Abstract

A middle-aged female presented with a painless, slowly growing mass in the left parotid region; fine needle aspiration cytology from the mass showed uniform spindle cells in a fibrillary background with some cells showing palisading. A cytodiagnosis of schwannoma was given, which was further confirmed on biopsy.

Keywords: Nerve sheath tumor, parotid neurilemmoma, salivary gland schwannoma

INTRODUCTION

Facial nerve schwannoma (FNS) arises from facial nerve during its extratemporal or intratemporal course.[1] Extracranial FNS are rare (9%) and usually appear as an asymptomatic parotid mass. The frequency of intraparotid FNS ranges 0.2–1.5%.[2] Although most patients with intraparotid schwannomas (IPS) do not present with facial nerve palsy, it is important to suggest its definite diagnosis preoperatively because postoperative facial nerve paresis/palsy is not rare, and the patients need to be informed of this complication. Preoperative diagnosis of IPS is difficult because of the rarity of this lesion and the absence of facial nerve dysfunction in most of the cases.

We present a case of a middle-aged female who had a painless, slowly growing mass in the left parotid region; fine needle aspiration cytology (FNAC) from the mass was suggestive of schwannoma, possibly IPS.

CASE REPORT

A 41-year-old female presented with a history of painless, progressively increasing, left-sided facial swelling near the angle of the mandible for past 1 year, along with numbness in the same area for 2–3 months. On clinical examination, there was a tender, firm mass, measuring 10 × 6 cm in size at the angle of the mandible. Examination of facial nerve function revealed an area of sensory loss along with facial weakness on the left side of the face. She had received treatment for pulmonary tuberculosis 2 years previously. The computed tomography (CT) scan revealed a well-encapsulated large heterogeneous soft tissue mass in the left parotid space, extending into the masseteric space, parapharyngeal space, submandibular region, and infratemporal fossa [Figure 1a and b]. The parotid gland could not be visualized separately, and a radiological diagnosis suggestive of benign mass lesion was given.

FNAC was performed as per the standard technique using a 23-gauge needle, smears were stained with May Grunewald Giemsa (MGG) and were examined. Giemsa-stained smears showed highly cellular smears comprising predominantly large clusters of plump spindle cells showing mild-to-moderate pleomorphism. The cells had ill-defined cytoplasm and elongated nuclei with indistinct nucleoli. These cells were admixed with intercellular fibrillary stroma, and in places arranged in a palisading pattern with molded nuclei around each other, as seen in Antoni-A areas and called as Verocay bodies (VBs). The borders of the clusters were irregularly arranged with cytoplasmic processes projecting out of these clusters [Figure 2a and b]. A few scattered

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Bhattacharya JB, Singh M, Jain SL. Intraparotid schwannoma masquerading as primary spindle cell tumour of parotid: A diagnostic pitfall. J Cytol 2017;34:221-3.
spindle cells, histiocytes, and a few clusters of normal salivary gland acini were seen in a hemorrhagic background. On immunocytochemistry (IC), the tumor cells were positive for S-100 [Figure 2d] and negative for cytokeratin (CK) and p-63. Cytological features were suggestive of a benign nerve sheath tumor, possibly schwannoma. A superficial parotidectomy with nerve preservation was done and the mass was sent for histopathological examination. The specimen revealed a well-circumscribed encapsulated mass measuring 4 × 4 × 3.5 cm in size. The cut surface was uniform, solid, and gray-white with no area of capsular breach. Microscopically, both hypercellular (Antoni A) and hypocellular areas (Antoni B) were seen. The hypercellular areas showed tightly packed fascicles of spindle cells with prominent palisading and organoid pattern, as seen in typical VB's [Figure 2c]. The cells had abundant eosinophilic cytoplasm and plump spindle vesicular nuclei with blunt ends. There was mild nuclear pleomorphism, however, no mitotic figures were seen. The normal salivary gland was pushed to the periphery of the tumor. The final diagnosis was further confirmed on resection specimen histology.

**Discussion**

Neurilemmomas (or schwannomas, neurinomas) are solitary, encapsulated, slow-growing benign nerve sheath tumors that originate from Schwann cells of peripheral, autonomic, and cranial nerves. The common site for schwannomas is the head and neck region. They may be misinterpreted as nerve sheath tumors. However, predominance of a spindle cell component may lead to the diagnosis of other spindle cell rich tumors of parotid gland (neural, myoepithelial tumors).

