharynx.
Methods: The study was conducted on patients having sinonasal and nasopharyngeal masses admitted in dept of ENT, GMC, Patiala from August 2014 to July 2016. The study was designed to evaluate demographic distribution, clinicopathological features, radiological findings of sinonasal and nasopharyngeal masses and to evaluate the correlation of clinical and radiological findings with histopathological diagnosis.
Results: Analysis of 50 cases of masses in nasal cavity, paranasal sinuses and nasopharynx was done. Male to female ratio was 1.38:1. The commonest site was nasal cavity followed by paranasal sinuses. Nasal polyp was the most common non-neoplastic lesion. Among the neoplastic lesions studied, inverted papilloma was the most common benign lesion and squamous cell carcinoma was the most common malignant lesion observed.
Conclusions: For proper evaluation of sinonasal and nasopharyngeal masses, clinical, radiological and histopathological evaluation should be done in all patients. Although radiology provides a road map to endoscopic surgeons for any existing or impending complications but histopathology always gives a confirmatory diagnosis.

Keywords: Sinonassal masses, Nasopharynx, Polyp, Nasal obstruction, FESS, Inverted papilloma

INTRODUCTION

Sinonasal and nasopharyngeal masses are common findings in ENT out patient department. The incidence being 1-4% of population.[1] Neoplasms of the sinuses and nasal cavity account for 0.2-0.8% of all carcinomas.[2] Prevalence rate of nasal polyp is about 2%.[3] 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.[4] 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.[5] Histopathology has become indispensable in the timely diagnosis and treatment of these lesions. The aim of our study was to look for various masses arising from sinonasal tract and nasopharynx, to categorise them into neoplastic and non neoplastic masses and to correlate between their clinical presentation and histopathological types for final diagnosis of the condition.

METHODS

A prospective study was conducted on 50 patients having masses of nasal cavity, paranasal sinuses and nasopharynx attending in out patient department of ENT,

Rajindra hospital Patiala from August 2014 to July 2016. 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 . 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. Written consent for the study was taken from all the patients. Ethical clearance from institutional ethical committee was obtained.

RESULTS

In present study, age of patients were in range of 11-75 yrs. Majority of patients were in age group of 21-30 yrs. Mean age was 31.50 yrs (Figure 1) 29 patients were male and 21 patients were female. This shows that male were predominant sex (Table 1).

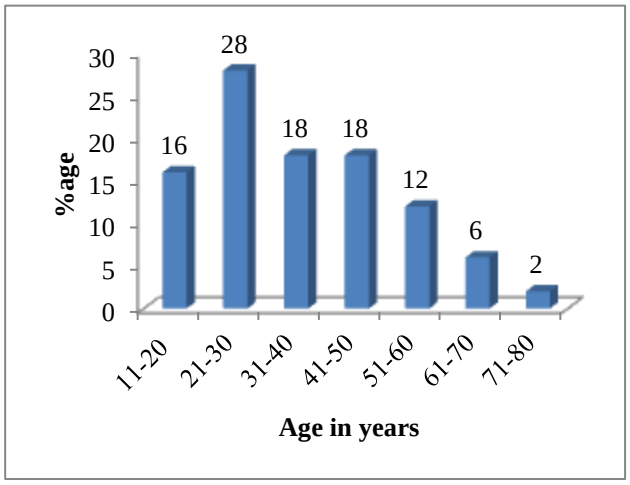

Figure 1: Distribution of cases according to age.

Table 1: Distribution of cases according to gender.

Gender	Number	Percentage
Male	29	58
Female	21	42
Total	50	100

In this study, majority of cases were students (26%) followed by housewives (18%), government job (14%), private job (14%), farmer (12%), businessman (10%), wood-worker (4%), painter (2%) (Table 2).

The incidence of various presenting symptoms were nasal obstruction (58%), nasal discharge (34%), followed by postnasal discharge (22%) (Figure 2).

In this study, number of lesions of unilateral involvement were 68% and of bilateral involvement were 32%. The duration of symptoms were within 2-5 years (42%) as in Table 3.

Table 2: Occupation of patients.

