

# Carcinoma Maxilla - An Audit Of The Patients Presented In Radiotherapy Department

Owais A

Agarwal A

Sharma MK

Patneedi B

Kumar P

Professor and Head, Department of Radiotherapy, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, U.P.

Resident, Department of Radiotherapy, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, U.P.

*Abstract: Maxillary sinus cancer is relatively rare neoplasm, with an incidence representing a small percentage (0.2%) of human malignant tumours, only 1.5% of all head and neck malignant neoplasms. The unfortunate combination of presentation in advanced stages with the complex anatomy and the close proximity of critical structures such as the skull base, brain, orbit, and carotid artery, compromise effectual surgical excision and radiation deliverance leading to the frequent local recurrence and subsequent poor outcome associated with carcinoma of Maxilla. Retrospective Analysis of patients of carcinoma maxilla were analyzed who were treated in the department of radiotherapy. Ten patients were retrieved between 2010 and 2014. Clinical profile and management techniques along with outcomes were analyzed.*

*The median age of presentation of patients was 39.5 years (range 30-70 years) with male to female ratio of 6 : 4. All patients presented with swelling (mass) over check as presenting feature. Forty percent patients presented with additional features of nasal obstruction and pain over maxilla involved. History of smoking was present in eighty percent of cases. Sixty percent patient compliant of loss of vision and forty percent had complaint of loss of vision of involved side as complication of radiotherapy.*

*T stage was T<sub>2</sub> (20%), T<sub>3</sub> (40%) & T<sub>4</sub> (40%). N stage was N<sub>1</sub> (20%), N<sub>2</sub> (60%) & N<sub>3</sub> (20%). On histopathology, all were squamous cell carcinoma- well differentiated (40%), moderately differentiated (40%) & poorly differentiated (20%). Twenty percent patients were inoperable and underwent biopsy only while 40% had partial & 40% had total maxillectomy. Type of chemotherapy planned- Neoadjuvant Chemotherapy (40%), Concurrent (40%), Palliative (20%). Neck dissection was done in sixty percent cases. Median radiotherapy dose of 54.9Gy with dose range between 50-59.4Gy was delivered. Only two patients had no evidence of disease in 2 years follow up who had undergone total maxillectomy. All others had residual or recurrence within one year. The maxillary carcinoma are best managed with surgery followed by post operative radiotherapy. Role of chemotherapy is controversial.*

## I. INTRODUCTION

Maxillary sinus cancer is relatively rare neoplasm, with an incidence representing a small percentage (0.2%) of human malignant tumours, only 1.5% of all head and neck malignant neoplasms. In most cases, tumours of the paranasal sinuses are discovered along with others in the nasal cavity, because in the vast majority of patients the cancer is diagnosed in advanced stages, making it difficult to determine the origin of the

neoplasm. These tumours tend to remain localized for a long time and during evolution they invade adjacent structures such as bone, base of the skull, facial soft tissue, oral cavity, and orbits. The unfortunate combination of presentation in advanced stages with the complex anatomy and the close proximity of critical structures such as the skull base, brain, orbit, and carotid artery, compromise effectual surgical excision and radiation deliverance leading to the frequent local recurrence and subsequent poor outcome associated with

carcinoma of Maxilla. Nowadays, it is generally accepted that the best treatment for maxillary sinus cancer is surgery plus radiotherapy. Nevertheless, in more advanced stages, both surgery and radiotherapy have limitations. Even where resection of the maxillary sinus is possible, the extension of the tumour outside the confines of the sinus makes it impossible for surgeons to resect the entire area affected without mutilation of the patient and with the danger of spreading tumour cells during the procedure. *The purpose of this paper is to present the experience in the management of patients of carcinoma of the maxillary sinus treated at our institution.*

## II. MATERIAL AND METHODS

Retrospective Analysis of patients of carcinoma maxilla were analyzed who were treated in the department of radiotherapy. Ten patients were retrieved between 2010 and 2014. Clinical profile and management techniques along with outcomes were analyzed.

## III. RESULTS

The median age of presentation of patients was 39.5 years (range 30-70 years) with male to female ratio of 6:4. All patients presented with swelling (mass) over cheek as presenting feature. Forty percent patients presented with additional features of nasal obstruction and pain over maxilla involved. History of smoking was present in eighty percent of cases. Sixty percent patient compliant of loss of vision and forty percent had complaint of loss of vision of involved side as complication of radiotherapy.

T stage was T<sub>2</sub> (20%), T<sub>3</sub> (40%) & T<sub>4</sub> (40 %). N stage was N<sub>1</sub> (20%), N<sub>2</sub> (60 %) & N<sub>3</sub>( 20%). On histopathology, all were squamous cell carcinoma-well differentiated (40%), moderately differentiated (40%) & poorly differentiated (20%). Twenty percent patients were inoperable and underwent biopsy only while 40% had partial & 40% had total maxillectomy. Type of chemotherapy planned- Neoadjuvant Chemotherapy (40%), Concurrent (40%), Palliative (20%). Neck dissection was done in sixty percent cases. Median radiotherapy dose of 54.9Gy with dose range between 50-59.4Gy was delivered. Only two patients had no evidence of disease in 2 years follow up who had undergone total maxillectomy. All others had residual or recurrence within one year. See table for details.