The literature search revealed few cases of histologically proven schwannomas in which FNA was attempted, out of which only some could be diagnosed preoperatively, and a very small proportion of cases without those were diagnosed as benign nerve sheath tumor. The cytological differential diagnoses (D/D) of schwannoma include other closely mimicking spindle cell tumors. (1) Neurofibromas (NF) are composed of spindle cells, having hyperchromatic nuclei but with tapering ends, unlike that of schwannomas which have blunt cigar-shaped end. FNAC from (2) parotid myoepitheliomas can also mimic schwannoma as they are composed of spindle or fusiform myoepithelial cells which may assume a plasmacytoid pattern admixed in a scant fibrous stroma and a positive p63 support/confirm the myoepithelial phenotype. (3) Epithelial tumors such as spindle cell carcinomas rarely come in the D/D as they typically show malignant spindle cells arranged in fascicles with frequent mitosis. The typical findings in squamous cell carcinomas is that the individual tumor cells may show abundant homogeneous, keratinized cytoplasm, and intercellular bridges with squamous pearls, which are rare or absent in spindle cell carcinomas; however, cellular whorls of VBs may sometimes mimic squamous pearls, and in such cases, if there is a strong suspicion of malignancy, a CK immunohistochemical marker along with S-100 should be used. (4) A potential pitfall in the diagnosis of schwannomas is myoepithelial rich pleomorphic adenomas (1%) as they may be composed entirely of bundles of spindle cells occasionally in a palisading arrangement, and may be misinterpreted as nerve sheath tumors.
an epithelial component in a glandular formation may be seen, however, the presence of VBs and loose fibrillary Antoni-B areas are helpful in identifying schwannomas where the tumor cells are predominantly in fragments with few single cells. The morphology of spindle cells should be noted carefully, which may appear spindle at low power but at high may only reveal plasmacytoid features. When such cells are noticed, one should request a May Grunwald Giemsa to look for myxoid matrix, which may get completely masked in a Papaniculou stained smear. IC is useful in cases where the cytological features are nonspecific and VBs are absent. The present case showed VBs, S-100 positivity, CK, and p63 negativity, thus strongly suggesting an IPS on cytology. Another important consideration is a malignant peripheral nerve sheath tumor (MPNST), the cytology of which may mimic schwannomas, especially if low grade. The aspirate from a case of MPNST should include varying numbers of larger atypical malignant cells. The varying degree of nuclear atypia and cellular pleomorphism, ranging from inconspicuous to clearly sarcomatous with pleomorphic multinucleate giant cells along with mitotic figures can be found in these tumors.

Schwannomas are mostly benign with rare local recurrences, and thus need excision, and every attempt should be made to preserve the nerve, especially when the facial or vagus nerves are involved; however, a wrong cytological diagnosis as a pleomorphic adenoma (benign mixed tumor) may potentially lead to superficial parotidectomy with secondary intraparotid facial nerve injury due to surgery without anatomical dissection of the intraparotid facial nerve and possible ligation due to the wrong diagnosis.

CONCLUSION
To conclude, a preoperative definite cytological diagnosis of IPS is important and should be included in the differential diagnosis of spindle cell rich salivary gland lesions, even in the absence of facial nerve dysfunction clinically, as it determines the type of dissection required. The patient needs to be aware of the potential postoperative consequences of this lesion.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES
1. Balle VH, Greisen O. Neurilemomas of the facial nerve presenting as parotid tumors. Ann Otol Rhinol Laryngol 1984;93:70-2.
2. Chiang CW, Chang YL, Lou PJ. Multicentricity of intraparotid facial nerve schwannomas. Ann Otol Rhinol Laryngol 2001;110:871-4.
3. Enzinger FM, Weiss SW: Soft tissue tumors. 3rd edition. St. Louis, CV Mosby; 1996. pp. 1146-50.
4. Maly B, Maly A, Doivner V, Reinhartz T, Sherman Y. Fine-needle aspiration biopsy of intraparotid schwannoma: A case report. Acta Cytol 2003;47:1131-4.
5. Gupta S, Borkataky S, Agarwal R, Agarwal R, Singh S, Gupta K, et al. Rare diagnosis on aspiration of parotid gland Schwannoma. Acta Cytol 2010;54:112-4.
6. Dahl F, Hagmar B, Idvall I. Benign solitary neurilemmoma (schwannoma): A correlative cytological and histological study of 28 cases. Acta Pathol Microbiol Immunol Scand 1984;92:92-101.
7. Koss LG, Zajicek J. Aspiration biopsy of palpable lesions: The salivary glands. In: Koss LG, editor. Diagnostic cytopathology and histopathologic basis. 4th edition. Philadelphia: JB Lippincott; 1992. pp. 1250-63.
8. Ellis GL, Auclair PL. Tumours of the salivary glands. Atlas of tumor pathology, 3rd series. Washington, DC: Armed Forces Institute of Pathology; 1996. pp. 39-57.
9. Mair S, Leiman G. Benign neurilemmoma ( schwannoma) masquerading as pleomorphic adenoma of submandibular gland. Acta Cytol 1989;33:907-10.
10. Gupta RK, Dowle CS. A case of neurilemmoma (schwannoma) that mimicked a pleomorphic adenoma (an example of potential pitfall in aspiration cytdiagnosis). Diagn Cytopathol 1991;7:622-4.