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CASE REPORT

# Intraparotid Facial Nerve Schwannoma in a 40-Year-Old Male with Hearing Loss – A Case Report

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## ABSTRACT

Schwannoma is a benign tumor of axonal nerve sheath. Head and neck area, particularly parotid gland is an uncommon site for Schwannoma, however it can rarely arise from the intraparotid part of facial nerve and present as either a symptomless mass or facial paresis. Its diagnosis before surgical intervention is important for the conservation of parotid gland and facial nerve. On clinical examination and imaging studies, it can be misdiagnosed easily. FNAC is a helpful tool for its diagnosis. This entity should not be ignored while dealing with parotid masses. We present a case of a patient who came with the complaint of a parotid mass. Magnetic resonance imaging (MRI) scan suggested a parotid tumor which proved to be a spindle cell neoplasm on Fine Needle Aspiration Cytology (FNAC). A definite diagnosis of schwannoma of intraparotid facial nerve was made on histopathological examination of the excision sample.

**Key Words:** Facial nerve, Fine needle aspiration cytology, Magnetic resonance imaging, Parotid gland, Schwannoma.

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## Introduction

Schwannoma is a slow growing encapsulated benign tumor arising from the Schwann cells of the nerve fiber sheath.[1] Approximately 25-30% of all reported schwannomas occur in the head and neck region. Schwannoma of the facial nerve is a rare entity with very few cases reported in the literature.[2] Preoperative diagnoses of parotid schwannoma is difficult because clinically it presents as a parotid gland tumor and on imaging, it is indistinguishable from pleomorphic adenoma.[3] We report a case of intraparotid schwannoma involving the extratemporal part of the facial nerve, which is exceedingly rare.

## Case Report

A 40-year-old male presented with a history of gradually increasing swelling of the left-sided parotid region for one and a half year (Figure 1). He had gradual hearing loss with on and off complaint of pain in the affected area. On clinical examination, there was a firm and immobile swelling measuring 5x4 cm in the left parotid region. A clinical diagnosis

of parotid gland tumor was made. MRI and FNAC was advised.

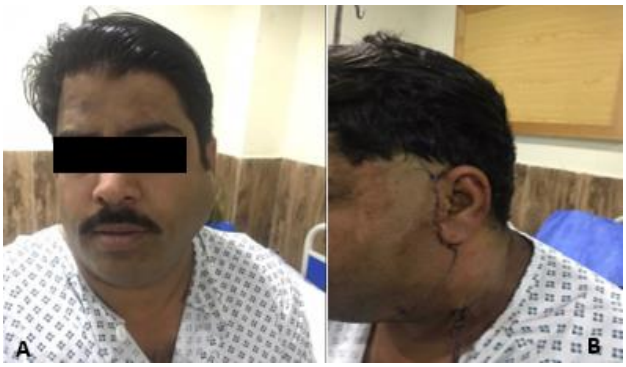


**Figure 1: Patient with left parotid swelling. A: Before surgery. B: After surgery**

MRI revealed an altered mixed signal intensity, heterogeneously enhancing lesion in the left parotid region, extending medially along posterior aspect of ramus of left hemi-mandible into the left parapharyngeal space. This was suggestive of a neoplastic disease process, possibly originating from the parotid gland.

FNAC was performed as per standard techniques and the moderately cellular smears showed benign looking spindle cells arranged in a fascicular pattern. Cytology favored benign spindle cell neoplasm, most likely, schwannoma (Figure 2).

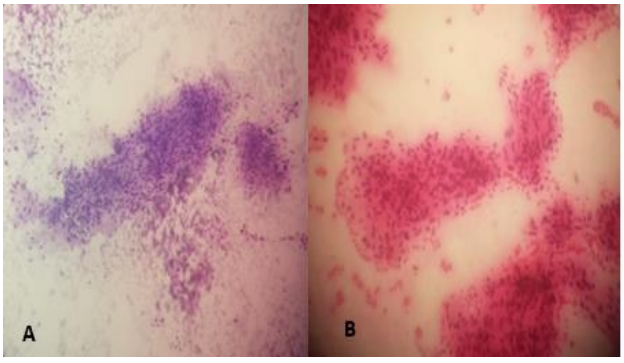


**Figure 2: Smears were moderately cellular showing fascicles of spindle cells. A: Giemsa stain 100x. B: H&E 400x.**

Patient was operated for the removal of the lesion. The facial nerve trunk was found deeper and inferior due to the pushing effect of the tumor (Figure 3A). On anterior dissection the tumor was found to originate from the buccal and zygomatic branches of the facial nerve. The mass was removed successfully with careful dissection.

On gross examination the tumor was well circumscribed, encapsulated, measuring 5x4 cm in diameter (Figure 3A). Microscopic examination showed an encapsulated tumor composed of hypercellular spindle cell areas (Antoni A) (Figure 3B) and hypocellular areas (Antoni B) (Figure 3C). Hyalinized vessels were also seen (Figure 3D).

