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Original Research

Evaluation of 20 cases of Sinonasal Osteosarcoma: An observational study

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ABSTRACT:
Background: The present study was conducted for evaluation of 20 cases of Sinonasal Osteosarcoma. **Materials & methods:** The present study was conducted for evaluation of 20 cases of Sinonasal Osteosarcoma. Complete demographic and clinical details of all the patients was obtained. A Performa was made and clinical characteristics of all the patients was recorded. Histopathologic reports were examined. Radiographic findings were evaluated separately.**Results:**Mean age of the patients was 41.5 years. 60 percent of the patients were females. Facial mass/swelling was seen in 30 percent of the patients while nasal obstruction and headache was seen in 40 percent and 35 percent of the patients. Epistaxis was seen in 25 percent of the patients. Maxillary sinus and ethmoid sinus were the two most common locations. In 50 percent of the patients, primary surgery was done followed by adjuvant therapy.**Conclusion:**Sinonasal osteosarcoma is a rare malignancy that presents insidiously. Sinonasal osteosarcoma presents and behaves similarly to head and neck osteosarcomas of other sites.
Key words: Sinonasal, Osteosarcoma

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INTRODUCTION

Malignant sinonasal tumor represent the greatest histological diversity with relatively innocuous symptoms which are often ignored. Patients present at advanced stages with extensive involvement of adjacent structures like intracranial extension and orbit. They occur at any age though the majority present in the sixth and seventh decades.Only 10% osteosarcoma occur in the head neck region, most commonly in the maxilla and mandible. The incidence of craniofacial osteosarcoma is 8%. Clinical features are diverse and nonspecific.[1- 3]

Several epidemiologic risk factors have been related to the development of osteosarcoma, including a history of ionizing radiation exposure, fibrous dysplasia, retinoblastoma or prior exposure to thorium oxide, a radioactive scanning agent. Four percent of all patients with osteosarcoma had a history of previous radiation therapy for other tumours or conditions.[4- 6]Hence; the present study was conducted for evaluation of 20 cases of Sinonasal Osteosarcoma.

MATERIALS & METHODS

The present study was conducted for evaluation of 20 cases of Sinonasal Osteosarcoma. Complete demographic and clinical details of all the patients was obtained. A Performa was made and clinical characteristics of all the patients was recorded. Histopathologic reports were examined. Radiographic findings were evaluated separately. All the details were subjected to statistical analysis using SPSS software.

RESULTS

Mean age of the patients was 41.5 years. 60 percent of the patients were females. Facial mass/swelling was seen in 30 percent of the patients while nasal obstruction and headache was seen in 40 percent and 35 percent of the patients. Epistaxis was seen in 25

percent of the patients. Maxillary sinus and ethmoid sinus were the two most common locations. In 50 percent of the patients, primary surgery was done followed by adjuvant therapy.

Table 1: Demographic data

Variable		Number	Percentage
Mean age (years)		41.5	
Gender	Males	8	40
	Females	12	60

Table 2: Presenting symptoms

Symptom	Number	Percentage
Facial mass/swelling	6	30
Nasal obstruction	8	40
Headache	7	35
Epistaxis	5	25
Oral mass/swelling	5	25
Facial pain	4	20
Others	4	20

Table 3: Location

Location	Number	Percentage
Maxillary sinus	12	60
Ethmoid sinus	10	50
Nasal cavity	7	35
Sphenoid sinus	3	15
Frontal sinus	2	10

Table 4: Treatment

Treatment	Number	Percentage
Neoadjuvant therapy	3	15
Primary surgery alone	4	20
Primary surgery followed by adjuvant therapy	10	50
Primary radiation and/or chemotherapy	3	15

DISCUSSION

Sarcomas of the head and neck region account for less than 10% of soft tissue sarcomas, and comprise less than 1% of head and neck malignancies. Sarcomas arise from mesenchymal tissue, and more than 50 histopathological subtypes of sarcoma have been reported. Approximately 80% of sarcomas arise from soft tissue, with the remaining originating from bone or cartilage. Head and neck sarcomas typically occur more frequently in men. Several recent studies have reported extensive patient data on specific histologic subtypes of sinonasal sarcoma. Given the diverse histopathological subgroups comprising head and neck sarcomas, etiological factors have not been clearly elucidated in all subtypes.Variants including osteoblastic and chondroblastic osteosarcomas. However, heterogenous appearances make histopathological diagnosis difficult. The mainstay treatment of head neck osteosarcoma is surgery with chemotherapy.[7- 10]Hence; the present study was conducted for evaluation of 20 cases of Sinonasal Osteosarcoma.

Mean age of the patients was 41.5 years. 60 percent of the patients were females. Facial mass/swelling was seen in 30 percent of the patients while nasal obstruction and headache was seen in 40 percent and 35 percent of the patients. Epistaxis was seen in 25 percent of the patients. Maxillary sinus and ethmoid sinus were the two most common locations. In 50 percent of the patients, primary surgery was done followed by adjuvant therapy.Stephan et al[11]and Unsal et al[12] reported outcomes for adult patients with sinonasal rhabdomyosarcoma identified from the National Cancer Database and patients with sinonasal rhabdomyosarcoma identified in the Surveillance, Epidemiology, and End Results (SEER) database, respectively. Stephan et al[11] noted positive regional nodes in 84.6% of patients and distant metastasis in 27.7% of patients, while Unsal et al[12] noted positive regional nodes in 54.3% of patients and distant metastasis in 32.2%. The present study noted much lower rates of distant (3.5%) and neck (3.1%) metastasis. Stephan et al[11] and Unsal et. Al[12] also noted lower 60-month overall survival rates (28.4% and 35.1%, respectively) than the present study (61.3%). In the present study the 60-month survival for the 14 patients with sinonasal rhabdomyosarcoma was 47.2%, which was lower than the actuarial 60-month survival for the entire cohort. The lower survival in the Stephan[11] and Unsal[12] studies is thus likely a combination of a poorer prognosis for sinonasal rhabdomyosarcoma compared to some of

the more favorable sarcomas included in the present study such as Ewing's sarcoma and chondrosarcoma, and the higher neck and distant metastasis rate in sinonasal rhabdomyosarcoma vs. the overall cohort in the present study including several less aggressive sarcomas. Stephan et al[11] noted a significantly lower 60-month survival for patients with distant metastasis (~18%) vs. M0 patients (~35%), similar to the significantly decreased 60-month overall and disease-free survival seen in M1 patients in the present study (both 0% at 60 months). Interestingly, Unsal et al[12]noted significantly lower 60-month survival for patients with distant metastasis but not for patients with regional lymph node metastasis.

The mainstay of treatment is wide excision with a strong consideration for postsurgical radiation. As head and neck sarcomas have a poor prognosis and high postoperative recurrence, radiation therapy can possibly improve overall survival. Adjuvant systemic chemotherapy is given after postoperative radiation and is recommended for tumors that are at high risk for distant metastases. The standard chemotherapy regimen used is methotrexate, adriamycin, and cisplatin (MAP). Neoadjuvant chemotherapy is not recommended in low-grade osteosarcoma on the head and neck but appears to be beneficial for the high-grade variety.[13, 14]

CONCLUSION

Sinonasal osteosarcoma is a rare malignancy that presents insidiously. Sinonasal osteosarcoma presents and behaves similarly to head and neck osteosarcomas of other sites.

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