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A CLINICOPATHOLOGICAL PROFILE OF SINONASAL AND NASOPHARYNGEAL MASSES IN A RURAL TERTIARY CARE CENTRE

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ABSTRACT: INTRODUCTION: Mass lesions in the sinonasal and nasopharyngeal regions are a heterogeneous entity that includes non-neoplastic tumours, benign tumours, malignancies and neuroendocrine tumours. **OBJECTIVES:** To analyse the clinical behaviour and histopathological findings to arrive at a definitive diagnosis and assess the outcome of various treatment modalities for tumors of sinonasal and nasopharyngeal region. **MATERIALS AND METHODS:** Study included patients attending ENT out-patient department between November 2007 to January 2012 at university hospital. After thorough clinical and radiological evaluation, biopsy was done and sent for examination. Appropriate treatment was instituted according to HPR. **RESULTS:** Out of 70 cases, 35 cases (50%) were non-neoplastic with male to female ratio 2.5:1. 28 cases (80%) were rhinosporidiosis. Benign lesions contributed to 30% (n=21) of patients with male to female ratio was 1.6:1. Commonest lesion was 8 cases (38%) of inverted papilloma. There were 14 cases (20%) of malignancy; with male to female ratio was 1.5:1. They presented between 4th and 6th decade, with nasal obstruction (82%), epistaxis (38.5%), facial swelling (25.9%) and eye symptoms (17%). Carcinoma maxilla was the main malignancy 35 % (n=5). Patients were followed up for one to four years. **CONCLUSION:** Most of the patients presented with trivial nasal symptoms hence there was possibilities of missing diagnosis. A thorough clinical, radiological and histopathological evaluation helped in early and accurate diagnosis which in turn reduced the burden of morbidity.

KEYWORDS: Rhinosporidiosis, rhinoscleroma, inverted papilloma, cancer of maxillary sinus, esthesioneuroblastoma.

INTRODUCTION: Sinonasal and nasopharyngeal mass lesions have been the commonest clinical entity afflicting man from ages. The presenting symptomology of these lesions are almost similar and this produces a great dilemma in clinical diagnosis. Besides these lesions produce little in way of symptoms at the outset when most are mistaken for rhinosinusitis.¹ A large number of diseases affecting these structures are due to many of the specialised structures each with its aberrations that exist in the region.² Mass lesions of this region are a heterogeneous entity that includes non-epithelial tumors, benign tumors, malignancies and neuroendocrine tumors.² Clinical diagnosis is quite difficult because of many specialised tissues with varied presentation and difficulty in evaluation needing various investigations. Treatment of these lesions is challenging as these lesions are adjacent to, sometimes invading a variety of critical structures like brain and orbit.³ Each of these lesions has their own unique presentation, growth pattern and prognosis which will determine the aggressiveness and type of treatment.

The aim of the study was to find out the relative incidence of non-neoplastic and neoplastic lesions of nose and paranasal sinuses, mode of presentation, histological types, characterise the clinical behaviour of the lesions and appropriate treatment.

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MATERIALS AND METHODS: This descriptive study was conducted at Sri Siddhartha Medical college University, Tumkur over a period of five years from 2007 to 2012. All the patients underwent clinical and radiological evaluation. Then they were subjected for biopsy and appropriate treatment instituted. Resected specimen was sent for histopathological examination and immunohistochemistry and final diagnosis was confirmed. All the patients were followed up for 1-4 years.

OBSERVATIONS: Out of 70 cases, 35 cases (50%) were nonneoplastic lesions, with male (n=25) to female (n=10) ratio of 2.5:1 (Table 1). Most of the patients were in 2nd to 4th decade (44%). 82% of these patients presented with nasal obstruction, 67% with nasal discharge, 62.2% with headache and 38.5% with epistaxis as major complaints

Among the nonepithelial lesions, 28 cases (80%) were rhinosporidiosis with male predominance. These patients presented with nasal obstruction and bleeding mass. 4 patients had mass extending into nasopharynx. All these patients were operated endoscopically with cauterisation of the base. One had recurrence after one year which was reoperated.