Occupation	Number	Percentage
Businessman	5	10
Student	13	26
Farmer	6	12
Government Job	7	14
Housewife	9	18
Wood Worker	2	4
Painter	1	2
Private Job	7	14
Total	50	100

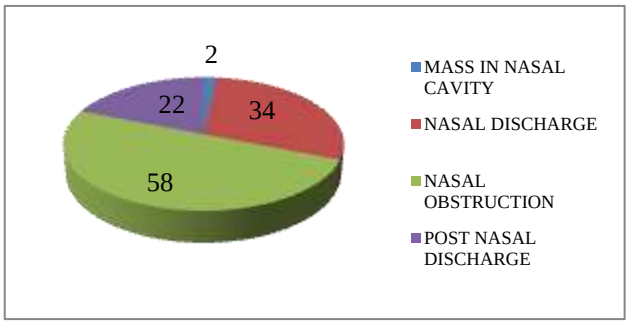

Figure 2: Symptoms of patients.

Table 3: Duration of symptoms.

Duration of Symptoms	Number	Percentage
0-6 Months	5	10
6 Months-2 Years	20	40
2-5 Years	21	42
>/= 5 Years	4	8
Total	50	100

Table 4: Provisional clinical diagnosis.

Provisional Clinical Diagnosis	Number	Percentage
Nasal Polyposis	43	86
Carcinoma	3	6
Inverted Papilloma	2	4
Juvenile Angiofibroma	1	2
Squamous Papilloma	1	2
Total	50	100

In this study, majority of patients had nasal polyposis as their provisional clinical diagnosis (Table 4).

Majority of patients in this study had nasal polyposis as their histopathological diagnosis. Squamous cell carcinoma was the most common encountered malignant lesion (Table 5).

In our study, variation in clinical diagnosis and histopathological diagnosis was present in 16% cases and the Clinico-Histopathological correlation was found in 84% cases (Table 6).

Table 5: Histopathological diagnosis.

Histopathological Diagnosis	Number	Percentage
NP	45	90.0
SCC	4	8.0
IP	1	2.0
Total	50	100.0

Table 6: Change in final diagnosis present/absent.

Change in FD P/A	Number	Percentage
Present	08	16.0
Absent	42	84.0
Total	50	100.0

DISCUSSION

Masses in nasal cavity, paranasal sinuses and nasopharynx form a group of lesions with a broad spectrum of histopathological features. A variety of these non neoplastic and neoplastic lesions are impossible to differentiate clinically and mostly they are diagnosed as simple polyps. These lesions are frequently neglected by the clinicians as infective or allergic aetiology.. Lack of differentiation of benign and malignant disorders at initial presentation result in delay in the initial diagnosis and treatment.

In the present study, mean age of presentation comes out to be 31.5 years. Bakari et al had reported a peak incidence of 33 years, while for Zafar et al the mean age of presentation was 22.5 years.[6,7] Segal et al reported mean age of presentation as 48 years and for Chavan et al, the mean age of presentation was 27.3 years.[8,9] Bist et al showed mean age of presentation of sinonasal masses to be 39.4 years.[10]

Sinonasal masses had predilection for males, demonstrating a male to female ratio of 1.38:1. The predominance of males was observed in present study. This may be due to the increased prevalence of such disorder among the males or it may be simple reflection of overall higher male attendance in the hospital. Lathi et al showed male to female ratio of 1.5:1.[11] In the study by Zafar et al from India, male to female ratio is 1.7:1.[7] Gupta et al found overall male to female ratio of 1.35:1 while for Rawat et al overall M:F ratio was 2.1:1.[12,13] Bist et al reported M:F ratio of 1.8:1.[10]

In the present study, majority of cases are students (26%) followed by housewives (18%), government job (14%), private job (14%), farmer (12%), businessman (10%), wood-worker (4%), painter (2%). Bakari et al reported that majority of patients reviewed were students followed by self employed, civil servants and the least was unemployed full time housewives.[6] According to Gupta et al, as per occupation 43.48% cases were students followed by labourers (32.6%), housewives (11.95%), retired government employees (8.7%) and teachers (3.26%).[12]

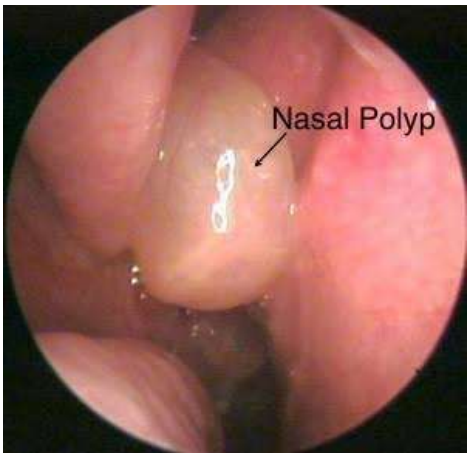

Figure 3: Nasal polyp.

