



Original Research Article

Spectrum of neoplastic sino-nasal lesions at tertiary care centre

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ABSTRACT

Introduction: The nasal cavity, paranasal sinuses and nasopharynx form a functional unit of the nose and its anatomical location makes it the fertile land for exposure to several pathogenic factors. Nasal symptoms are one of the commonest reasons for which patient seeks medical advice and as the nose occupies prominent anatomical position on the face, early diagnosis and treatment of any scarring or ulcerative lesion is imperative. Clinically and radiologically benign and malignant lesions are difficult to differentiate. So, histopathology remains main diagnostic approach for the lesions of sino-nasal tract. In present study attempt is made to study histopathological spectrum of sino-nasal lesions with regard to age and sex distribution.

Materials and Methods: All indoor and outdoor patients attending ENT department with complains of nasal mass, obstruction, discharge, bleeding and others were selected for this study during tenure of 2014-2018. All the tissues were fixed in 10% formalin, processed, stained with H and E and studied for various histopathological features.

Results: In present study, out of total sinonasal lesions, non-neoplastic lesions were highest (60%) followed by benign (24.62%) and malignant lesions (15.38%) respectively. Malignant lesions were found in fifth, sixth and seventh decade mainly. All sino-nasal lesions presented with common symptom of nasal obstruction without discrimination of non-neoplastic and neoplastic lesions. Males showed maximum (70.76%) lesions of all categories.

Conclusion: Majority of sinonasal lesions present with complain of obstruction, out of which majority were non-neoplastic lesions, hence histopathological examination remains main stay to differentiate non-neoplastic, benign and malignant lesions to avoid un-necessary surgery.

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1. Introduction

The nasal cavity, paranasal sinuses and nasopharynx form a functional unit of the nose with the common pathological processes affecting them.¹ Basic knowledge of anatomy and histologic features of this area is of value because many conditions show a strong predilection for a specific anatomic location.² The nasal cavity, paranasal sinuses and nasopharynx have important function of filtering, humidifying air, warming and also of immunity (Waldeyers ring) and is also important part of face of aesthetic importance and serves special function of sense of smell.

Thus the functions and anatomical location makes it the fertile land for exposure to several pathogenic factors as foreign body, infection, inflammation and several others. As sino-nasal carcinomas often are diagnosed late in their course, when extensive bone destruction is already present, hence early diagnosis helps in management.¹

Nasal cavity contains a variety of tissues like squamous, neuro-epithelial and olfactory epithelial tissues as well as mesenchymal tissues like bone, cartilage, muscle and vascular tissues.³ Carcinomas of nasal cavity and paranasal sinuses account for 0.2-0.8% of all malignant neoplasms and only 3% of those occurring in head and neck.⁴ The entire range of epithelial and non-epithelial tumours can occur in sino-nasal tract.

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Nasal symptoms are one of the commonest reasons for which patient seeks medical advice and as the nose occupies prominent anatomical position on the face, early diagnosis and treatment of any scarring or ulcerative lesion is imperative.⁵

The fine needle aspiration and cytologic studies are not usually performed in this area due to difficult access to site and also with complication of bleeding, as FNA is blind procedure. Clinically and radiologically benign and malignant lesions are difficult to differentiate. So, histopathology remains main diagnostic approach for the lesions of sino-nasal tract.⁶

2. Materials and Methods

In present study specimens received at histopathological section of pathology department of government medical college, Surat during the tenure of 2014 to 2018 were examined. A histopathological examination of total 130 sino-nasal specimens was done and 52 specimens with neoplasm were included in study. Prior permission from Institutional Ethical Committee was taken to conduct this study.

In present study surgically resected specimens were received and after it thorough examination of each mass was carried out for its size, shape and consistency. Several representative areas of tissue were taken from specimen and subjected to routine paraffin embedding. Small biopsies were whole passed. Following it specimens were processed by automatic processor with formalin, graded alcohol and xylene for duration of 16 hours. All the sections were then processed for paraffin embedding and sections of 5 microns were cut and routine stain was performed for H & E stain. Light microscopy of H and E section was done and reported. Special stains and immunohistochemistry were performed whenever possible. The relevant clinical details and radiological findings were collected from requisition form and/ or case sheet of hospital. Histological examination classified lesions into non-neoplastic and neoplastic lesions. Neoplastic lesions were sub-classified into benign and malignant lesions.