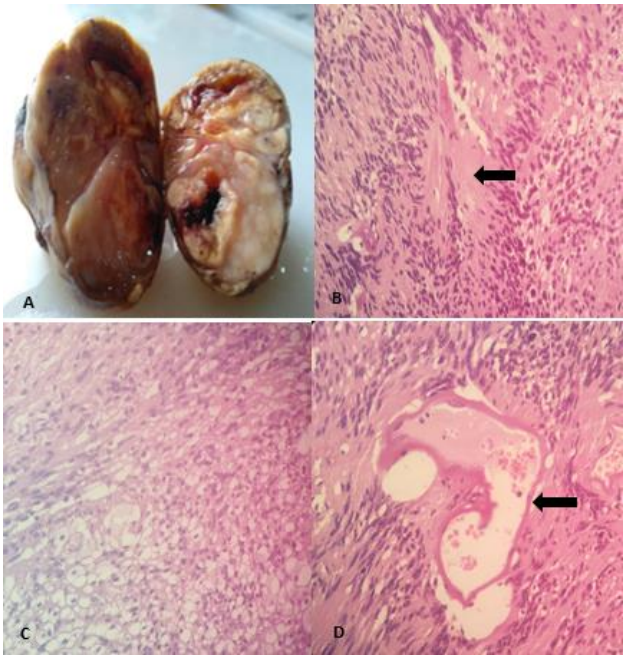


**Figure 3 A: Gross specimen of the resected parotid mass. B: Antoni A areas showing Verocay bodies (H&E 400x). C: Antoni B areas showing myxoid matrix with entrapped macrophages (H&E 400x). D: Hyalinized blood vessels (H&E 400x).**

## Discussion

Schwannoma can arise from facial nerve anywhere along its course; from cerebellopontine angle to its terminal branches, so it can be found extra- or intraparotid. Majority of the facial nerve schwannoma are extraparotid and only 9% occur inside the parotid gland. Intraparotid schwannoma

accounts for 0.2%–1.5% of all facial nerve tumors in the parotid gland.[4]

Intratemporal facial nerve schwannoma presents as a nerve dysfunction in the form of facial paresis while extratemporal nerve involvement presents as a parotid mass without nerve dysfunction.[5]

There are no definite radiological findings of intraparotid schwannoma.[6] MRI is the radiological test of choice for detecting facial nerve schwannoma. The most common signs are a mass with signal intensity isointense to muscle on T1 and hyperintense to muscle on T2 sequence, respectively. The target sign (central low and peripheral higher signal intensity on T2 weighted images) is a sign of tumor of nerve sheath which includes schwannoma or malignant nerve sheath tumor.[7]

As MRI cannot differentiate between benign or malignant neoplastic process FNAC is regarded as a useful procedure for the diagnosis. FNAC of schwannoma reveals moderately cellular smears comprising of clusters of spindle cells in a background composed of pink fibrillary matrix. The individual neoplastic cells have spindle cell wavy hyperchromatic nuclei with scant cytoplasm. No foci of necrosis or mitosis are seen.[8]

Microscopically, Schwannoma has a specific pattern of hypercellular Antoni A and Antoni B areas. Verocay bodies are seen in Antoni A areas showing palisaded neoplastic cells and this is a diagnostic sign of schwannoma. Antoni B is composed of degenerative myxoid stroma and may contain macrophages. Presence of hyalinized blood vessels is also a constant feature of schwannoma.[9,10]

Intraparotid facial nerve schwannomas are classified into four types by Marchioni et al. for better evaluation and management. Type A tumors include those neoplasms which can be operated with conservation of the facial nerve. Tumors in this type do not cause facial paresis preoperatively. In type B tumors, the tumor is resectable with removal of some part of the nerve, which is usually peripheral branch or distal division. The resected part is reconstructed by neurorrhaphy or nerve graft. In type C tumors, the main trunk of the facial nerve is resected while in type D, the main trunk and at least one of the temporofacial or cervicofacial branches is also removed.[11]

The goal of the treatment is to remove the tumor with preservation of the facial nerve but frequently it is not possible to preserve the nerve. The management of intraparotid schwannoma depends on extent of facial nerve dysfunction, localization of tumor to parotid gland and Intratemporal extension. These include conservative approaches like extracapsular dissection and partial lateral parotidectomy, and more extensive interventions like lateral parotid lobectomy and total parotidectomy, respectively.[12]

## Conclusion

Preoperative diagnosis of intraparotid schwannoma is difficult because of its rarity and nonspecific radiological findings. This entity should be considered in the differential diagnosis of any parotid mass to avoid any unnecessary extensive surgery. We advocate the use of FNAC as a useful technique for the preoperative diagnosis of intraparotid schwannoma.

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