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Original Research Article

Nasomaxillary swellings: our experience at tertiary care hospital

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ABSTRACT

Background: A wide spectrum of lesions may present as nasomaxillary swellings ranges from benign to malignant lesions including fungal sinusitis and fibro vascular lesions example: JNA (Juvenile nasopharyngeal angiofibroma) and Inverted papilloma. Many Pathologies ranging from benign to malignant tumors may mimic a simple Nasomaxillary mass. It is diagnostic challenge to determine pathology behind it. A detailed clinical evaluation with nasal endoscopy and relevant pre-operative investigations including radiological imaging and histopathological examination is essential to reach up to final diagnosis. The aim of the study was to do clinicopathological evaluation of patients presenting with nasomaxillary swelling and correlation of clinical, radiological and Histopathological findings.

Methods: This was a prospective observational study on 50 nasomaxillary swelling patients who are presented in the Department of ENT and Head and Neck Surgery of N.S.C.B. MCH Jabalpur, a tertiary care Hospital, between March 2018 to August 2019. A detailed history taking and clinical examination with nasal endoscopy and relevant preoperative investigations including CECT Nose and PNS and histopathological examination was done in all patients.

Results: 50 Nasomaxillary swelling patients were selected for this study. 30 patients were male and 20 were females. Ages of patients were varied from 12 years to 72 years. 23 patients (46%) were malignant and 27 (54%) were benign. Histopathological examination results shows benign lesions like JNA (6 cases), fungal sinusitis (6 cases), dermoid cyst (1 case), inverted papilloma (3 cases), sebaceous cyst (1 case), jaw lesions (10 cases), (odontogenic like radicular/ infected cyst, dentigerous cyst, cystic ameloblastoma and non-odontogenic like fibrous dysplasia) and malignant lesions like SCC (squamous cell carcinoma) (12 cases), spindle cell sarcoma (2 cases), undifferentiated carcinoma (3 cases), adenocarcinoma (3 cases), adenoid cystic carcinoma (1 case), Invasive pleomorphic sarcoma (1 case) and malignant melanoma (1 case). SCC was most common lesion f/b JNA and fungal sinusitis. Well differentiated SCC was most common histological type (10 out of 12 cases of SCC). Most common symptom was nasal obstruction (66% cases) f/b epistaxis (52% cases) but epitasis was most common symptom among malignant and JNA cases. In 6 cases (3 JNA, 1 inverted papilloma, 1 malignancy and 1 radicular cyst) radiological diagnosis were not correlated with histological findings.

Conclusions: Most our cases were malignant nasomaxillary lesions followed by fungal sinusitis and JNA. Most patients presented in advanced stage of disease so rapidly evaluation including nasal endoscopy should be done. CECT scan is essential to determine tumors extent and bony lesions. All patients should undergo hisotopatholigical examination. The final diagnosis should be made on the basis of clinical, radiological and histopathological findings.

Keywords: Nasomaxillary swellings, Benign lesions, Malignant lesions, Fungal sinusitis, JNA, Jaw lesions

