Section: ENT

Original Research Article

STUDY OF TUMOURS IN MAXILLA IN MAHARASHTRA POPULATION

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Abstract

Background: Tumours in maxillary sinus are very uncommon and lead to fatal outcome if un-diagnosed, as maxillary sinus is related to important structures like orbital floor and middle nasal meatus via maxillary ostium. **Materials and Methods:** 30 adult patients aged between 30 to 70 years having maxillary tumours were studied. Histo-pathological, haematological, radiological (CT scan) studies were done to evaluate the type of maxillary tumours. **Result:** Out of 30 patients 11 were malignant, 19 were benign. The duration of complains varied from 1 month and 1 ½ year in malignant, 1-5 years in benign tumours. Epistaxis and nasal mass, were in benign tumours and 9 (81.8%) nasal mass in malignant tumours, 6 (54.5%) cheek swellings in malignant tumours, TNM – Number was 10 (81.8%) in malignant. **Conclusion:** Inverted papilloma in benign and squamous cell carcinoma in malignant tumour was significant features. The present study will help the ENT surgeon / Oncological surgeon to treat efficiently.

INTRODUCTION

Tumours in maxilla (PNS) are relatively rare sino-nasal malignancies comprise only 3% of all head and neck cancers and 1% of all malignancies.[1,2] The complex anatomy of the region and the rare occurrence of tumours pose diagnostic and therapeutic challenges.[3] Anatomy of maxillary sinus also play vital role in spread of malignant tumours and prognosis of the patients. Middle meatus drains the maxillary, frontal and anterior ethmoid sinuses. It is located close to the important structures like orbital floor, middle meatus via maxillary Ostium. Hence duration and spread of malignancy must be considered. The tumours have various histological sub-types in benign and malignant tumours. In malignant tumours squamous cell carcinoma (SC) is the most common sub type, where as other sub-types, such as adeno-carcinoma, minor Salivary gland carcinoma, un-differentiated carcinoma neuro-endocrine carcinoma, and non-epithelial malignancies (such as sarcoma, lymphoma, plasmacytoma, olfactory neuroblastoma and melanoma) are considerably less common.[4,5] The treatment modalities vary depending on the tumours, histological subtypes, location and extent of the disease and include surgery, radiation, chemotherapy or a combination of two or more of these modalities. The prognosis of the patient largely depends on tumour histology, location and stage.

Hence attempt is made to evaluate the tumours of maxillary sinuses in different age groups and in both sexes to study the prognosis and avoid recurrence.

MATERIALS AND METHODS

30 (thirty) adult aged between 25 to 70 year visited to Vedantaa Institute of Medical Sciences, Saswand, Dahanu (tq), Palghar (dist), Maharashtra were studied.

Inclusive Criteria

Diagnosed malignancies from histo-pathological, CT scan reports were selected for study.

Exclusive Criteria

Patients undergone previous surgeries of malignancy were excluded from study.

Method

Every patient's epidemiological data and clinical history was collected. Clinical evaluation of head and neck region including ear, nose, throat, ocular, intraoral was done and palpable examination for lymph nodes was also done. Diagnostic nasal endoscopy and radiological study including CT scan was done to assess tumour size, extension and possible invasion of the tumours. A biopsy was taken from mass or ulcerative lesions from all the patients and histo-pathological examination was

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done. Out of thirty, 19 Benign and 11 malignant patients were confirmed.

The duration of study was December-2019 to November-2022

Statistical Analysis

Duration, clinical manifestations, histological classifications, TNM classification were classified with percentage. The statistical analysis was carried out in SPSS software. The ratio of male and female was 2:1.

RESULTS

[Table 1] Duration of complaints prior to consultation – 5 (45.4%) in malignant tumour, 1 (5.26%) in benign tumours were between 1-3 months, 4 (36%) in malignant, 9 (47.3%) benign were observed in 4-6 months, 1 (9.09%) malignant, 6 (31.5%) were observed in 7-9 months, 1 (9.09) malignant observed in 1 ½ year, 2 (10.5%) in 10-12 months and 1 (5.26%) was observed in benign tumours between 1-5 year.