	Mean	Range
<b>Age</b>	43.4 years	30-70 years
<b>Gender</b>	Number of cases	Total percentage
Male	6	60
Female	4	40
<b>History</b>	Number of cases	Total percentage
smoking	8	100
<b>Presenting symptoms</b>	Number of cases	Total percentage
Mass	6	60
Swelling of cheek	10	100
Nasal obstruction	4	40

pain	4	40
<b>T classification</b>	Number of cases	Total percentage
T1	0	0
T2	2	20
T3	4	40
T4	4	40
<b>N classification</b>	Number of cases	Total percentage
N0	2	20
N1	6	60
N2	2	20
N3	0	0
<b>Histological grade</b>	Number of cases	Total percentage
Well differentiated	4	40
Moderately differentiated	4	40
Poorly differentiated	2	20
<b>Surgery</b>	Number of cases	Total percentage
Total maxillectomy	4	40
Partial maxillectomy	4	40
Neck dissection	6	60
inoperable	2	20
<b>Chemotherapy</b>	Number of cases	Total percentage
Neoadjuvant	0	0
Concurrent	4	40
Neoadjuvant plus concurrent	4	40
Palliative	2	20
	Median	Range
<b>Radiotherapy dose</b>	54.9Gy	50-59.4Gy
<b>Surgical Margin</b>	Number of cases	Total percentage
Positive	6	60
Negative	2	20
<b>Complications</b>	Number of cases	Total percentage
Decreased vision	6	60
Loss of vision	4	40

Table 1

## IV. DISCUSSION

Patients with maxillary sinus cancer usually arrive at the hospital with advanced tumours. The majority of patients with maxillary sinus carcinoma are diagnosed at advanced stages with extensions to contiguous structures which can be a therapeutic challenge to both the surgeon and the radiation oncologist. In our study T stage was T<sub>2</sub> (20%), T<sub>3</sub> (40%) & T<sub>4</sub> (40 %). In several studies age, gender, histologic type, stage and type of treatment were reported to be prognostic factors however no multicentric randomized studies are available to evaluate the prognostic significance of these factors. In our study the median age of presentation of patients was 39.5 years (range 3070 years) with male to female ratio of 6 : 4. On histopathology, all were squamous cell carcinoma- well differentiated (40%), moderately differentiated (40%) & poorly differentiated (20%). 3% to 16% of the patients present with lymph node metastases at diagnosis whereas this rate increases from 5% to 48% during the course of treatment. In our study cervical nodes were involved with N stage N1

(20%), N<sub>2</sub> (60%) & N<sub>3</sub> (20%). Elective irradiation of neck nodes is suggested for patients with nodal involvement.

The most significant prognostic parameter associated with local recurrence in patients who were treated with surgery and radiotherapy is positive surgical margins. In our study Twenty percent patients were inoperable and underwent biopsy only while 40% had partial & 40% had total maxillectomy. Neck dissection was done in sixty percent cases. Only two patients had no evidence of disease in 2 years follow up who had undergone total maxillectomy. All others had residual or recurrence within one year. In case of macroscopic residual tumour 66-70 Gy should be administered. Similarly Kondo et al. (1985) reported a 63% 5-year local control rate for patients receiving >60 Gy and 29% for patients receiving ≤ 60 Gy. Le et al. (1999) noted that none of their patients who were treated with a total dose ≤64 Gy achieved local control. In our study Median radiotherapy dose of 59.4Gy with dose range between 54.566 Gy was delivered. In a study by Jansen et al. (2000) the risk of serious ophthalmological toxicity was 14% when there was no tumour extension through the orbit, whereas toxicity was 33% when there was tumour extension in the orbits. It is interesting to note that in recent years the results of treatment have not changed much. The delay in diagnosis (the fact that the otolaryngologist does not have this disease in mind) has been documented by Wille in 220 patients; the symptoms of 171 were treated between 6 and 26 months for chronic inflammatory processes before the correct diagnosis was reached. symptoms are unfortunately easily confused, in initial stages, with allergic or inflammatory processes, leading to a delay in obtaining a correct diagnosis.

Most studies show a clear prevalence among men, in a ratio of 2:1. Men went to the hospital at an earlier stage and a greater proportion of women arrived at inoperable stages. There is a lot of speculation about the possible aetiological factors of this malignancy in most published series; adenocarcinomas of the nasal cavity and ethmoidal sinus have been linked to workers in the timber and leather industry. Symptoms vary greatly and depend on the extent and location of the tumour, its growth rate, size, volume, and whether or not there is metastasis. Frequently the symptoms are not proportional to the extension of the tumour. The most common symptoms were: pain, nasogenian tumour, abnormal vision, nasal obstruction, and secretion. Authors such as Grossman et al and Osborn found that nasal obstruction was the most common symptom; for others, such as Salem et al, it was pain. The most common histological type in our series was adenocarcinoma as opposed to squamous cell carcinoma reported by most authors. This may be due to factors such as genetic susceptibility or immunodeficiency, which in our series were few cases, as it is a rare condition. Survival in relation to histological type was similar in squamous cell carcinoma, adenocarcinoma, and cystic adenoid carcinoma, and the trend towards improved survival in adenocarcinomas is striking. Klintonberg et al reported good radiosensitivity in this group of tumours. The most important prognostic factors were: clinical stage, location of the tumour in the suprastructure or infrastructure, and whether or not the surgical margins were affected. Like most other publications we found that patients with tumour in the infrastructure have a better survival rate than those with tumours in the

suprastructure.<sup>9</sup> Boone et al reported an 11% incidence of lymph node and remote metastasis., local recurrence remains very high and is generally the main cause of death, therefore new surgical techniques, different radiotherapy segmentation schemes, and the use of neoadjuvant chemotherapy must be explored in order to improve local control of this disease and survival. Clinical stage is an important prognostic factor. The histological type and grade had no influence on local control or survival. Tumours located on the infrastructure have a better prognosis than those located on the superstructure.

## V. CONCLUSION

Patients with maxillary sinus cancer usually arrive at the hospital with advanced tumours. The maxillary carcinoma are best managed with surgery followed by post operative radiotherapy. Role of chemotherapy is controversial.

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