

BACKGROUND

Osteosarcoma of the mandible is a rare clinical entity associated with significant treatment challenges and morbidity. These tumors account for approximately 1% of all head and neck malignancies, and require particular attention given the unique behavior of these tumors as compared to the more common carcinomas.

Generally, Osteosarcomas of the head and neck are grouped together because of their rarity in the literature. However it well described that despite this practice, there is substantial heterogeneity in their behavior and outcomes. We sought to characterize the outcomes of osteogenic sarcoma in adults in a single institution in Buffalo, NY.

It is generally thought that osteogenic sarcoma of the maxilla and mandible are similar in pathophysiology and prognosis. However at this institution, we have only had cases of osteogenic sarcoma of the mandible. This is likely due to small sample size rather than any specific risk factor or pattern of disease.

The mainstay of treatment of these sarcomas is wide excision with or without preoperative or adjuvant therapy. The effect of chemotherapy, (chemo)radiotherapy, or size of margin on survival has yet to be demonstrated convincingly.

METHODS

A retrospective review of adult patients treated for osteosarcoma of the head and neck between 1998 and 2019 was conducted at a dedicated head and neck cancer practice in Buffalo, NY. Likely due to small sample size, only sarcomas if the mandible were identified. In total, there were 7 patients who qualified for inclusion into this study. All patients underwent wide local excision as primary management. Presenting characteristics, relevant comorbidities, treatment and survival was analyzed. Particular attention was paid to the response to chemotherapy and surgical resection.

RESULTS

All patients were treatment naive. There were 3 women and 4 men in this series. The mean age at diagnosis was 47 (range 33-76). 6/7 patients never smoked, 1 patient quit smoking 25 years prior to presentation (15 PY). 5/7 patients presented with mandible pain manifesting 1-3 months prior to presentation. The remaining two patients presented with a bleeding lip lesion and lip numbness, all 1-3 months prior to presentation. 7/7 patients were staged as T1N0M0, and 5/7 were histologic group 2A. 2/7 patients had chondroblastic differentiation, 4/7 were osteoblastic, and 1 patient's tumor differentiation was not available. 5/7 had high grade histology, 1/7 low grade, and histologic grade was unavailable for one patient (same as differentiation).

3/7 patients underwent cisplatin/doxorubicin induction chemotherapy with minimal response (no response, 15% necrosis, 20% necrosis). All patients underwent wide local resection with fibula free-flap reconstruction primarily. 2 patients underwent adjuvant (chemo)radiotherapy for close/positive margins. 6/7 (86%) patients are currently NED. One patient suffered development of an orocutaneous fistula, and there were no treatment deaths noted.

One patient suffered local recurrence 7 months after surgery. Salvage was attempted with temporal bone resection, parotidectomy and adjuvant radiotherapy. The patient, however, died from further recurrent disease. Median followup was 32.4 months (range 2.5-245.7).

CONCLUSIONS

Osteosarcoma of the mandible remains a challenging clinical entity in head and neck surgery. Although commonly used in this setting, the clinical utility of neoadjuvant chemotherapy in this setting is questionable given this series and others in the literature. The strongest predictor of survival continues to be adequate surgical resection with negative margins. Surgery appears to be the hallmark of management of these tumors.

It is unlikely major advances in the management of these tumors can be achieved without pooling data between institutions. The largest series are underpowered and include a wide variety of patients including pediatric patients, which are associated with improved outcomes.

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