3. Results

In present study total 52 specimens were examined over a period of 4 years. We reported 32 (61.53%) cases of benign lesions and 20 (38.47%) cases of malignant lesions. The age of patients ranged from 9 to 70 years of age. The neoplastic lesions comprising of benign and malignant lesions showed highest cases in age group of 11-20 years and 51-60 years respectively (Table 1). In present study male predilection was observed with 70.76% cases and females showing 29.24% cases. The male to female ratio is 2.3:1. Most common symptom was nasal obstruction which was present in 28 cases(53.84%) followed by Nasal bleeding 15 cases

(28.84%) (Table 2)

The most common site of neoplasm was nasal cavity with 31 cases (59.61%). The second most common site irrespective of nature of lesion was nasopharynx with 11 cases (15.21%) Table 3)

Out of total 32 cases of benign lesions maximum of 13 cases (40.62%) were of Lobular capillary hemangioma, followed by 12 (37.5%) cases of angiofibroma. Other benign lesion in present study includes nasa l papilloma, schwannoma, submucosal pleomorphic adenoma and osteoid osteoma (Table 4).

The malignant neoplasms constituted 20 (38.46%) cases with maximum cases of squamous cell carcinoma comprising 6 (30%) cases. The second common malignant neoplasm was nasopharyngeal carcinoma with 5 cases (25%). Other malignant neoplasms were of non-epithelial origin as olfactory neuroblastoma, lymphoma and adenoid cystic tumor, malignant round cell tumor and malignant spindle cell tumor (Table 5). Malignant minor salivary gland tumors at this site should not be missed. In present study, two cases of adenoid cystic tumor were noted in present study showing equal 1:1 ratio among males and females.

4. Discussion

The lesions of upper respiratory tract are rare but due to its various histologic patterns and its affinity to specialized tissue leads to importance of its early diagnosis. Nasal lesions usually present as mass or discharge and symptomatology for sino-nasal lesions is very non-specific, thus differentiation of non-neoplastic and neoplastic lesions is necessary because of different treatment modality and emotional burden on patient. Rarity and occupational exposure make sino-nasal lesions important in study of cancer causation and prevention.

In present study, out of total 52 cases majority of them were benign lesions being 61.53% and least being malignant lesions with 38.47% which correlated with study by Lathi et al, Dr. Alpana Banerjee et al, Panchonia A et al and Parajuli et al with 16.96%, 28.19%, 21.11% and 12.83% lesions respectively.⁷⁻¹⁰

In present study, benign and malignant lesions showed highest cases in age group of 11-20 years and 51-60 years respectively. Similar results seen in study by Ngairangbam S et al with benign lesions being more common in age group of 11-30 years with.¹¹ The present study was hence in concordance with study by Lathi et al and Banerjee A et al showing maximum incidence of sino-nasal neoplasm in age group of 11-20 years with 21.42% cases and 20.13% cases respectively.^{7,11}

Males are considered to be earning members of society hence leading to exposure of infective, inflammatory etiology or mechanical trauma, etc also among benign lesions the hormone dependency (androgen) and for malignant lesions the occupational exposure being common

Table 1: Age and sex wise distribution of benign and malignant neoplasm

Age Group (Years)	Benign Neoplasm	Malignant Neoplasm	Total
0-10	2(3.8%)	0	2(3.8%)
11-20	12(23.07%)	1(1.93%)	13(25%)
21-30	5(9.61%)	2(3.85%)	7(13.46%)
31-40	2(3.85%)	2(3.85%)	4(7.69%)
41-50	4(7.69%)	4(7.69%)	8(15.38%)
51-60	4(7.69%)	7(13.46%)	11(21.15%)
61-70	3(5.76%)	4(7.69%)	7(13.46%)
Total	32(61.53%)	20(38.47%)	52(100%)

Table 2: Symptoms /complains of neoplastic sino-nasal lesions.