There were 4 cases (11%) of cyst, out of which nasolabial cyst constituted 3 cases (8.5%) and 1 case (3%) was nasoalveolar cyst which were managed with standard sublabial approach.

Rhinoscleroma cases were 3 (8.5%), presented with nasal obstruction, foul smelling nasal discharge and crusting. Two cases of rhinoscleroma were managed surgically with debridement of the mass followed by stenting with polythene tube. One patient was treated medically with Rifampicin 450 mg OD and Ciprofloxacin 500 mg BD for six months and followed up for 2 years with well controlled symptoms

Benign lesions contributed 30% (n=21) of the 70 cases studied. Most of the patients (66.6%) presented in 3rd and 4th decade. 13 were males and 9 females with M: F=1.6:1 (Table 2). Commonest lesion was 8 cases (38%) of inverted papilloma with equal incidence in males and females with a mean age of 45 years. Most of these patients presented with nasal obstruction. The common site of origin was medial wall of maxillary sinus followed by ethmoid sinus and nasal cavity. Tumors were classified by Furuta staging system according to which five were in T2 stage and 3 in T3 stage. Medial maxillectomy was done in 5 cases and endoscopic excision in three cases.

There was one recurrence which was re-operated. Microscopically papillomas had inverted pattern of growth composed of proliferating columnar epithelial cells with an admixture of mucin secreting cells and microcytes, none showed malignant dysplasia.

There were 6 cases of haemangioma with male to female ratio of 2:1, maximum occurrence in 2nd and 3rd decade. All these patients presented with nasal obstruction, epistaxis with varied severity. Haemangiomas were treated with endonasal excision of the lesion with diathermy. Histologically all were capillary haemangioma.

Among the other lesions, 5 cases were nasopharyngeal angiofibroma (23.8%). All were males with peak incidence in second decade. Clinically these patients presented with nasal obstruction (68%) and painless epistaxis (75%). Two cases were operated with lateral rhinotomy approach and three with trans-palatal split approach. Histologically they were composed of intricate mixture of blood vessels and fibrous stroma. Patients were followed up for two years. One had recurrence which was reported.

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2 cases of ossifying fibroma (9.8%) were reported in maxilla. Both were females in the second decade presenting with cosmetic disfigurement of face. They were managed conservatively with simple surgical removal using a burr through a sublabial approach.

There were 14 cases of malignant lesions i.e., 20% of 70 cases studied. Males were 9 and females were 5 with M: F=1.5:1. Commonest age of presentation was between 4th and 6th decade (64%). These patients were staged according to 2002 American Joint commission on Cancer (AJCC) staging system.⁴ 10 cases were in stage I and 4 cases were in Stage II. Nasal obstruction was the chief complaint (82%), followed by epistaxis (38.5%), facial swelling (25.9%) and eye symptoms (17%) (Table 3). Carcinoma of maxilla was the main malignant lesion which constituted 35% (n=5) of all malignancies studied. Total maxillectomy done for all 5 cases followed by postoperative irradiation.

For one patient orbital enucleation was done in view of breach in orbital periosteum. Patients were followed up for 36 months, with local control of 70%. Histologically all the tumours were Squamous cell carcinoma.

3 cases of carcinoma nasal cavity (21.42%) with M: F ratio of 2:1. All the three cases presented in very advanced stage with ulceration, ulceroproliferative growth and neck secondaries. Histologically two were squamous cell carcinoma and one adenocystic carcinoma. In view of advanced stage of the disease patients were subjected for palliative radiotherapy.

There were 3 cases of olfactory neuroblastoma with M: F=2:1. Mean age of presentation was 50 years. Nasal obstruction, recurrent epistaxis, headache and anosmia were the common presentations. On examination they appeared as pinkish firm polypoidal mass high in nasal wall which bled on probing. All patients were managed with endonasal endoscopic resection followed by postoperative radiotherapy. Patients were followed up for 24 to 36 months with well controlled symptoms.

