ABSTRACT

Objectives: To present a rare case of facial nerve paraganglioma and novel use of a processed allograft for facial nerve reconstruction.

Study Design: Case report and review of the literature.

Methods: A 34 year old female presented with progressive onset right sided facial palsy for 5 months. CT and MRI demonstrated an irregular mass in the right facial nerve canal from the intra-tympanic segment to the stylomastoid foramen.

Results: Following transmastoid resection, the defect was repaired using processed allograft. Pathologic analysis was consistent with a paraganglioma. Facial nerve paraganglioma is a rare entity that has been reported only 10 times in the literature.

Conclusions: Traditional methods of facial nerve reconstruction, including autologous and cadaveric grafting, can lead to significant patient morbidity. Autologous nerve grafts are the “gold standard” for superior regenerative capability, but are limited by the length and potential neuroma formation at the donor site. Allogenic grafts from donors or cadavers have shown some efficacy, but can require immunosuppression. The Avance nerve graft is a cadaveric graft, processed and decellularized to maintain an extracellular matrix with laminin and intact endoneurial tubes, thus providing support for the growing axon without generating an immune response. Initial studies of the Avance graft in animals and humans have examined repair of peripheral nerves, but this is the first reported case of human facial nerve reconstruction.

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INTRODUCTION

Paragangliomas are vascular tumors arising from glomus bodies, chemoreceptor cells derived from developing neural crest tissue. These cells are typically found in the adventitia of the jugular bulb (glomus jugulare), along the inferior tympanic canaliculus and over the cochlear prominence (glomus tympanicum), or along Arnold’s nerve, the mastoid branch of the vagus nerve (glomus vagale). Large glomus jugulare or glomus tympanicum tumors may secondarily involve the facial nerve canal by direct extension from the jugular foramen or middle ear cavity, but the rare entity of a glomus faciale tumor, a histologically-confirmed primary paraganglioma of the facial nerve, has been reported in the literature only 10 times since the first reported case in 1986.1 Reported cases included 2 males and 7 females, with ages ranging from 30 to 74 years old.2,3,4

Surgical management of these tumors inevitably requires sacrifice or resection of the involved portion of the facial nerve. This case highlights a rare case of facial nerve paraganglioma and a novel use of processed allograft for facial nerve reconstruction.

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DISCUSSION

Resection of facial nerve lesions, including the rare facial nerve paragangliomas, requires thorough consideration of reconstructive options. Primary facial nerve repair can be used for lesions up to 18mm and is the best option for achieving return of function. Tensionless reapproximation is the single most important prognostic factor in facial nerve repair. When a primary repair is not possible, autologous nerve grafts are the “gold standard” of repair. Greater auricular or sural nerve match the caliber of the facial nerve and provide 10 cm or 40 mm of nerve, respectively. Drawbacks to autologous grafting include numbness in the distribution of the donor nerve, preparation of a secondary operative site, an additional incision, and harvest-site scarring or neuroma formation.5 Success rates of cadaveric allografts are similar to autografts, but require immunosuppressed for up to 18 months. Artificial nerve conduits, hollow tubes made of synthetic or collagen material, provide protection to support nerve regeneration, but are only effective over short distances <3cm.6

REFERENCES