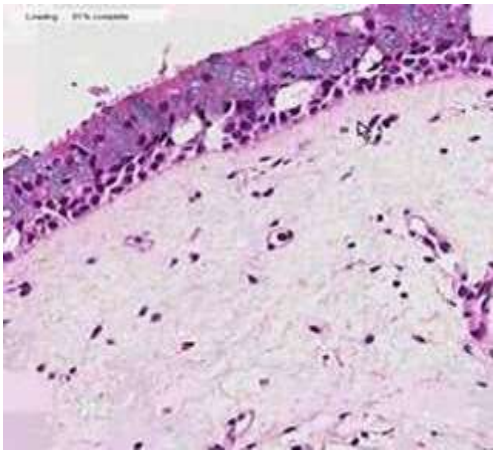

Figure 4: Histopathology- nasal polyp.

In the present study, 86% of the sinonasal masses found to be nasal polyps (Figure 3) Squamous cell carcinoma in 2% cases (Figure 5) and Inverted papilloma in 4% cases (Figure 7). Nasal polyps were the most common non-neoplastic mass due to high prevalence of allergic rhinitis in the region. Rawat et al documented 78.5% of sinonasal masses as nasal polyps.[13] Lathi et al found 71.4% of the sinonasal masses to be non neoplastic.[11] According to Gupta et al, the most common sinonasal mass encountered in his study was inflammatory polyp (69.56%) with antrochoanal polyp (42.39%) followed by ethmoidal polyp (17.39%) and angiomatous polyp (7.6%).[12] According to Bakari et al, simple nasal polyp (61.8%) were the most common clinical diagnosis followed by antrochoanal polyp (13.2%) and inverted papilloma (6.2%).[6] Khan et al reported nasal polyp

(83.33%) to be most common lesion observed of all non-neoplastic lesions.[14] In a study which was done by Dafale et al, simple polyps accounted for 88.57% of total cases and neoplastic polyps accounted for 11.42% cases.[15]

Figure 5: Squamous cell carcinoma.

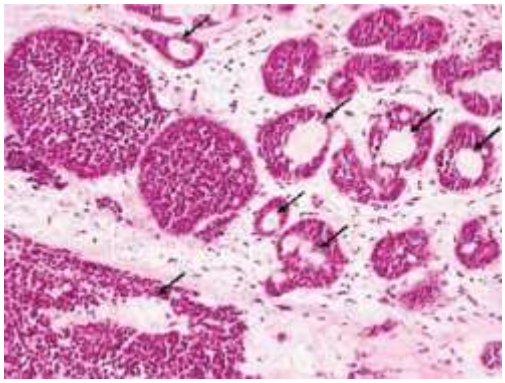

Figure 6: Histopathology- SCC.

In this study, number of lesions of unilateral involvement were 68% and of bilateral involvement were 32% while Bakari et al observes that unilateral sinonasal masses were seen in 55.3% of cases and bilateral lesions in 44.7% of patients.[6] According to Bist et al, maximum number of sinonasal masses were of unilateral involvement (66.36%) and only 25.45% were bilaterally present.[10] In the study by Lathi et al, Unilateral presentation was seen in 48.2% of cases and bilateral presentation in 51.8% of cases.[11] Gupta et al found that 83.6% of their total cases were of unilateral presentation and 16.4% were of bilateral presentation.[12]

In present study, the common presentation of the sinonasal masses were nasal obstruction (56%), nasal discharge (34%) followed by post nasal discharge (22%). Bist et al shows the most common presenting symptom as nasal obstruction (87.27%) followed by nasal discharge (69.09%) and headache (60.90%).[10] Gupta et al reported that main presenting symptoms of sinonasal masses were nasal blockage (94.5%) and rhinorrhoea (90.2%).[12] According to Bakari et al, the main presenting symptoms were nasal blockage (97.4%), rhinorrhoea (94.7%), allergic symptoms (52.6%), anosmia (34.6%).[6] Lathi et al found nasal obstruction (97.3%) to be most common presenting complaint followed by rhinorrhoea (49.1%), hyposmia (31.3%), intermittent epistaxis (17.9%), headache (16.9%), swelling over face (11.6%) and eye related symptoms (10.7%).[2]

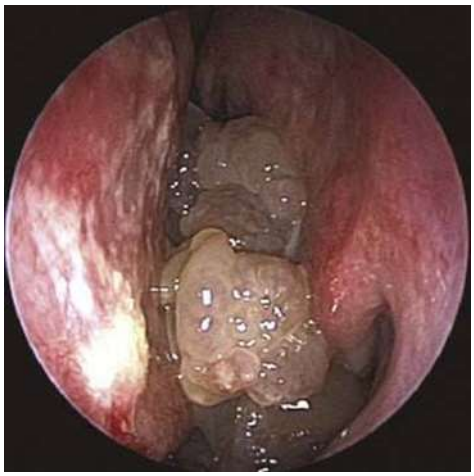

Figure 7: Inverted papilloma.