There were 2 cases of nasopharyngeal carcinoma constituting 14.28% with male to female ratio of 1:1. Clinical presentation was nasal obstruction, epistaxis and neck swelling. Both patients were in sixth decade and managed with CT-RT.

One case of malignant melanoma was reported in a 68 year old male, who presented with a nasal mass which was exophytic, polypoidal pigmented lesion with ulceration, situated in the lateral nasal wall. Tumour staging was T2 with no neck secondaries. Tumour was removed with lateral rhinotomy approach followed by post-operative radiotherapy. Patient was lost in follow up after six months.

DISCUSSION: In the present study, the relative incidence i.e., hospital incidence of sinonasal and nasopharyngeal mass lesion is 14% per year with various histological types as shown in.

In our study commonest non-neoplastic lesion was Rhinosporidiosis constituting 80% (n=28) of all cases. Majority (n=24) of them were in nasal cavity and 4 in nasopharynx. All these patients came from a single area which was later found out to be endemic for rhinosporidiosis. According to Aparna et al,⁵ and N. Khan et al⁶ commonest nonneoplastic lesion was nasal polyp with 69% and 83% respectively.

But in our study nasal polyps were excluded because of their commonality and hence our clinical profile varied. Next common non-neoplastic lesions were nasolabial/nasoalveolar cyst 11.4%, and rhinoscleroma 8.5%. In above studies when polyps were excluded rhinoscleroma was found be

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the commonest non-neoplastic lesion. Peak age of presentation was second to fourth decade which was similar to study by Aparna et. al.⁵, and N. Khan et al.⁶

Most common benign lesion in our study was inverted papilloma accounting for 38% of all benign lesions. In a similar study done by Narayana Swami et. al,⁷ inverted papilloma was commonest benign tumour but however incidence varied (13%). In study done by Lawson W et al,⁸ inverted papilloma was found to be commonest benign sinonasal lesion. Recurrence rate of inverted papilloma was (12.5 %) which was similar to a multicentric study done by Dong-Young Kim et al.⁹

Incidence of Capillary hemangioma was 28.5% of all benign lesions comparable to the work of Aparna N et al,⁵ where it was 38.46%. Histological pattern in both studies were identical to capillary hemangioma.

In our study angiofibroma was 23.5% comparable with study done by Narayanaswami and Chandre Gowda⁷ where it was 26.6% and 30% in the study done by Aparna N Kulkarni et. al.⁵ All five cases in our study were males, comparable with study done by N.Khan et. al. (24 males) and Aparna N Kulkarni et al (4males).⁵

Ossifying fibroma were reported in maxilla similar to previous study by Widenfeld KR et al¹⁰ who reported maximum occurrence in maxilla. However ossifying fibroma is commonly reported to occur in mandible.¹¹

Peak age of occurrence of benign lesions in our study was third and fourth decade (66.6%) which was similar (56%) to Aprana N Kulkarni et. al⁵ and N Khan et.al (53%).⁶

Squamous cell carcinoma was the most common malignancy observed in the study and constituted 35.7% of all malignant lesions with M:F ratio of 1.5:1, similar to findings of N.Khan et al⁶, and Barnes et al.¹² Majority of the patients presented with nasal obstruction, epistaxis, facial swelling, eye symptoms and were similar to a study done by Lewis et.al.¹³ 2 year followup outcome was local control of about 70% and overall survival rate of 60% which was similar to a study done by Duthoy et.al.¹⁴ wherein local control was 68% and overall survival 59%.

Olfactory neuroblastoma was the second common lesion observed in the study showing peak incidence in fifth decade unlike study done by Morita. A et. al. who reported a bimodal distribution of ONB with two clusters apparent around the ages of 20 and 50 years. In the current study nasal obstruction and epistaxis were most common presenting symptoms similar to study by Chang Myeon Song et. Al. With combined modality of treatment with endoscopic resection surgery and radiotherapy overall 3 year survival rate was 80% which was similar (79%) to that reported by Chang Myeon Song et. al.

