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Case Report
Clinical Pathology

Large intraparotid facial nerve schwannoma: Case report and Review of the Literature

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Abstract. Here is reported an extremely rare case of a large intraparotid facial nerve schwannoma in a 32-year-old female who presented with a parotid mass. There had been a long clinical course and sudden onset of facial weakness. Diagnostic evaluation and surgical management are discussed along with a brief review of the literature.

Keywords: facial nerve schwannoma; intraparotid tumors; facial paralysis.

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Facial nerve schwannomas are rare, slow-growing encapsulated tumors that originate from the axonal nerve sheath. They can arise from any site along the course of the nerve, from the glial–Schwann cell transition site at the cerebellopontine angle to the peripheral branches in the parotid gland[3]. In approximately 10% of cases the tumor arises solely from the intraparotid portion of the facial nerve[4].

Case report

A 32-year-old female presented with a 3-year history of a slowly growing hard swelling in her right parotid region and a sudden onset of facial weakness on the right, 2 weeks prior to admission. Physical examination revealed a large, 5 × 4-cm, painless, slightly mobile mass over the right masseter muscle. With maximal effort, asymmetry of mouth was demonstrated, corresponding to grade IV facial nerve paresis on the House-Brackmann scale. Fine needle aspiration (FNA) cytology was not diagnostic whereas a contrast-enhanced computed tomography scan revealed a fusiform neoplastic lesion within the right parotid gland (Fig. 1). At surgery, a bulky, bilobular yellowish tumor was found in the parotid gland. Identification of the facial nerve was not possible and eventually the mass, which extended almost 0.5 cm distal to the stylomastoid foramen and encased the main trunk and the peripheral branches of the nerve, was identified as a facial nerve tumor. Atrophy of the peripheral nerve branches was evident. Due to the size and local expansion of the tumor, as well as the sudden onset of paresis, we proceeded to complete tumor resection. A mass measuring 5 × 3.5 × 2 cm was excised and a superficial parotidectomy was performed. Failing to dissect the tumor from the nerve, the nerve portion involved in the tumor mass was inevitably sacrificed. Postoperatively the patient developed total facial nerve dysfunction on her right side (House-Brackmann grade VI facial nerve paralysis). Since no improvement of the facial nerve function was expected, the patient was advised to undergo a muscle transfer surgery for facial reanimation. Pathological examination revealed a diffuse Antoni A architecture, with only a few areas of Antoni B pattern. On immunohistochemical analysis the expression of S-100 protein from the tumor cells was significant, confirming the diagnosis of a schwannoma (Fig. 2).

Discussion

The estimated incidence of 'parotid' tumors of facial nerve origin ranges from

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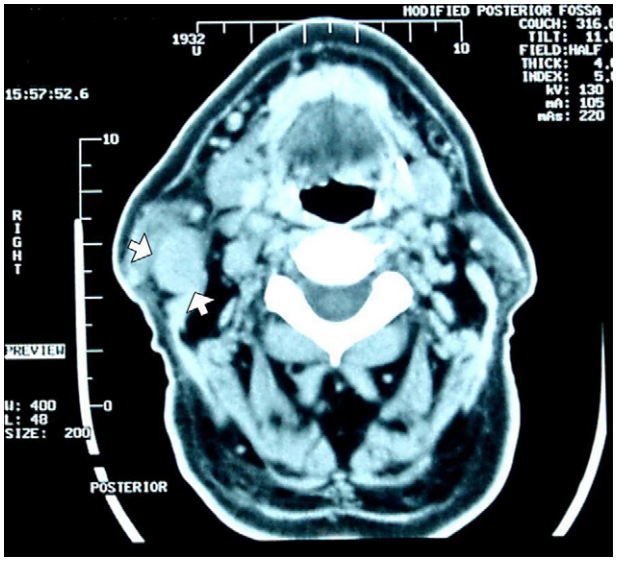

Fig. 1. Uniformly enhanced, fusiform neoplastic lesion within the right parotid gland (arrows).