[Table 2] Clinical manifestation in both malignant and benign tumours of maxilla

- Cheek swelling – 6 (54.5%) observed in malignant cases
- Nasal obstruction – 7 (63.6%) in malignant 16 (84.2%) in benign patients
- Loosening of tooth – 4 (36.3%) only in malignant cases
- Epistaxis –11 (100%) in malignant, 3 (15.7%)in benign patients
- Facial pain was observed in 3 (27.2%) only in malignant patients
- Headache – 2 (18.1%) in malignant, 17 (89.4%)
- Nasal mass 9 (81.8%) in malignant and 19 (100%) in benign
- Neck lymph node Enlargement 2 (18.1%) only in malignant
- Ulcer over hard palate 2 (18.1%) only in malignancy

[Table 3] (A) Histological classification in malignant tumour of maxilla 6 (54.5%) squamous cell carcinoma 3 (27.2%) well differentiated, 1 (9.09%) moderately differentiated, 1 (9.09%) poorly differentiated, 1 (9.09%) un-differentiated / anaplastic, 1 (9.09%) Neuro-endocrine tumours, 1 (9.09%) Muco-epidermoid carcinoma

(B) Benign tumours (Inverted papilloma) – 12 (63.1%) squamous epithelium, 5 (26.3%) squamous epithelium with cytological, 7 (36.8%) No cytologic atypia, 1 (5.26%) squamous epithelium + columnar epithelium + sensory cells, cytologic atypia, 2 (10.5%) squamous epithelium + columnar epithelium + secretion, 2 (10.5%) columnar epithelium with no cytological atypia, 1 (5.26%) oncyte, no cytological atypia

[Table 4] TNM classification in malignant patients of maxillary sinus – 3 (27.2%) T2, 4 (36.3%) T3, 5 (45.4%) T4a, 10 (81.8%) No, 1 (9.09%) N1, and N2a.

Table 1: Total No. of patients: (11+19=30). Duration of complaints prior to consultation

Malignant tumours 11			**Benign tumours 19**		
Duration of complaint	**No. of patient**	**% Percentage**	**Duration of complaint**	**No. of patient**	**% Percentage**
1-29 days	0	0	1-3 months	1	5.26
1-3 months	5	45.5	4-6 months	9	47.3
4-6 months	4	36.3	7-9 months	6	31.5
7-12 months	1	9.09	10-12 months	2	10.5
1 -1 ½ year	1	9.09	1-5 year	1	5.26

Table 2: Total No. of patients: (11+19=30). Clinical manifestations of Maxillary tumours

Symptoms and sign	**Malignant tumours 11**		**Benign tumours 19**	
	No. of patient	**% Percentage**	**No. of patient**	**% Percentage**
Cheek swelling	6	54.5	0	--
Nasal Obstruction	7	63.6	16	84.2
Loosening of teeth	4	36.3	0	--
Epistaxis	11	100	3	15.7
Facial pain	3	27.2	0	--
Headache	2	18.1	17	89.4
Nasal Mass	9	81.1	19	100%
Neck lymph node Enlarging	2	18.1	--	--
Ulcer over hard palate	2	18.1	--	--

Table 3: Total No. of patients: (11+19=30). Classification of Maxillary tumours

Histological classification	**No. of patients (11)**	**Percentage (%)**
a) Malignant 1. Squamous cell carcinoma	6	54.5
2. Well differentiated	3	27.2
3. Moderately differentiated	1	9.09
4. Poorly differentiated	1	9.09
5. Undifferentiated/anaplastic	1	9.09
b) Adeno-carcinoma	1	9.09

