

A Clinicopathological Evaluation of Malignancies of Maxilla- Ethmoid Complex

Kumari Radha M. N¹, Vijayalakshmi R¹

¹Department of Otorhinolaryngology, Sreenarayana Institute of Medical Sciences, Chalakka, Ernakulam, Kerala, India.

Abstract

Background: Aim: Assessment of malignancies of maxillo- ethmoid complex. **Materials and Methods:** Eighty- four malignancies of maxillo-ethmoid complex in either gender was enrolled. Investigations like Punch biopsy and excision biopsy, were done and the pathological subtype of the tumor was noted. Appropriate treatment modality like surgery, radiotherapy and chemotherapy, individually or in combination, were instituted for each case. Cases were followed up at 1, 3, 6 months and 1 year following treatment. **Results:** Common site was in ethmoid sinus in 36 in maxillary sinus 30, in nasal cavity 14. Malignancies found to be SCC in 42, adenocarcinoma in 18, adenoid cystic carcinoma in 7, Esthisioneuoblastoma 5, mucosal melanoma in 4, osteosarcoma in 2, and lymphoma in 4 cases. Treatment given was chemotherapy in 34, surgery in 7, radiotherapy in 3, surgery+ radiotherapy in 26, surgery+ chemotherapy in 4, radiotherapy+ chemotherapy in 4 and surgery+ radiotherapy+ chemotherapy in 6 patients. **Conclusion:** In most of cases, ethmoid sinus was involved and most common malignancies was squamous cell carcinoma.

Keywords: Ethmoid sinus, Maxillary sinus, Squamous cell carcinoma, Adenocarcinoma, Adenocystic carcinoma

Corresponding Author: Dr. Kumari Radha M. N, Department of Otorhinolaryngology, Sreenarayana Institute of Medical Sciences, Chalakka, Ernakulam, Kerala, India. Email: drradhagopinath@gmail.com

Received: January 2018

Accepted: March 2018

Introduction

Sinonasal cancers are rare tumors, corresponding to 3–5% of head and neck cancers, and less than 1% of all cancers.^[1] They are characterized by significant histological heterogeneity, with squamous cell carcinoma being the most frequent, followed by adenocarcinoma, melanoma, esthisioneuoblastoma, and adenoid cystic carcinoma.^[2] Most of these tumors are difficult to diagnose as they are often asymptomatic and are discovered at a locally advanced stage.^[3] Surgery plays an important role in the treatment of these tumors and is considered as gold standard of treatment when feasible, possibly complemented by adjuvant therapies. However, the proximity of the tumor's location to important anatomical structures such as the orbit and the skull base makes the treatment difficult.^[4,5]

Because of the proximity of such vital structures as the eyes and brain and complex anatomic relationships of the areas involved, cancers of the paranasal sinuses and nasal cavity require greater precision in localization of the disease than usual.^[6] The skill with which this localization is performed is a major factor in determining both survival and the incidence of morbidity. It is characteristic for these tumors to progress to an advanced stage while remaining localized with infrequent lymph node or distant metastases.^[7] The local recurrence rate, therefore, underscores the frequent failure to achieve and maintain local control of these neo- plasms

despite the combined use of radiotherapy and surgery in many cases.⁸ Considering this, the present study was attempted to assess malignancies of maxillo- ethmoid complex.

Materials and Methods

A total of eighty- four malignancies of maxillo- ethmoid complex in either gender was enrolled.

All relevant information was recorded in case history file. After a detailed examination, relevant radiological investigations like CT Scan and MRI Scan to know exact extend of disease. Metastatic work up with X Ray chest, MRI Scan of brain nd USG neck done . Also pathological investigations like punch biopsy from tissue or excision biopsy, were done and the pathological subtype of the tumor was noted. Appropriate treatment modality like surgery, radiotherapy and chemotherapy, individually or in combination, were instituted for each case. Cases were followed up at 1, 3, 6 months and 1 year following treatment. Results of the study was subjected to statistical analysis P value less than 0.05 was considered significant.

