

Original Research Article

Clinical study of non epidermoid malignancies of the paranasal sinuses

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ABSTRACT

Background: Malignancy of paranasal sinuses post challenging issues not only for surgeons but also for radiologists. Patients also try to avoid and neglect the condition. Hence clinical studies are more pertinent on this issue. Objective was to study clinical picture of non epidermoid malignancies of the paranasal sinuses.

Methods: This was a retrospective hospital based study of 30 patients with non epidermoid malignancies of the paranasal sinuses from two hospitals over a period of more than four years. Clinical characteristics were studied. CT scan, diagnostic nasal endoscopy, histopathology was done for all patients. Data was analyzed using proportions.

Results: Majority affected were males. The male to female ratio was 2:1. Maximum cases were found in the age group of 51-60 years and all of them were males. Left side was most commonly affected. The most common presenting feature was nasal obstruction in 50% of the cases. Nasal endoscopy findings has shown that there were five cases each of pinkish red polypoid mass, pinkish grey fleshy mass, pinkish red proliferative mass, pink fleshy mass, purulent discharge and fleshy pinkish red mass. Heterogeneous soft tissue density was the most common CT scan finding. Non Hodgkins lymphoma was more common. Half of the cases were managed by maxillectomy and half of the cases were managed by radiotherapy. There was no recurrence of the tumor after 6-9 months of follow up.

Conclusions: Males are more commonly affected than females. Appropriate management of cases prevents recurrence of the tumors.

Keywords: Non epidermoid tumors, Management, Nasal endoscopy

INTRODUCTION

Sino nasal malignancies have an incidence of 0.5-1% per 100,000 per year.¹ They account for 3 percent of upper aero digestive tract neoplasm. Most develop in the fifth and sixth decades of life. The incidence in men is twice that of women. Maxillary sinus is the most common site for development of malignancy. The most common malignancy is squamous cell carcinoma, which occurs twice as frequently in men as in women. Ethmoidal sinus account for less than 15% of malignancies while frontal and sphenoidal sinus malignancies account for only 1% of sinus malignancies.²

Sinonasal cavity is the most common site of occurrence of tumors. Of the total tumor found in the neck and head

area, tumors of the sinonasal area constitute for less than three percent. Irrespective of the stage, the five year survival for the patients is 30%. These tumors are most common among those who are exposed to wood dust and leather in their occupation on a continuous basis for long time. Maxillary sinus tumors are more common than the tumors of the nasal cavity. The most common carcinoma is adenocarcinoma and squamous cell carcinoma types.³

As with other cancers, carcinomas of the sinonasal area remain undetected as there are no symptoms. Hence by the time the symptoms appear, the disease has already reached the advanced stage. The size of the tumors is large. The prognosis is poor. These tumors are rare. Hence numbers of studies especially randomized controlled trials are lacking. There are no clear guidelines regarding how to treat these tumors. The ideal way of

treatment would be to do the surgery followed by radiotherapy. In high risk cases, chemotherapy can be given. Squamous cell carcinoma carries a poor prognosis compared to the adenocarcinoma.⁴

Radiotherapy should be given with caution as it may lead to blindness in 40% of the cases. When surgical management is not possible or difficult then radiotherapy can be given exclusively. It should be combined with chemotherapy.⁵

Present study was carried out to study the clinical characteristics, radiological features, management protocol and treatment outcome of non epidermoid malignancies of the paranasal sinuses.

METHODS

Cases of non-epidermoid malignancies of paranasal sinuses are studied with regard to their clinical presentation, radiology, histopathology and treatment modalities.

Study type: Hospital based retrospective study.

Place of the study: The study was carried out at Department of ENT, Malla Reddy Institute of Medical Sciences, Suraram, Hyderabad, Telangana, India and Government ENT Hospital, Koti, Hyderabad.

Study duration: The study was carried out over a period from January 2013 to July 2018.

Ethical considerations: Institution ethics committee permission was taken to initiate the present study.

Patients were informed that only their clinical and demographic data will be published but their names will not be published and thus taken informed written consent from those willing to participate in the study. All patients were treated as per standard protocol and followed for a long time.