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c) Neuro-Endocrine tumour	1	9.09
d) Muco-epidermoid carcinoma	1	9.09
Benign Tumours (Inverted papilloma)	**No. of patients (19)**	**Percentage (%)**
1. Squamous epithelium	12	63.1
2. Sq. Epithelium with cytologic atypia	5	26.3
3. Squamous epithelium + columnar Epithelium + sensory cells + Cytologic atypia	7	36.8
4. Squamous epithelium + columnar epithelium + cytologic atypia	1	5.26
5. Squamous epithelium + columnar epithelium + secretory cells, No cytologic atypia	2	10.5
6. Columnar epithelium no cytologic atypia	2	10.5
7. Oncocyte no cytologic atypia	1	5.26

Table 4: No. of Patients: 11. TNM classification of malignant tumour of maxilla

TNM classification	No. of patients (11)	Percentage (%)
T1	0	0
T2	3	27.2
T3	4	36.3
T4a	4	36.3
T4b	0	0
N0	10	81.8
N1	1	9.09
N2a	1	9.09
N2b	0	0
N2C	0	0
N2 3	0	0
M0	0	0

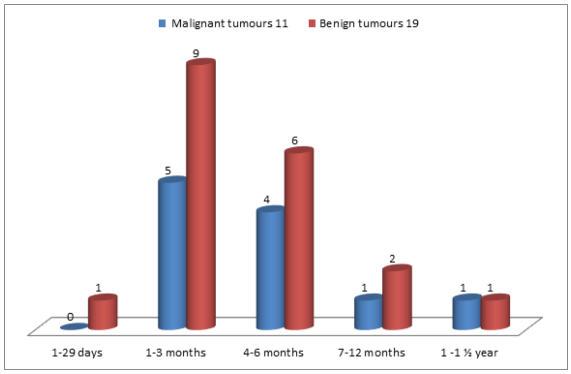

Figure 1: Duration of complaints prior to consultation

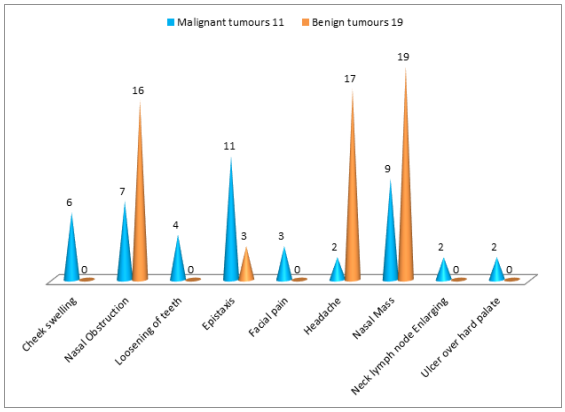

Figure 2: Clinical manifestations of Maxillary tumours

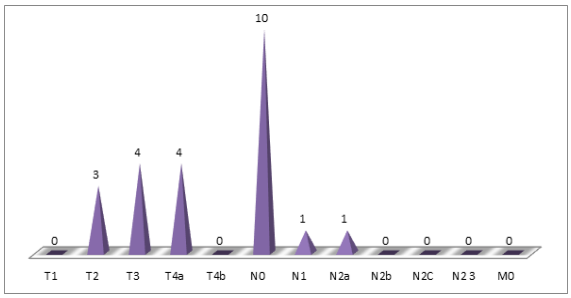

Figure 3: TNM classification of malignant tumour of maxilla

DISCUSSION

Present study of tumours of maxilla in Maharashtra population – Out of 30 patients, 11 patients had malignant tumours and 19 had benign tumours. The duration of complaints malignant tumours varied from 1 month to 1 ½ years and in benign tumours patients duration of complaint varied from 1 month to 5 years [Table 1]. The clinical manifestations were cheek swelling were 6 (54.5%) in malignant tumours, nasal obstruction was 7 (63.6%) in malignant and 16 (84.2%) in benign tumours, Loosening of teeth 4 (36.3%) Facial pain, 3 (27.2%) observed only in malignant tumours 100% Epistaxis –11 (100%) in malignant, 3 (15.7%) in benign patients, 100 % Nasal mass in benign and 9 (81.8%) in malignant tumours, 17 (89.4%) headache was in benign and only 2 (18.8%) in malignant, 2 (18.1%) ulcer over hard palate observed only in malignant tumours [Table 2].