Results

Common site was ethmoid sinus in 32, maxillary sinus in 20,

nasal cavity in 8, palate in 12 and tonsil in 8 cases. A significant difference was observed ($P < 0.05$). [Table 1, Figure 1].

Table 1: Site of malignancies

Site	Number	P value
Ethmoid sinus	36	<0.05
Maxillary sinus	30	
Nasal cavity	16	
Frontal sinus	2	
Total	84	

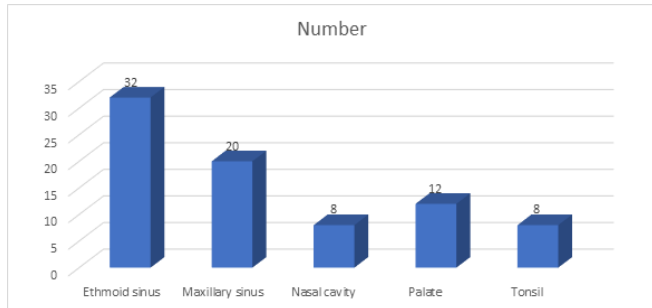


Figure 1:

Table 2: Pathology of cases

Malignancies	Number	P value
SCC	42	<0.05
Adenocarcinoma	18	
Adenoid cystic carcinoma	7	
Esthesioneuroblastoma	5	
Mucosal melanoma	4	
Osteosarcoma	2	
Sinonasal undifferentiated Carcinoma (SNUC)	2	
Lymphoma	4	

Malignancies found to be SCC in 42, adenocarcinoma in 18, adenoid cystic carcinoma in 5, basal cell carcinoma in 3, mucosal melanoma in 2, osteosarcoma in 4, ewing's sarcoma in 4 and lymphoma in 6 cases. A significant difference was observed ($P < 0.05$). [Table 2, Figure 2].

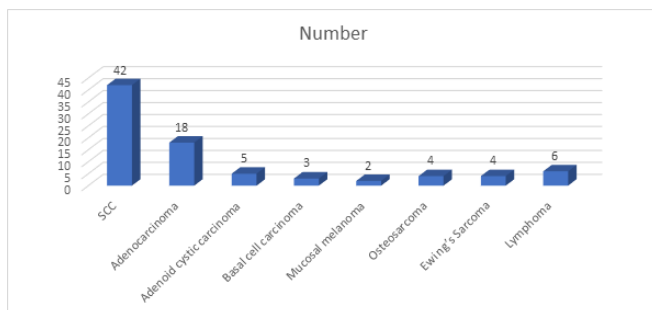


Figure 2:

Table 3: Treatment given in patients

Treatment	Number	P value
Chemotherapy	34	<0.05
Surgery	7	
Radiotherapy	3	
Surgery+ Radiotherapy	26	
Surgery+ Chemotherapy	4	
Radiotherapy+ Chemotherapy	4	

Surgery+ Radiotherapy+ Chemotherapy	6	
-------------------------------------	---	--

[Table 3] shows that treatment given was chemotherapy in 34, surgery in 7, radiotherapy in 3, surgery+ radiotherapy in 26, surgery+ chemotherapy in 4, radiotherapy+ chemotherapy in 4 and surgery+ radiotherapy+ chemotherapy in 6 patients. A significant difference was observed ($P < 0.05$). [Table 3].

Discussion

Head and neck malignancies are among the most devastating disease processes we encounter, and treatment of these head and neck cancers is complex. Accepted best management can vary significantly based upon seemingly subtle differences in tumor location and histopathology.^[10] Non-squamous malignancies of the head and neck are a miscellaneous collection of less common, but certainly no less significant neoplasms. The rarity of these tumors is evident from the limited data available on clinical characteristics and outcomes.^[11] In addition to the sporadic occurrences, the clumping of small number of patients of non-squamous cell cancers with squamous cell cancers in most reported series of head and neck malignancies and the absence of prospective treatment protocol are all responsible for the paucity of published literature for these cancers.^[12,13] The present study was attempted to assess malignancies of maxillo-ethmoid complex.