Mucosal malignant melanoma of sinonasal tract is very rare representing less than 4% of sinonasal neoplasms as reported by Enee V et. Al. In our case there was only one case of mucosal melanoma (7%) who was followed up for 6 months.

CONCLUSION: In this study of sinonasal and nasopharyngeal mass lesions, most of the patients presented with trivial nasal symptoms hence there was possibility to miss diagnosis without great clinical suspicion, thorough ENT examination including endoscopic and radiological investigation. Care and effort should be taken to arrive at proper histological diagnosis, as management is also challenging due to varied presentation with bizarre histological type and lack of definite protocol.

Early diagnosis and treatment will decrease the burden of morbidity in these patients. Awareness about the disease to the patients and the younger faculty is the need of hour. Emergence

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of newer surgical, medical and radiological intervention has opened up a new horizon while dealing with these kind of patients.

Sl. No.	Type of mass lesions	Number of lesions (n=70)	Percentage (%)	Male	Female	M: f ratio	Age in decades
1	Non - neoplastic	35	50%	25	10	2.5:1	2 nd , 3 rd , 4 th
2	Benign	21	30%	15	6	2.5:1	2 nd , 3 rd , 4 th , 5 th
3	Malignant	14	20%	9	5	1.8:1	5 th , 6 th onwards

Table 1: Distribution of lesions according to histopathological pattern

Age group in decades. (years)	Non- Epithelial non-neoplastic lesions (35)	Percentage %	No. of benign tumors (21)	percentage	Malignant Cases (14)	Percentage%
1-10	0		0		1	7.1%
11-20	4	11.4%	4	19.1%	1	7.1%
21-30	9	25.7%	2	9.5%	2	14.2%
31-40	9	25.7%	5	23.8%	1	7.1%
41-50	9	25.7%	8	38.1%	2	14.2%
51-60	4	11.4%	2	9.5%	3	21.4%
60 onwards			-	-	4	28.4%

Table 2: Distribution of age incidence among the various mass lesions in the study group.

Mode of presentation	No of cases (n=70)	Percentage %
Nasal obstruction	58	82%
Nasal discharge	47	67%
Epistaxis	41	38.5%
Headache	44	62.2%
Hyponasality	24	34.2%
Swelling	18	25.9%
Eye symptoms	12	17.1%

Table 3: DISTRIBUTION OF SYMPTOMS AMONGST THE PATIENTS WITH SINONASAL AND NASOPHARYNGEAL MASS LESIONS

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Sl. No.	Diagnosed Lesion	No. of cases (n=70)	Percentage %	males	females	M:F	Treatment
Non-neoplastic lesions (n=35)							
1	Rhinosporidiosis	28	80 %	18	10	1.8:1	surgery
2	Rhinoscleroma	3	8.57 %	1	2	1:2	Surgical+medical
3	Cysts; Nasoalveolar cyst 1, nasolabial cysts 3.	4	11.4 %	1	3	1:3	Surgery
Benign lesions (N=21)							
1	Inverted papilloma	8	38.09 %	4	4	1:1	surgery
2	Capillary Haemangioma	6	28.57 %	4	2	2:1	Surgery
3	Angiofibroma	5	23.80 %	5	0	5:0	Surgery
4	Ossifying fibroma	2	9.52 %	1	1	1:4	surgery
Malignant lesions (N=14)							
1	Squamous cell ca-maxilla	5	35.71%	3	2	1.5:1	Surgery
2	Olfactory neruoblasoma	3	21.42 %	2	1	2:1	Surgery+ctrtr
3	Ca nasal cavity	3	21.42%	2	1	2:1	Surgery (palliative)
4	Ca nasopharynx	2	14.28%	1	1	1:1	CTRT
	Malignant melanoma	1	7.14 %	0	1	0:1	Surgery

Table 4: CLINICAL PROFILE AND TREATMENT

Inverted papilloma 10x HPR

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Ossifying fibroma and nasoalveolar cyst

Squamous cell cancer 10xHPR

Squamous cell carcinoma nose

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