Histological classification in malignant tumours were 6 (54.5%) squamous cell carcinoma, 3 (27.2%) well differentiated cells, 1 (9.09%) moderately differentiated, 1 (9.09%) poorly differentiated, 1 (9.09%) un-differentiated / anaplastic, 1 (9.09%) adeno-carcinoma, 1 (9.09%) neuro-endocrine tumour, 1 (9.09%) muco-epidermoid carcinoma

(B) Benign tumours have histological classification were as – 12 (63.1%) squamous epithelium, 5 (26.3%) had squamous epithelium with cytological atypia, 7 (36.8%) No cytogenic atypia, 1 (5.26%) had squamous epithelium + columnar epithelium + sensory cells cytologic atypia, 2 (10.5%) had squamous epithelium + columnar epithelium + secretory cells No cytogenic atypia 2 (10.5%) columnar epithelium, 1 (5.26%) no cytogenic atypia had ancoyte no cytogic atypia [Table 3]. TNM classification in malignant tumour patients was – 10 (81.8%) N0 (N=zero), 5 (45.4%) was T4a, 4

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(36.3%) was T3, 3 (27.2%) T2, 1 (9.09%) N1 and N2a, [Table 4]. These finding are more or less in agreement with previous studies.[6-8]

In the present study the benign tumours had inverted papilloma (IP). IP is derived from the schneiderian membrane in which the epithelium invaginates into and proliferates in the underlying stroma.[9] It is more common males in the group between 40 to 70 years. It represents around 0.4-4.7% of all sinonasal tumours. It is characteristically arise from the lateral wall of nose in the region of middle meatus or ethmoidal recesses and often extended secondarily into the maxillary and ethmoid sinuses.[10] IP are composed mostly of hyper plastic ribbons of basement membrane enclosed epithelium that grows endophytically into underlying stroma. The epithelium is multilayered and formed by non-keratinizing squamous or ciliated columnar cells admixed with mucocytes occasionally other types. Focal surface keratinisation (20%) and dysplasia (5.10%) are seen.[11]

Although aetiology of carcinoma is not established but aggravating factors is chronic exposure to nickel, chlorphenols, wood dust, textile dust, smoking etc.[12]

TNM staging is a useful parameter for management of malignant patients more over CT and MRI scan are well established and essential investigations for deciding surgical approach and radiation therapy as they provide valuable information about size, margins, texture, extension, involvement of bone and even the vascularity.

Surgical resection is generally preferred as primary treatment with post-operative radiation for adverse parameters. It is most recommended regime for curative purposes, palliative excision may be considered for patients with intractable pain to provide rapid decompression of vital structures or to debulk a massive lesion thus freeing the patient from social embarrassment. Early stage of maxillary sinus tumours can be removed via lateral rhinotomy and medial maxillectomy inferior maxillectomy or wide local excision. Larger tumour required resection, sub-total or total maxillectomy via mid-facial degloving or Weber Ferguson incision.[13]

CONCLUSION

In this study of maxillary tumours in Maharashtra population, Inverted papilloma with squamous epithelial lining is the common feature in benign tumours, and squamous cell carcinoma was observed in malignant tumours. The clinical features of malignant tumours like facial pain, cheek swelling, loosening of teeth will help the ENT surgeon to differentiate benign and malignant tumours. This present study demands further genetic, patho-physiological, nutritional, immunological study because exact pathogenesis of tumours is still un-clear.

Limitation of study

Due to tertiary location of study centre, small number of patients and lack of latest techniques we have limited findings and results.

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