In our study, we found that common site was in ethmoid sinus 36, in maxillary sinus 30, in nasal cavity in 16, in frontal sinus 2 cases. Ekhar et al,^[14] found that maximum numbers of malignancies were located in the maxillary sinus (45.83%). The next most commonly involved site was the oral cavity and oropharynx with three cases each of the tonsil, palate and mandible. We came across one case each of small cell tumors of the larynx (glottis) and Hodgkins' lymphoma of the nasopharynx with neck secondaries. There was no case involving the ear. A wide range of pathological diagnoses were encountered. The commonest of these was lymphoma (25%) of which seven were non-Hodgkins' lymphoma and five were Hodgkins' lymphoma. The next most common diagnosis was adenoid cystic carcinoma (20.83%). Other types included adenocarcinoma (12.5%), mucosal melanoma and esthesioneuroblastoma (10.42% each). Of the 30 cases of the nose and paranasal sinuses tumors, adenoid cystic carcinoma was the most commonly encountered malignancy (33.33%) and it was found maximally in the maxillary sinus (9 out of 10 cases).

We observed that malignancies found to be SCC in 42, adenocarcinoma in 18, adenoid cystic carcinoma in 7, mucosal melanoma in 4, osteosarcoma in 2, and lymphoma in 4 cases, Esthesioneuroblastoma in 5 and SNUC in 2. We observed that treatment given was chemotherapy in 34, surgery in 7, radiotherapy in 3, surgery+ radiotherapy in 26, surgery+ chemotherapy in 4, radiotherapy+ chemotherapy in 4 and surgery+ radiotherapy+ chemotherapy in 6 patients. Boone et al,^[15] found that the recurrence rate for maxillary sinus infrastructure lesions is significantly less than for other

sites, largely because of their ready accessibility to surgical extirpation and early onset of symptoms (usually toothache and facial pain). Nasal cavity tumors also recur relatively infrequently. The recurrence rate for the total series was 36 per cent. The difference in recurrence rates among the different methods of primary treatment is not statistically significant. Furthermore, the different groups obviously do not represent comparable groups as the cases were assigned to various treatment methods according to stage and type of disease as mentioned above. It is somewhat surprising that the group treated by irradiation alone did not demonstrate a significantly higher recurrence rate, in view of the fact that many of these patients were treated at an extremely advanced stage of disease. Of the 121 cases reviewed, the tumor remained localized in 18, of which only 13 had detectable lymph node or distant metastases at any time on follow-up. Forty-four patients with recurrent or persistent disease were studied in an effort to discover, if possible, the cause of the local failure. These local failures reflect the difficulty in achieving local control. In 14 patients, the tumor was so extensive that palliation was the only intent. In the remaining cases, the sites of active disease were most often at the surgical margin or the edge of treatment portals. Shielding of the eye during irradiation or failure to exenterate the orbit in the presence of immediately adjacent tumor resulted in recurrence in 9.

Spiro et al,^[16] found that 50% cases had tumors in the nasal cavity, 39% in the antrum, 9% in the ethmoid and 2% in the frontal sinus. Fu and Perzin found that,^[17] of the 11 cases, seven involved the maxillary sinus, two involved the lateral wall of the nasal cavity, one involved the ethmoid sinus and one case involved multiple sinuses, the nasal cavity, skull base and the orbit.

Conclusion

In most of cases, ethmoid sinus was involved and most common malignancies was squamous cell carcinoma.