Symptoms/complains	No. of cases	Percentage
Obstruction/nose block	28	53.84%
Nasal discharge	11	21.15%
Bleeding	15	28.84%
Swelling + mass	9	17.30%
Headache	4	7.69%
Others	3	5.76%

Table 3: Location of all sino-nasal Neoplasm

Location of Neoplasm	Benign Neoplasm	Malignant Neoplasm	Total
Nasal Cavity	18(34.61%)	13(25%)	31(59.61%)
Paranasal sinus	2(3.84%)	1(1.92%)	3(5.76%)
Nasopharynx	8(15.38%)	3(5.76%)	11(21.15%)
Nasal cavity and Nasopharynx	2(3.84%)	1(1.92%)	3(5.76%)
Nasal cavity and Paranasal sinus	1(1.92%)	2(3.84%)	2(3.84%)
Nasal cavity, Nasopharynx and Paranasal sinus	1(1.92%)	0	1(1.92%)
Total	32(61.53%)	20(38.47%)	52(100%)

Table 4: Histological types of benign neoplasms

Type of lesion	No. of cases	Percentage
Lobular capillary hemangioma	13	40.62%
Nasopharyngeal angiofibroma	12	37.5%
Nasal papilloma	4	12.5%
Schwannoma	1	3.12%
Submucosal Pleomorphic adenoma	1	3.12%
Osteoid osteoma	1	3.12%
Total	32	100%

Table 5: Histological types of malignant neoplasms

Type of lesion	No. of cases	Percentage
Squamous cell carcinoma	6	30%
Nasopharyngeal carcinoma	5	25%
Olfactory Neuroblastoma	3	15%
Lymphoma	2	10%
Round round cell tumour	1	05%
Malignant spindle cell tumour	1	05%
Adenoid cystic carcinoma	2	10%
Total	20	100%

leads to predominant occurrence of sino-nasal lesions among males and it is very well portrayed by this present study. Our present study showed male predominance with male to female ratio was 2.3:1. Study by, Dr. Alpana Banerjee et al, Panchonia A et al, Ngairangbam S et al and Sharma R et al showing male predilections in their study.^{8,9,11,12}

The most common site for both benign and malignant lesions were nasal cavity with 59.61% cases and second was nasopharynx with 15.21% cases. Similar results were seen in studies by Shah SN et al, Zafar et al, Kulkarni M. et al and K V Narayana Swamy et al.^{5,6,13,14}

The present study states nasal obstruction to be most common presenting symptom which was in concordance with study conducted by Khattak MS et al, Lathi et al, Panchonia A et al, Sharma R et al, H Shah et al, and Bist SS et al.^{3,7,9,12,15,16}

Capillary hemangioma was most common benign tumor found in our study 40.62% cases and was followed by angiofibroma and papilloma in decreasing order of frequency with 37.5% and 12.5% cases respectively. The present study was in concordance with studies conducted by Lathi et al, Alpana Banerjee et al and H Shah et al having hemangioma as most common benign neoplastic lesion.^{7,8,15} Angiofibroma almost occurs exclusively in males in age group of 10–25 years.¹ In present study 12 cases of nasopharyngeal angiofibroma are noted and all affected males were in age group of 10–25 years only.

The present study showed that squamous cell carcinoma was most common malignant lesion with 30% of cases followed by nasopharyngeal carcinoma with 25% cases. The present study was in concordance with studies by Zafar N et al, Lathi et al, Panchonia A et al, Dasgupta A et al, and Nisha J Parmar et al in which squamous cell carcinoma being most common malignant neoplasm.^{6,7,9,17,18}

5. Conclusion

All sino-nasal lesions present with non-specific symptoms irrespective of its etiology and histological type of lesion leading to confusion, ignorance and delay in diagnosis. Masses of nasal cavity, paranasal sinuses and nasopharynx are a common problem in today's environment as diagnostic and therapeutic dilemma as all present as polypoidal mass. The advantage of histopathological examination is that it is relatively simple, cost effective and reliable procedure as compared to irrational surgeries of patient of non-neoplastic and benign lesions causing emotional loss if in case of any facial deformity as surgery is main mode of management of sino-nasal tract lesions.

6. Funding

None

7. Conflict of interest

None declared

8. Ethical approval

Approved

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