INTRODUCTION

Nasomaxillary swellings can occur due to various diseases of maxillary region, nose, nasopharynx and maxillary alveolus that extend into nasomaxillary area. Consequently, these swellings encompass a large and diverse group of lesions including benign, malignant, fungal and fibrovascular lesions. Among benign lesions are epithelial origin example: inverted papilloma, onchocytic papilloma, exophytic papilloma, respiratory epithelial adenomatoid hamartoma (REAH), salivary gland adenomas; soft tissue origin example- myxoma, leiomyoma, haemangioma, schwannoma, meningioma, neurofibroma, angiofibroma, haemangiopericytoma; bone and cartilage origin example- fibrous dysplasia, osteoma, osteoblastoma, chondroma, ameloblastoma; germ cell tumor example- dermoid cyst. Other benign lesions which may cause nasomaxillary area swellings are infected maxillary cysts and sebaceous cyst. Among malignant lesions are epithelial origin example- squamous cell carcinoma (SCC), sinonasal undifferentiated carcinoma (SNUC), lymphoepithelial carcinoma, adenocarcinoma, salivary gland carcinomas, mucoepidermoid, adenoid cystic carcinoma, acinic cell carcinoma; neuroendocrine origin example- carcinoid; soft tissue origin example- fibrosarcoma, rhabdomyosarcoma, angiosarcoma, malignant peripheral nerve sheath tumor; bone and cartilage origin example- chondrosarcoma, osteosarcoma, chordoma; haematological and lymphatic origin example- lymphoma, langerhans cell histiocytosis; germ cell tumor example- teratoma sinonasal yolk sac tumor; neuroectodermal tumors example- esthesioneuroblastoma.[1] Fungal species causing invasive fungal sinusitis and nasomaxillary swellings are *Mucormycosis, Aspergillus fumigatus, Aspergillus flavum Candida* species and *Fusarium*.[1]

Tumors involving sinonasal cavity are considered rare entities. The most commonly reported benign lesion is a sinonasal osteoma with a radiological incidence of 1%. Ossifying fibroma, fibrous dysplasia and inverted papilloma are the next most commonly reported benign lesions of the paranasal sinuses. Sinonasal malignancies are less common with an estimated incidence of 0.5-1/100,000. They account for around 1% of all malignancies and 3-5% of all head and neck cancers1. Primary epithelial tumors are the most common types of sinonasal malignant tumor, with squamous cell carcinoma the most common subtypes followed by adenoid cystic carcinoma and Adenocarcinoma. Among the less common non-epithelial tumors lymphoma is the most commonly reported.[1]

Many pathologies ranging from benign lesions to malignant nasomaxillary tumors may mimic a simple nasomaxillary mass. It is a diagnostic challenge clinically what pathology lies behind It .The patients of maxillary sinus lesions present late as there is large cavity in maxillary sinus and symptoms appear only when sinus cavity filled completely or the disease spreads in the surrounding areas example- nasal cavity, orbit, nasopharynx, pterygopalatine fossa, Infratemporal fossa, Hard Palate or swelling appear at cheek or nasomaxillary area or there is pressure symptoms. Various lesions which causes nasomaxillary symptoms have many common symptoms but each lesion have some unique features which can gives idea about particular pathology to make clinical diagnosis. These unique clinical features with radiological findings help in differentiating b/w benign and malignant lesions. However histopathological examination is required to determine the nature of particular lesion.

Benign tumors are usually smooth, localized and covered with mucous membrane while malignant lesions are usually friable, have a granular surface and tend to bleed easily. Nasomaxillary swellings present with a variety of symptoms including nasal obstruction or mass, epistaxis, nasal discharge, cheek swelling or facial deformity, facial pain, headache, weight loss, visual disturbances, proptosis or hard palate swelling. Aim to do clinicopathological evaluation of patients presenting with nasomaxillary swellings and Correlation of clinical, radiological and histopathological findings.

METHODS

Study area and target population

Patients included in this study presented in the ENT department of a tertiary care hospital, between March 2018 and August 2019.

Study design

This is a prospective observational study.

Inclusion criteria

Patients presenting with nasomaxillary swelling due to various etiology and diseases.

Exclusion criteria

Patients acutely present (duration of symptoms less than 6 days), polyps, # nasomaxillary area.

Data collection

Detailed clinical history and local examination including nasal endoscopy and general and systemic examination with relevent investigations including CECT scan of Nose and paranasal sinuses, FNAC in relevant patients, preoperative biopsy by nasal endoscopic or Caldwell-Luc approach for histopathological examination. All patients underwent surgical treatment either by FESS (Functional endoscopic sinus surgery) or open surgical approach or by combination of these. Post operative tissue sent for histopathological examination.

Ethical approval

Ethical approval for this was obtained from the institutional ethics committee (IEC).

Ethical issues

None.

