Preauricular Intraparotid Schwannoma: A Rare Presentation with Literature Review

Abstract
Schwannoma is a benign tumor rarely found in the intraparotid facial nerve region. It clinically presents as a slow-growing, asymptomatic mass. Due to its rare presentation, preoperative diagnosis is often unclear before surgical removal and histopathological examination. Imaging modalities such as computed tomography (CT) and magnetic resonance imaging (MRI) play an important role in suggesting the nature of mass and narrowing down the differentials. The CT scan offers the advantage to detect the relationship of the facial nerve and osseous changes within the bone, however MRI shows a mass relative to brain type of tissue. We report a rare case of intraparotid facial nerve schwannoma in a 17-year-old female who had sustained swelling in her left preauricular area for 5 years. Ultrasonography and CT findings revealed the impression of pleomorphic adenoma. However, MRI and histopathological findings were characteristic of schwannoma. Thus, this article provides an insight into a rare presentation of schwannoma with literature review.

Keywords: Schwann cells, soft-tissue tumors, schwannoma

Introduction
The parotid gland is a rare location for schwannoma which arises from the Schwann cells of the nerve sheath. The intraparotid facial nerve schwannoma accounts for 9% of schwannomas arising from the facial nerve and its incidence is 0.2%–1.5% of all schwannomas.[1] Clinically, it presents as an asymptomatic slow-growing parotid mass without any distinctive pathognomonic findings mimicking with most common benign tumors such as pleomorphic adenoma.[2] The preoperative diagnosis of schwannoma is a diagnostic dilemma as fine-needle aspiration cytology (FNAC) is inaccurate mostly, and it is difficult to distinguish it using imaging modalities such as computed tomography (CT) and magnetic resonance imaging (MRI) from pleomorphic adenoma.[3] We report a similar rare case of schwannoma diagnosed by histopathology.

Case Report
A 17-year-old female patient presented in the department of oral medicine and radiology with the chief complaint of swelling in the upper left front region of the ear for 5 years. The swelling developed spontaneously which gradually increased in size and attained the present size. It was not associated with pain, fever, loss of weight, loss of appetite, or related to meals. Past medical history and dental history were uneventful, and the patient was apparently healthy on general physical examination.

On extraoral examination, a solitary ovoid swelling was present in the left preauricular region. The swelling was lobulated, same as the color of the facial skin measuring about 2 cm × 1.5 cm in size. The swelling was nonpulsatile with a smooth surface and well-defined edges. On palpation, the swelling was firm, lobulated, nontender with well-defined margins, and was not attached to underlying structures [Figure 1]. The swelling was pinchable, nonfluctuant, and noncompressible with no signs of inflammation and regional lymphadenopathy. No abnormality was detected on the facial nerve and temporomandibular joint examination.

On intraoral examination, there was no evidence of any swelling, with normal opening of Stensen’s duct. On the basis of history and clinical examination, a provisional diagnosis of benign neoplastic lesion (pleomorphic adenoma of the left side) was proposed. Sialadenosis, fibroma, preauricular...
lymphadenopathy, lipoma, leiomyoma, schwannoma, and Warthin’s tumor were given as differential diagnosis [Table 1]. Orthopantomograph and complete hemogram were normal. FNAC was nondiagnostic as it revealed cohesive sheets of epithelial cells with scattered lymphocytes.

On ultrasound, tumor mass was delineated as hypoechoic masses with multiple internal cystic areas in the soft tissue overlying the left ramus with a sharply delineated contour and posterior echo enhancement suggestive of benign neoplastic lesion [Figure 2a]. CT scan was carried out which revealed an ill-defined multiloculated cystic lesion with internal particulates are noted in the soft tissue overlying the ramus of the left mandible approximating the facial nerve. The lesion measured approximately 4.04 cm × 1.87 cm and no involvement of underlying