0.2% to 1.5%[2]. More specifically, 79 cases have been reported in the literature involving the intraparotid segment of the facial nerve[8]. The most common presenting symptom is a painless slow-growing parotid mass, while 3.9% of these tumors will finally be diagnosed as malignant[8]. Preoperative diagnosis is extremely difficult due to the variation in clinical presentation and its dependency upon the nerve site involved[9]. Although facial nerve dysfunction is generally a common symptom of facial nerve schwannomas, it is present in only 20% of all cases involving the intraparotid segment[8]. Caughey et al.[1] suggested that the best indication of a schwannoma is the long course of symptoms. There are no imaging findings that can be considered as pathognomonic[3], but Shimizu et al.[10] reported that on preoperative magnetic resonance imaging three out of the five cases of facial nerve schwannoma exhibited a target sign characterized by increased peripheral signal intensity and decreased central signal intensity on T2-weighted images. On ultrasonography, a hypoechogenic pattern with a smooth capsule can be demonstrated and guided FNA can be performed. In only 17.6% of the cases from the literature review did FNA cytology establish the diagnosis of a schwannoma[8]. Cytological features are quite characteristic and include fragments of spindle-shaped neoplastic cells forming Verocay bodies. Intraoperatively, inability to identify the facial nerve and the strong cohesion of the tumor with the nerve fibers are indicative of a facial nerve schwannoma[1,2].

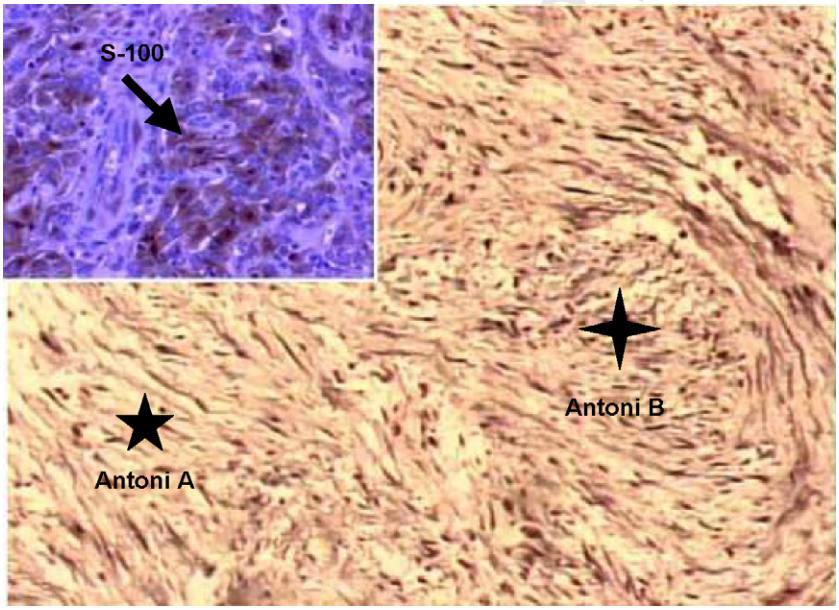

Fig. 2. Facial nerve schwannoma arhcitecture consisting of spindle-type cells in a diffuse Antoni A pattern, with only a few areas of Antoni B pattern (original magnification ×10). Inset: S-100 immunohistochemical expression pattern (original magnification ×40).

Complete excision of the mass often requires complete resection of the involved segment of the facial nerve[5]. Only a few cases are reported in which the schwannoma was easily separated from the nerve[2]. It still remains controversial whether surgical excision or conservative management should be the treatment of choice. For patients with mild or no facial nerve dysfunction, the best approach is close observation, especially for tumors outside the fallopian canal, considering the benign, slow-growing nature of the tumor and moderate results of facial nerve reconstruction[6]. In patients with progressive or sudden facial palsy, surgical resection of facial nerve schwannomas is indicated without delay. If conservative treatment is planned, yearly physical examinations along with computed tomography or magnetic resonance imaging studies and electrical testing of the facial nerve are indicated[1].

Marchioni et al.[8] proposed classification of intraparotid facial nerve schwannomas into four types based on anatomical and pathological evaluation. Histologic examination of schwannomas reveals a pattern of alternating Antoni A and B areas. If sacrifice of the nerve is necessary a sural nerve interposition graft or a hypoglossal–facial nerve anastomosis can be performed[8]. Better results are obtained in young patients and when a short time interval between paralysis and reconstructive surgery exists[7].

In conclusion, although intraparotid facial nerve schwannoma is exceptionally rare, it should be considered in patients with parotid region masses of long clinical course, with or without persisting Bell's palsy.

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