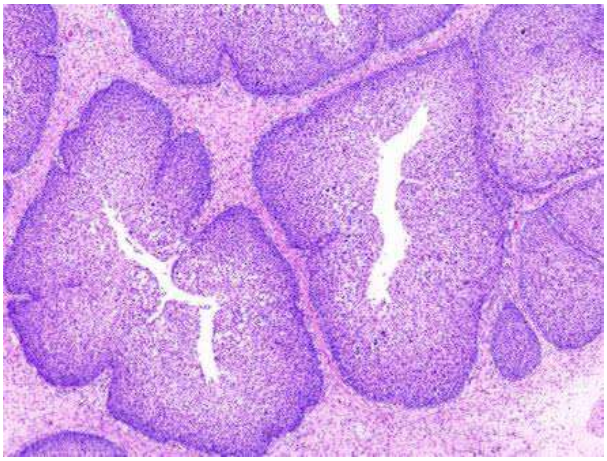

Figure 8: Histopathology- inverted papilloma.

In this study, it was revealed that most patients of sinonasal mass presented to the hospital after 6 months of onset of symptoms and maximum percentage of patients presented within 2 to 5 years (42%). This was seen because in case of malignant condition, the symptoms were reported early by the patients as they were either nasal bleed or maxilla-facial swelling. On the other hand, mild and chronic symptoms like nasal obstruction, nasal discharge and headache were reported to the hospital only after they become troublesome. Bist et al observed that most patients of sinonasal mass presented to the hospital either within 3 months (25%) or after 1 year of onset of symptoms (28%).[10]

In present study, histopathologically 90% cases were nasal polyps (non neoplastic) (Figure 4); 8% were squamous cell carcinoma (malignant) (Figure 6) and 2%

were inverted papilloma (benign) (Figure 8). Rawat et al found 68.56% of histopathological diagnosis as non neoplastic, 22.72% as benign and 8.71% as malignant.[13] Gupta et al found 69.56% of sinonasal masses as non neoplastic.[12]

Among benign neoplastic sinonasal masses, inverted papilloma in 6.52% cases and nasopharyngeal angiofibroma in 5.43% cases. Malignant sinonasal mass were reported in 6.52% cases. Chavan et al showed the most common benign sinonasal mass as the nasal polyp; 51.7% of the cases revealed ethmoidal polyp and 20.4% revealed an antrochoanal polyp with nasopharyngeal angiofibroma in 12.24% cases.[9] 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.[6]

In our study, clinico-histopathological correlation was present in 84% cases. The relatively lower clinic-histopathological correlation when compared to other studies can be attributed to lesser number of cases included in present study. Study done by Bist et al shows correlation in clinical and histopathological diagnosis to be 96.37% of total cases.[10] The clinico-histopathological correlation in Gupta et al study was 96%.[12] Kale et al studied 344 cases and found clinic-histopathological correlation in 99.7% cases.[17] Diamantopoulus et al found clinico-histopathological correlation in 98.9% cases among 2021 patients.[16]

In our study, the sensitivity came out to be 100% and positive predictive value to be 84%. The variation in the clinical diagnosis and histopathological diagnosis was observed in 16% cases.

CONCLUSION

Sinonasal masses have similar presenting symptoms clinically, on basis of which differentiation of malignant lesions from non malignant lesions was not possible accurately. 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. Sinonasal masses had predilection for males, demonstrating a male to female ratio of 1.38:1. Benign lesions were commonly found in young patients (20-40 yrs) while Malignant lesions were found in elderly patients (>40 yrs). Surgery was the treatment modality of choice for most of non neoplastic sinonasal masses. The presenting features, symptomatology and advance imaging techniques help to reach presumptive diagnosis, but histopathological examination remains the mainstay of final diagnosis. Thus, a careful histopatological correlation was mandatory for proper diagnosis and early treatment of the patients. Correct diagnosis directs the clinician toward the proper and early management.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Sharma R, Sahni D, Uppal K, Gupta R, Singla G. A clinicopathological study of masses of nasal cavity paranasal sinuses and nasopharynx. Int J Otorhinolaryngol Head Neck Surg 2017;3:253-8.