Inclusion criteria

1. All histopathologically confirmed cases of non-epidermoid malignant neoplasms of paranasal sinuses irrespective of sex were considered for study.
2. All immunologically competent patients.

Exclusion criteria

1. Paediatric malignancies are excluded.
2. All immunocompromised patients are excluded from the study.

Sample size: A total of 30 cases were reviewed from the hospital records during the study period.

Study procedure: It was planned to study the clinical presentation and behavior of the non-epidermoid malignant neoplasms of paranasal sinuses. As the incidence is very less but getting more frequent cases of non-epidermoid malignant neoplasms of paranasal sinuses, it was decided to study more number of cases and hence the present study was carried out over a period of more than four years to get sufficient number of cases for the study.

The study questionnaire was prepared based on the detailed review of the literature and pilot tested on first six cases. It was found to be feasible and good for continuing the further study.

The patient's demographic data like age, sex was recorded. Clinical features at the presentation of the patient to the hospital were also noted down.

All patients underwent diagnostic nasal endoscopy as per the standard protocol and guidelines laid down in the literature with appropriate care not to harm the patients. All patients underwent CT scan of the paranasal sinuses. Radiologist opinion was sought and correlated with the diagnostic nasal endoscopy findings and clinical findings. Final interpretation of the CT scan was thus made and recorded in the pre designed, pre tested, study questionnaire prepared for this study non-epidermoid malignant neoplasms of paranasal sinuses.

The biopsy was done and the sample was sent to the pathology department for histopathological analysis to study the degree or stage of the non-epidermoid malignant neoplasms of paranasal sinuses.

All patients were treated and then they were followed for 6-9 months to see any recurrences.

The data was entered in the excel sheet and analyzed using proportions.

RESULTS

The most common side affected was left side in 83.3% of the cases. Right side was found affected in only five cases.

Table 1: Age and sex wise distribution of study subjects.

Age (year)	Male		Female		Total	
	No.	%	No.	%	No.	%
20-30	0	0	5	50	5	16.7
31-40	0	0	0	0	0	0
41-50	5	25	5	25	5	16.7
51-60	10	50	0	0	10	33.3
61-70	5	25	0	0	5	16.7
Total	20	66.7	10	33.3	30	100

Table 2: Distribution as per side affected.

Side affected	Number	%
Left	25	83.3
Right	05	16.7
Total	30	100

Table 3: Distribution of cases as per clinical features.

Clinical features	Number	%
Nasal obstruction	15	50
Nasal obstruction with facial pain	05	16.7
Swelling in left cheek and diminished vision	05	16.7
Pain on right side of face, swelling right cheek	05	16.7
Total	30	100

The most common presenting feature was nasal obstruction in 50% of the cases. Five cases presented as nasal obstruction with facial pain. Swelling in left cheek and diminished vision was seen in five cases and Pain on right side of face, swelling right cheek was seen in five cases.

Table 4: Nasal endoscopy findings in cases.

Nasal endoscopy findings	Number	%
Pinkish red polypoid mass	05	16.7
Pinkish grey fleshy mass	05	16.7
Pinkish red proliferative mass	05	16.7
Pink fleshy mass	05	16.7
Purulent discharge	05	16.7
Fleshy pinkish red mass	05	16.7
Total	30	100

Nasal endoscopy findings has shown that there were five cases each of pinkish red polypoid mass, pinkish grey fleshy mass, pinkish red proliferative mass, pink fleshy mass, purulent discharge and fleshy pinkish red mass.

Table 5: CT scan findings in cases.

CT scan findings	Number	%
Homogeneous soft tissue density	05	16.7
Heterogeneous soft tissue density	15	50
Soft tissue density	10	33.3
Total	30	100

CT scan has shown that there were 15 cases of Heterogeneous soft tissue density followed by 10 cases of soft tissue density and five cases of Homogeneous soft tissue density. Thus Heterogeneous soft tissue density was the most common CT scan finding.

There were ten cases of non Hodgkins lymphoma and five cases each of grade II neuroendocrine tumor, adenocarcinoma, adenoid cystic carcinoma, diffused large B cell lymphoma.

Table 6: Grading of tumors in cases.