Statistical analysis

The data collected was entered in Microsoft excel and analyzed. Analyzed data was presented in the form of frequency and percentage shown by bar and pie chart.

RESULTS

A total 50 nasomaxillary swelling patients were selected for this study, out of these 30 (60%) were males and 20 (40%) were females (Figure 1). The age range of patients varies from 12- 72 years. 21-30 years age group patients had highest number of patients (30%), second and third age group which had more number of patients were 51-60 years (22%) and 31-40 years (16%) respectably (Figure 2). Nasomaxillary swelling is more common in lower socioeconomic class (80% cases). In our study 36% patients are laborer, 22% are farmers, 16% are students, 12% house wife, 10% food industry workers and 4% are wood workers (Figure 3).

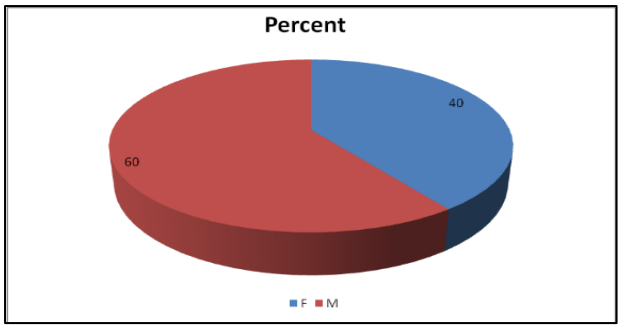

Figure 1: Sex distribution.

All our patients are presented with unilateral nasomaxillary swelling. 66% (33 out of 50) patients have complaints of nasal obstruction, 52% (26 out of 50) have epistaxis, 44% (22 out of 50) have facial pain and 44% (22 out of 50) patients have complaint of weight loss. Other associated complaints are decrease vision (24% cases), proptosis (26%, cases), headache (50%, cases), hard palate swelling (42% cases) and restricted eye movement in 12% cases (Figure 4). 29 out of 50 cases (58%) have history of tobacco, supari and alcohol addiction.

On clinical examination 82% (41 out of 50) nasomaxillary swellings are firm and 18% (9 0ut of 50) are hard in consistency. Nasal discharge are present in 66% (33 out of 50) patients, among these 32% (16 out of 50) have blood stained nasal discharge, 20% (10 out of 50) have mucoid, 12% (6 out of 50) have purulent and 2% (one out of 50) has blackish-brown nasal discharge.

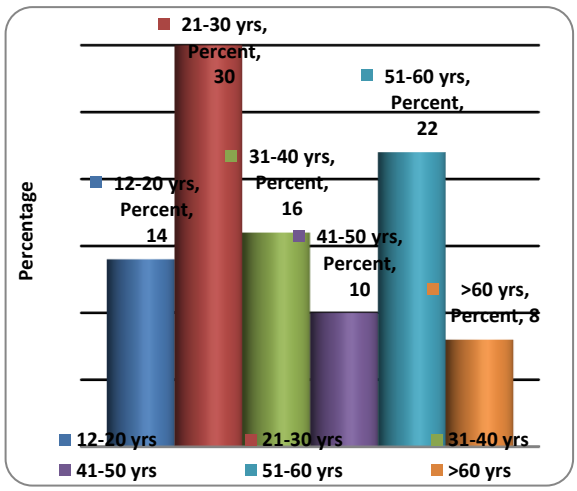

Figure 2: Age distribution.

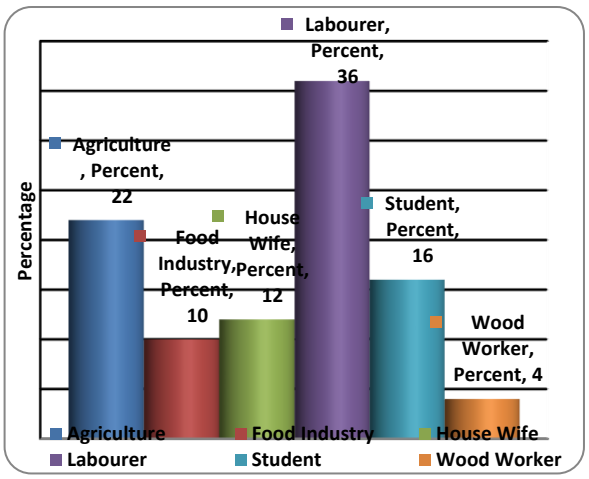

Figure 3: Occupation distribution of NM swelling patients.