| Table 1: Clinical differential diagnosis of preauricular swelling |
|---------------------------------------------------------------|
| **Differential Diagnosis** | **Favourable features** | **Unfavourable features** |
| Pleomorphic adenoma | Slow growing, painless swelling | 4-6 decade of life span |
| | Firm | Local discomfort |
| | Long duration history | Difficulty in mastication and talking |
| | Female predilection | |
| | Mostly present in Front of ear or ascending ramus | |
| | Mostly do not show fixation to deep tissues or underlying skin | |
| Sialadenosis | Slow growing swelling | Usually bilateral |
| | Painless | Older age group affected |
| | | Decreased salivary secretions |
| | | Associated systemic history of diabetes |
| Fibroma | Most common tumor | Extraoral presentation is rare. |
| | Long duration history | |
| | Painless | Most common location is the buccal mucosa along the bite line |
| | Gradual progression | |
| | Firm consistency | |
| Preauricular lymphadenopathy | Swelling in front of ear | Usually painful |
| | Common presentation | Redness on affected side |
| | | History of fever and Ear infection |
| Lipoma | Sessile | Very rarely it occurs in head and neck region. |
| | Smooth surfaced lobulated swelling | Most commonly it occurs in trunk and extremeties |
| | Long duration history | Soft in consistency |
| | Painless | Positive slip sign |
| | Gradual progression | Buccal mucosa and buccal vestibule are the most common sites |
| Lieomyoma | Slow growing | Very rare finding in the oral cavity |
| | Firm, mucosal lesion | Usually pedunculated |
| | Asymptomatic | |
| Schwannoma | Slow growing lesion | Rare entity |
| | Painless | Facial twitching |
| | Long duration history | Facial nerve paralysis |
| | Single circumscribed nodule | Hearing loss & tinnitus |
| Warthin tumour | Slow growing painless swelling | Commonly occur beneath ear lobe near tail of gland |
| | Firm non tender mass | Mostly bilateral and more common in males. |
Bagga, et al.: An unusual presentation of intraparotid schwannoma

A benign tumor mass was evident on the CT report [Figure 2b]. Since the lesion was approximating facial nerve for further characterization, MRI was advised. In axial T1MRI, a homogenous, isodense dumbbell lesion was seen approximating the left facial nerve relative to brain tissue [Figure 2c]. The radiographic Differential Diagnosis (d/d) included were benign cystic tumor, nerve sheath myxoma, neurofibromatosis, and schwannoma [Table 2].

Excisional biopsy was planned, and a complete encapsulated lesion was excised. The facial nerve was preserved; sutures were placed and the sample was sent for histopathological examination. The histopathological report revealed tumor parenchyma consisted of hypercellular spindle cells. These spindle cells showed areas of nuclear and cytoplasmic pleomorphism and nuclear palisading resembling Antoni B-type tissue consisting of streaming fascicles of spindle-shaped cells confirming the diagnosis of schwannoma [Figure 3]. Postoperative follow-up could not be carried out as the patient did not turn up after suture removal.

**Discussion**

Verocay first described the lesion in 1910 and named it neurinoma. In 1935, Stout coined the term neurilemroma. Intraparotid schwannomas are solitary, painless, slow-growing masses where the function of the facial nerve is generally unaffected. Among schwannomas, the preauricular region is rare and poses a difficulty in preoperative diagnosis since it is the most common site for the salivary gland neoplasms [Table 3]. Gallo et al.
reported 157 cases of schwannoma involving head and neck region and found that 45.2% occur on the tongue, 13.3% in the cheek, and 10% in the parotid region. Schwannomas can occur at any age with no significant gender bias.

FNAC is still debatable as it is not diagnostic always. Although some authors advocated the role of cytology as schwannoma may reveal a sheet of spindle cells exhibiting nuclear palisading within a hypocellular stromal background.

Various imaging modalities are available to delineate the tumor mass such as ultrasonography, CT, and MRI. Sonographically, it appears as a marked hypoechoic well-circumscribed mass with no demonstrable internal vascularity representing benign neoplasms. On a CT scan, the appearance of a schwannoma is generally characteristic of well-circumscribed encapsulated mass. CT offers advantage to delineate the osseous structures and calcifications, however MRI is the best investigative modality of choice because it demonstrates isodense signal on T1W1 image, hyperdense on T2W1 suggestive of neurogenic tissue with any of the two signs, i.e., string sign (mass with beak-like protrusion near stylomastoid foramen) and target sign (hyperdense signal at periphery of tumor). In the present case, FNAC was not conclusive, however ultrasound and CT report gave the perception of pleomorphic adenoma, but on MRI, neural tumor was evident, although specific signs could not be observed.

Treatment of intraparotid schwannoma is surgical excision. Marchioni et al. suggested a classification of intraparotid schwannoma according to its position in the facial nerve pathway. In this classification, there are four types of tumor resection: Type A (facial nerve is preserved), Type B (partial sacrifice of the facial nerve), Type C (the main trunk of the facial nerve is sacrificed), and Type D (facial nerve trunk and its main divisions are sacrificed). Our present case was considered as Type A.

A definitive diagnosis should be based on the histological findings. Histologically, the tumor is characterized by a stream of elongated spindle cells often arranged in a palisaded pattern. Areas consisting of thick concentration of cells are Antoni A and loosely irregularly placed cells are Antoni B cells.

**Conclusion**

Intraparotid schwannomas are a rare entity, but it should not be discarded when observing a submucosal soft-tissue swelling of the parotid gland region, as in the present case.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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