ONCOPLASTIC RECONSTRUCTION OF PALATAL DEFECTS IN CHILDREN: A SINGLE-CENTER EXPERIENCE

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Background: Oncoplastic reconstruction of the maxilla is highly challenging given the functional importance of the bone. Presently, there is limited outcomes data for pediatric patients undergoing palatal reconstruction following resection of maxillary tumors. The purpose of this study is to assess reconstructive outcomes of patients undergoing oncoplastic reconstruction of the palate following resection of maxillary tumors.

Materials/Methods: A retrospective chart review of all patients who underwent palatal reconstruction following resection of maxillary tumors at our institution were analyzed. Variables analyzed included patient demographics, tumor characteristics, instances of neoadjuvant or adjuvant chemotherapy or radiotherapy, defect characteristics, reconstructive modalities performed, and postoperative complications.

Results: A total of 10 patients with a mean follow-up of 25.1 months were included in our study (Table 1). Of included patients, two had defects isolated to the palate. Eight patients had defects involving the maxillary arch and dentition. Primary separation of the oral and sinonasal cavities was achieved using free tissue transfer (FTT) in 8 patients with the remainder undergoing reconstruction with buccal myomucosal flaps. Reconstruction of the maxillary arch using a free fibula flap was performed in two patients. Two microvascular reconstructions were complicated by total flap loss requiring secondary FTT to correct the defect, and one was complicated by the development of an oronasal fistula (ONF) secondary to partial flap necrosis that healed secondarily following debridement of nonviable tissue. One patient required emergent flap debulking due to compression of the globe. Lastly, one patient developed an ONF following locoregional reconstruction of the palate which was repaired with flap revision. All patients achieved satisfactory swallow outcomes following surgery.

Conclusions: Oncoplastic reconstruction of the palate following resection of maxillary tumors often requires the use of FTT given the size of the post-ablative defect. Our sample demonstrates that satisfactory outcomes are attainable; however, further follow-up is needed to definitively assess speech outcomes.

Images / Graph / Table

Table 1. Clinical Characteristics, Interventions, and Reconstructive Outcomes of Patients Undergoing Oncoplastic Palatal Reconstruction

Patient Number	Age at First Surgery (Months)	Tumor Diagnosis	Chemotherapy	Radiotherapy	Structure(s) Involved	Reconstructive Procedure(s)	Complications
1	102	Medulloepithelioma	Neoadjuvant Cyclophosphamide, Cisplatin, Vincristine, Etoposide	Adjuvant Proton Radiotherapy	Complete Hemi-maxilla and Orbital Cone	ALT fasciocutaneous flap	Total flap necrosis requiring reconstruction with contralateral VL myocutaneous flap
2	189	Mesenchymal chondrosarcoma	Neoadjuvant Doxorubicin and Ifosfamide	Adjuvant Proton Radiotherapy	Complete Hemi-maxilla	Procedure #1: ALT fasciocutaneous flap Procedure #2: Osseous fibula flap without dental implants	Procedure #2: Complete necrosis of ALT fasciocutaneous and osseous fibula flaps requiring reconstruction with contralateral ALT fasciocutaneous flap
3	6	Neuroectodermal tumor of infancy	-	-	Complete Hemi-maxilla	Procedure #1: Buccal myomucosal flaps Procedure #2: ALT fasciocutaneous flap[1]	Procedure #1: ONF development requiring revision of buccal myomucosal flaps Procedure #2: Postoperative flap swelling with compression of the globe requiring flap debulking
4	17	Desmoid fibromatosis	Neoadjuvant Doxorubicin	-	Complete Hemi-maxilla	ALT fasciocutaneous flap	-
5	171	Osteosarcoma	Neoadjuvant Methotrexate, Doxorubicin, Cisplatin; Adjuvant Ifosfamide	Adjuvant Proton Radiotherapy	Complete Hemi-maxilla	ALT fasciocutaneous flap	-
6	75	Odontogenic myxoma	-	-	Complete Hemi-maxilla	ALT fasciocutaneous flap	-
7	182	Odontogenic myxoma	-	-	Complete Hemi-maxilla	Procedure #1: VL myocutaneous flap Procedure #2: Osseous fibula flap without dental implants	-
8	141	Primitive myxoid mesenchymal tumor of infancy	Neoadjuvant Vincristine, Actinomycin D, and Cyclophosphamide	-	Hard palate (with Maxillary Arch involvement), Lateral Nasal Sidewall	VL myocutaneous flap	-
9	128	Mucoepidermoid carcinoma	-	-	Hard palate (with Maxillary Arch involvement)	ALT fasciocutaneous flap	ONF development secondary to partial necrosis of ALT flap requiring debridement and healing by secondary intention
10	169	Mucoepidermoid carcinoma	-	-	Hard palate (without Maxillary Arch involvement)	Locoregional reconstruction of palatal defect	-
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[1]All patients, except for patient 9, had unilateral palatal defects. [2]For separation of oral, sinonasal, and orbital cavities following failed alloplastic reconstruction of the orbital floor.
Abbreviations: ALT = anterolateral thigh; VL = Vastus lateralis; ONF = oronasal fistula.