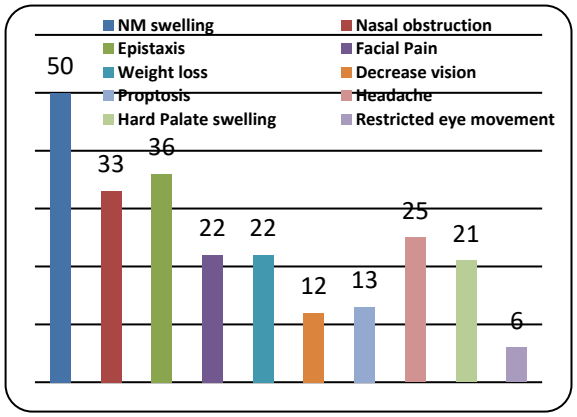

Figure 4: Various symptoms present in NM swelling Patients.

Nasal endoscopy shows nasal mass in 66% (33 out of 50) patients. Among these 24% (12 out of 50) have polypoidal mass, 22% (11 out of 50) have fragile mass which bleeds on touch, 12% (6 out of 50) have greenish-brown fragile mass (fungal sinusitis), 6% (3 out of 50) have smooth hard mass and 2% (1 out of 50) has blackish fragile mass.

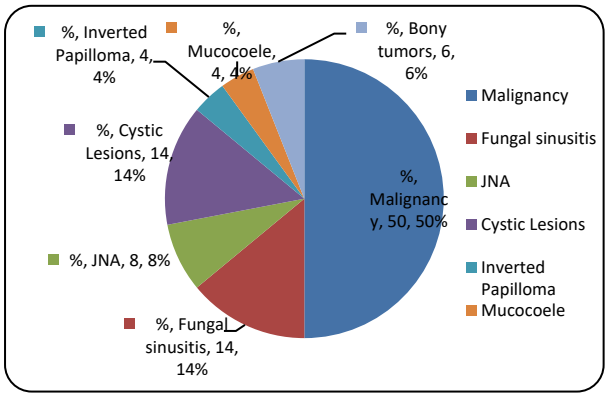

Figure 5: Various findings in CECT scan nose and PNS.

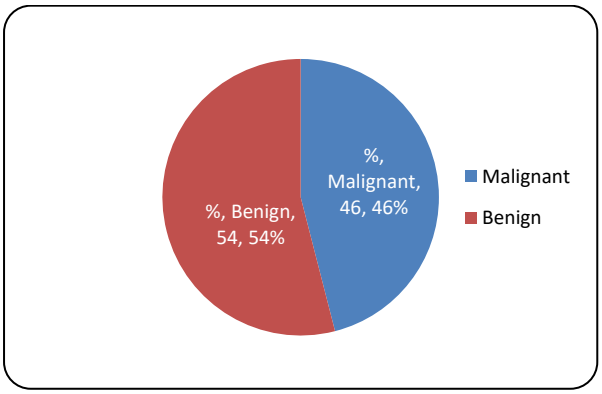

Figure 6: Post- operative HPR report.

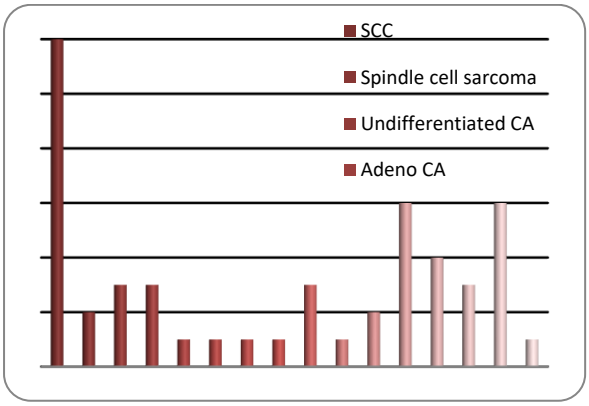

Figure 7: Varied diagnostic spectrum.