Grading	Number	%
Grade II neuroendocrine tumor	05	16.7
Non Hodgkins lymphoma	10	33.3
Adenocarcinoma	05	16.7
Adenoid cystic carcinoma	05	16.7
Diffused large B cell lymphoma	05	16.7
Total	30	100

Table 7: Management methods used in the cases.

Management methods	Number	%
Maxillectomy	15	50
Radiotherapy	15	50
Total	30	100

Half of the cases were managed by maxillectomy and half of the cases were managed by radiotherapy.

Table 8: Recurrence of the tumor at follow up in the cases.

Recurrence	Number	%
Yes	0	0
No	30	100
Total	30	100

There was no recurrence of the tumor after 6-9 months of follow up.

DISCUSSION

Majority affected were males. The male to female ratio was 2:1. Maximum cases were found in the age group of 51-60 years and all of them were males. Left side was most commonly affected. The most common presenting feature was nasal obstruction in 50% of the cases. Nasal endoscopy findings has shown that there were five cases each of Pinkish red polypoid mass, Pinkish grey fleshy mass, Pinkish red proliferative mass, Pink fleshy mass, Purulent discharge and Fleshy pinkish red mass. Heterogeneous soft tissue density was the most common CT scan finding. Non Hodgkins lymphoma was more common. Half of the cases were managed by maxillectomy and half of the cases were managed by radiotherapy. There was no recurrence of the tumor after 6-9 months of follow up.

Peril et al studied 30 cases of advanced sinonasal cancer retrospectively.⁶ These cases were first operated

surgically and then they were given radiotherapy or chemotherapy. They found that 31 month survival rate was 33.3%. We observed that at 6-9 months of follow up there was no recurrence and all patients were alright. On univariate analysis, the authors found that stage of the disease was the most significant factor associated with outcome of the disease.⁶

Danesh-Sani et al found in their study that males were 62.2% compared to only 37.8% of the female cases.⁷ This finding is in concordance with the finding of the present study where we also observed that males were more than females and the male to female ratio was 2:1. The median age was 49 years in their study. We also found in the present study that elderly age group was most commonly affected. Similar to the findings of the present study, authors also noted that nasal obstruction was the most common presenting feature. They treated almost half of their patients with surgery combined with radiotherapy. They concluded that malignancies of the paranasal sinuses are rare. The symptoms are non-specific. Diagnosis is not so simple. Further studies are required.⁷

Michel et al in their study found that stage T3 or stage T4 was the most common.⁸ Maxillary sinus was the most common site of malignancy. Ethmoid sinus was the least common site of malignancy. Pain in the maxillary area was the most common presenting feature of the patients in their study. They managed patients by combined surgical and radiotherapy. 43% was the five year survival rate in their study. Factors responsible for good outcome were TNM stage detected at the time of the diagnosis, subtype of the histological report, local control and combined therapy. They concluded that ACC tumor are associated with poor outcome. There is a high rate of recurrence. Combined therapy should be used.⁸

Rhee et al observed in their study that the most common place of origin of tumors was maxillary sinus.⁹ Majority of the patients came to the hospital for diagnosis in advanced stage of the disease (71%). 86% was the five year survival rate. 18 patients had treatment failure. It was possible to reduce the local recurrence by adjunctive radiotherapy. Reduced five year survival rate was found to be significantly associated with presence of distant metastasis. The authors suggested that combined treatment approach should be used for proper outcome.⁹

Euteneuer et al noted in their study that most of the malignancies were squamous cell carcinoma.¹⁰ More than half of the patients presented in the advanced stage of the disease. 17% of the patients had undetermined place of origin. Nasal cavity was the most common site of origin in 43% of the cases. 75% was the one year survival rate and it reduced to 47% over a period of another one year i.e. at the end of second year. Improved survival was found to be associated with age of the patient, tumor free margins at the time of the surgical intervention, and lack

of nodal involvement. They concluded that lack of specific symptoms was responsible for late presentation of the patients.¹⁰

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Non-epidermoid malignancies are uncommon presentations in otorhinolaryngology. There are several variations in their clinical presentation, histopathological diagnosis, staging and grading. The type of treatment modality also varies depending upon these variations. These malignancies need to be accurately diagnosed as early as possible followed by selecting an appropriate modality of treatment and adequate follow up.

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Conflict of interest: None declared

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

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