References

1. Montravadi RVP. Radiation therapy for nonsquamous cell tumors of the head and neck. *Otolaryngol Clin North Am* 1986 Nov;19(4):741-50.
2. Jacobs JR, Negendank WG. Lymphomas of the head and neck. In: Paparella, et al (Eds). *Otolaryngology* (3rd ed). WB Saunders 1991;3:2591-98.
3. Qureshi SS, Chaukar DA, Talole SD, Deruz AK. Clinical characteristics and outcome of nonsquamous cell malignancies of the maxillary sinus. *J Surg Oncol* 2006;93:362-67.
4. Bhattacharya N. Survival and staging characteristics of the nonsquamous cell malignancies of the nose and paranasal sinuses. *Arch Otolaryngol Head Neck Surg* 2003;129:334-37.
5. Kraus DH, Roberts JK, Medendorp SV, et al. Nonsquamous cell malignancies of the paranasal sinuses. *Annals Otol Rhinol Laryngol* 1990;99:5-11.
6. Cobleigh MA, Kennedy JL. Non-Hodgkins' lymphomas of the upper aerodigestive tract and salivary glands. *Otolaryngol Clin North Am* 1986 Nov;19(4):685-704.
7. Jacobs C, Hoppe RT. Non-Hodgkin's lymphomas of the head and neck extranodal sites. *Int J Rad Oncol Biol Phys* 1985 Feb;11(2):357-64.
8. Lee YY, Tassel PV, North LB, et al. Lymphomas of the head and neck: CT findings at initial presentation. *AJR Am J Roentgenol* 1987 Sep;149(3):575-81.
9. Dutta, R.; Ba, P.M.D.; Svider, P.F.; Liu, J.K.; Baredes, S.; Eloy, J.A. Sinonasal malignancies: A population-based analysis of site-specific incidence and survival. *Laryngoscope* 2015; 125: 2491-2497.
10. Turner, J.H.; Reh, D.D. Incidence and survival in patients with sinonasal cancer: A historical analysis of population-based data. *Head Neck* 2012; 34: 877-885.
11. Villaret, A.B.; Yakirevitch, A.; Bizzoni, A.; Bosio, R.; Bignami, M.; Pistochini, A.; Battaglia, P.; Castelnovo, P.; Nicolai, P. Endoscopic Transnasal Craniectomy in the Management of Selected Sinonasal Malignancies. *Am. J. Rhinol. Allergy* 2010; 24: 60-65.
12. Castelnovo, P.; Battaglia, P.; Locatelli, D.; Delù, G.; Sberze, F.; Bignami, M. Endonasal Micro-Endoscopic Treatment of Malignant Tumors of the Paranasal Sinuses and Anterior Skull Base. *Oper. Tech. Otolaryngol. Head Neck Surg.* 2006; 17: 152-167.
13. Landsberg, R.; Cavel, O.; Segev, Y.; Khafif, A.; Fliss, D.M. Attachment-oriented Endoscopic Surgical Strategy for Sinonasal Inverted Papilloma. *Am. J. Rhinol.* 2008, 22, 629-634.
14. Ekhar VR, Mahore DM, Kapre GM, Bokare BD, Gawarle SH. Clinicopathological Study of Non-squamous Cell Malignancies of the Head and Neck. *Int J Head and Neck Surg* 2013;4(2):70-73.
15. BOONE ML, HARLE TS, Higholt HW, FLETCHER GH. Malignant disease of the paranasal sinuses and nasal cavity: Importance of precise localization of extent of disease. *American Journal of Roentgenology.* 1968 Mar;102(3):627-36.
16. Spiro J, Spiro R, Soo KC, et al. Nonsquamous cell malignancies of the nose and paranasal sinuses. *J Head Neck Surg* 2006 Jul;17(2):114-18.
17. Fu YS, Perzin KH. Nonepithelial tumors of the nasal cavity, paranasal sinuses and nasopharynx: A clinicopathological study. *Cancer* 1977;40:1314-17.

Copyright: © the author(s), publisher. Asian Journal of Medical Research is an Official Publication of "Society for Health Care & Research Development". It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: Radha MNK, Vijayalakshmy R. Clinicopathological Malignancies of Maxilla- Ethmoid Complex. *Asian J. Med. Res.* 2018;7(2):EN01-EN03.

DOI: [dx.doi.org/10.21276/ajmr.2018.7.2.EN1](https://doi.org/10.21276/ajmr.2018.7.2.EN1)

Source of Support: Nil, **Conflict of Interest:** None declared.