32% patient have Hb <12 gm/dl, 26% have TLC count >11000/cu.mm, 56% have increased ESR (>20 mm/hr), 4% have raised AEC (>400/cu.mm) and 8% cases have raised RBS (>140 mg/dl).

Clinical palpable cervical lymph nodes are present in only 18 patients, FNAC done in 15 cases, among them 10% cases (5 out of 50) are positive for malignancy. Pre-operative FNAC from nasomaxillary swelling are done in 12 patient, among them 4 came malignant, 3 came inflammatory lesion, 2 infected mucocele, one each dermoid and sebaceous cyst.

CECT scan done preoperatively in all cases, reports suggest nasomaxillary opacity in 100% (50 out of 50) cases of this study group. Bony erosion with irregular mass is present in 50% (25 out of 50) cases. According to CECT reports 50% (25 out of 50) cases are malignant, 50% are benign. Among benign lesions 7 are fungal sinusitis, 4 are JNA, 7 are cystic lesions, 2 are inverted papilloma, 2 are mucocoele and 3 are bony tumors (Figure 5).

Preoperative biopsy from nasomaxillary swelling taken and HPE are done in 26 patients among them 16 reports came malignant and 10 benign.

HPE of postoperative tissues are done in all patients. These are malignant in 46% (23 out of 50) cases and benign in 54% (27 out of 50) cases (Figure 6).

Percentage of different cellular types (Figure 7) of malignant lesions among nasomaxillary swellings cases are, SCC 24% (12 out of 50), spindle cell sarcoma 4% (2 out of 50), undifferentiated carcinoma 6% (3 out of 50), Adenocarcinoma 6% (3 out of 50), adenoid cystic carcinoma 2% (1 out of 50), Invasive pleomorphic sarcoma 2% (1 out of 50), malignant melanoma 2% (1 out of 50).

Among benign nasomaxillary swellings percentage of different types (Figure 7) of lesions are: cystic ameloblastoma 2% (1 out of 50), dentigerous cyst 6% (3 out of 50), dermoid cyst 2% (1 out of 50), fibrous dysplasia 4% (2 out of 50), fungal infections 12% (6 out of 50), radicular/infected cyst 8% (4 out of 50), inverted papilloma 6% (3 out of 50), JNA 12% (6 out of 50), sebaceous cyst 2% (1 out of 50) cases.

DISCUSSION

Diverse disease entities may present as nasomaxillary swellings may be benign lesions and malignant tumors. The separation of nasal tumors from tumors of paranasal sinuses is different except in early stages. In addition to primary tumors these areas can be encroached with growth from nasopharynx, cranial and oral cavity.

The clinical approach to nasomaxillary swelling is challenging due to diverse diseases entities. It is diagnostic dilemma to determine to determine clinical what pathology lies behind it. A through clinical assessment with relevant investigations including radiological and histopathological evaluation is necessary to determine the nature of particular pathology.

In the present study are of the patients varied from 12 to 72 years. The peak incidence of nasomaxillary swellings is seen in age groups 21-30 years f/b in 51-60 years (22%), 31-40 years (16%) and 12-20 years (14%).

Prevalence of malignancy is highest in age group 51-60 years (18%). The high number of cases in age group less than 30 years is due to benign lesions. All JNA and fibrous dysplasia patient are below 30 years age according to Deepti etc study, the highest incidence of nasomaxillary malignant is in 6th and 7th decade of life. In our study 46% cases (23 out of 50) are malignant and 54% cases (27 out of 50) are benign. Nasomaxillary swellings are more common in males. In our study 60% cases (30 out of 50) are males and 40% cases (20 out of 50) are females. Malignant nasomaxillaery tumors are also more common in males 60.8% (14 out of 23). JNA is exclusively found in males (6 out of 6) in our study. Nasomaxillary swelling is more common in lower socioecommical class 80% (40 out of 50) cases and in rural population 64% (out of 50), these may be due to more exposure of rural population with dust, wood dust and agriculture food particles squamous cell carcinoma is most commonly related with nickel, chromium, aflatoxin (found in certain type of food and dust) Adenocarcinoma is most commonly related with wood and leather dust. In our study most of squamous cell carcinoma patients has food and dust exposure (60%) and Adenocarcinoma patients has wood dust exposure (13%). As per literature review 40% nasomaxillary malignancy associated with wood dust exposure.[1] Workers exposed to hard wood have a 70 times increased incidence of sinonasal Adenocarcinoma.

In our study group most common symptoms is nasal obstruction in 66% (33 out of 50) cases followed by epistaxis in 52% (26 out of 50) cases. Among malignant nasomaxillary swelling epistaxis percentage is 69.6% (16 out of 23), among JNA cases epistaxis present in 100% (6 out of 6) cases. Epistaxis are the comment clinical symptoms among nasomaxillary malignant cases (72%) followed by nasal obstruction (68%) as per literature review.[15] Facial pain is present in 44% nasomaxillary swelling cases (22 out of 50) and in 65.2% among nasomaxillary malignant cases (15 out of 23). Weight loss are present in 44% cases (22 out of 50) among nasomaxillary swelling cases decrease vision occurs in 24% cases, proptosis occurs in 26% cases and restricted eye movement in 12% cases, these indicates eye orbit invasion by tumor. Headache occurs in 50% cases and hard palate involvement in 42% cases, Tobacco addiction (smoking and cheering) is found in 56% of this study groups.

Nasomaxillary swelling are firm in 82% (41 out of 50) cases in hard in 18% (9 out of 50) cases, Nasal mass are present in 66% (33 out of 50) cases. In literature review, predominant clinical presentation among nasomaxillary swelling cases was nasal obstruction.[6,4] Nasal discharge are mostly blood stained 32% cases (16 out of 50), this indicates that most patients in this study group are either malignant or vascular mass. According to literature review there is recurrent history of painless nasal bleed among nasomaxillary swelling cases.[5,4]

On nasal endoscopic examination among our study group, nasal masses mostly look like as polypoidal mass 24% (12 out of 50 cases), it indicates that many vascular lesions (example- JNA, Inverted papilloma) and some malignant lesions present as polypoidal nasal mass. 22% cases (11 out of 50) present as fragile nasal mass, they indicates malignant nasomaxillary lesions. 12% cases (6 out of 50) present as green-brown nasal mass, they indicates fungal sinusitis. Black fragile nasal mass present in 2% cases (1 out of 50), it indicates malignant melanoma. Smooth hard mass present in 6% cases (3 out of 50), they indicates benign bony lesions.

In our study group, post-operative histopathological reports suggestive of benign lesions in 54% cases (27 out of 50) and malignant lesions in 46% cases (23 out of 50). Most commonly found nasomaxillary swelling cases are of SCC (squamous cell carcinoma) 24% cases (12 out of 50) followed by benign lesions JNA and fungal sinusitis 12% each (6 cases each out of 50).

Among benign lesions highest percentage are of jaw lesions 20% (10 out of 50 cases) followed by JNA and fungal sinusitis 12% each (6 each out of 50 cases) followed by inverted papilloma 6% (3 out of 50 cases) and dermoid cyst and sebaceous cyst 2% each (1 each out of 50 cases). Percentage of odontogenic and non-odontogenic lesions among jaw mass are 80% odontogenic (8 out of 10 cases) and 20% non-odontogenic (2 out of 10 cases, fibrous dysplasia). Among odontogenic mass most common is radicular/infected cyst 50% (4 out of 8 cases) followed by dentigerous cyst 37.5% (3 out of 8 cases), cystic amenoblastoma 12.5% (1 out of 8 cases). Our study is consistent with the result of literature review which reported that radicular cysts are most common odontogenic jaw cyst and constitute more than 50% of jaw cysts and maxillary ameloblastoma accounting for 9-10% of all odontogenic tumors.[2,12] Dermoid cyst and sebaceous cyst are considered rare lesion in nasomaxillary area. Inverted papilloma is a neoplasm that is histopathologically benign but clinically malignant lesion.[14] JNA are exclusively found in adult males, this indicates that this tumor has male sex harmone related etiology. Fibrous dysplasia is found exclusively in adolescent age group, this indicates developmental etiology of this tumor.

Among fungal sinusitis cases histopathology reports are suggestive of invasive mucor mycosis in 66.7% cases (4 out of 6 cases) and chronic granulomatous inflammation in 33.3% cases (2 out of 6 cases). Raised blood sugar (associated diabetes mellitus) are found in 100% cases of Acute invasive fungal rhinosinusitis (AIFR) and there is no history of DM in Chronic granulomatous invasive

fungal sinusitis (CGIFS) cases. However study done by Karthikeyan et al is contrary to our results which reported that aspergillosis is the commonest fungal infection of nasomaxillary area and aspergillus fumigatus (90%) is the most common fungal pathogen followed by aspergillus niger and aspergillus flavus. Mucor mycosis, candidiasis may also occurs.[13]

Highest percentage of different cell types among malignant lesions are SCC 52% (12 out of 23 cases) followed by adenocarcinoma and undifferentiated carcinoma 13% each (3 each out of 23 cases) followed by spindle cell sarcoma 8.7% (2 out of 23 cases) followed by adenoid cystic carcinoma, invasive pleomorphic sarcoma and malignant melanoma 4.3% each (1 each out of 23 cases). Percentage of different histological grades among SCC are well differentiated SCC 83.3% (10 out of 12 cases of SCC), moderately differentiated SCC and poorly differentiated SCC 8.3% each (1 each out of 12 cases of SCC).These findings are consistent with the result reported in litratures.[1,8-11] However, a study realized by olufunso simisola aduayi et al is contrary to our results which shouts SCC constitute over 80% of all malignancies that arise in the nasomaxillary area.[7]

CT scan is the most frequently used radiological investigation to evaluate nasomaxillary swelling lesions. Contrast enhanced CT scan (CECT scan) are done in all cases our study group. CECT scan is helpful to determine tumor extent and bony erosion. In our study bony erosion with irregular mass are present in 50% (25 out of 50) cases.

Among malignant cases bony erosion with irregular mass are present in 95.5% cases (22 out of 23) cases and among JNA cases bony erosion with irregular mass are present in 33.3% cases (2 out of 6 cases). A through in our study CECT give false impression in 12% cases (6 out of 50 cases) two cases of JNA and one cases of inverted papilloma reported wrong as malignancy and one case of malignancy reported as JNA, another JNA case is reported as fungal sinusitis. It also fails to differentiate one case of infected radicular cyst which reported as infected mucococle. Overall relation b/w the CT scan findings and histopathological examination are strong.

CONCLUSION

In our study, we had a varied spectrum of nasomaxillary area swelling cases ranging from benign to malignant lesions including fungal infection, fibro vascular lesions. Most of our cases of unilateral nasomaxillary are swelling are malignant lesions followed by fibro vascular lesions (JNA) and fungal sinusitis and most of remaining are benign jaw (bony) lesions. It is diagnostic challenge to determine to determine pathology behind it. A systematic detailed clinical examination with nasal endoscopy and relevant preoperative investigations with high index of suspicion and awareness of uncommon lesions of this area is essential. CECT scan is essential to determine tumor extent, bony lesion and to pain the surgical approach. All patients with nasomaxillary area swelling should undergo histipathological examination. The Final diagnosis should take into account the clinical, radiological and histopathological findings.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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