Case Report

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Intraoral Schwannoma - Diagnosed by Fine Needle Aspiration Cytology: Report of Two Cases

Pathology Section

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ABSTRACT

Schwannomas are benign nerve sheath derived tumours and frequently involve the head and neck region. Intraoral involvement is rare and is seen in 1% of cases. Predilection of the lesion intraorally seen more in tongue followed by palate, floor of mouth, buccal mucosa, least in lips and jaws. Fine Needle Aspiration Cytology (FNAC) plays an important role for the preoperative diagnosis and to preserve the nerve function during surgery. We present two cases of intraoral schwannomas diagnosed by FNAC and in one case immunocytochemistry with S-100 was also done to aid to the diagnosis.

Keywords: Benign tumour, Immunocytochemistry, S-100

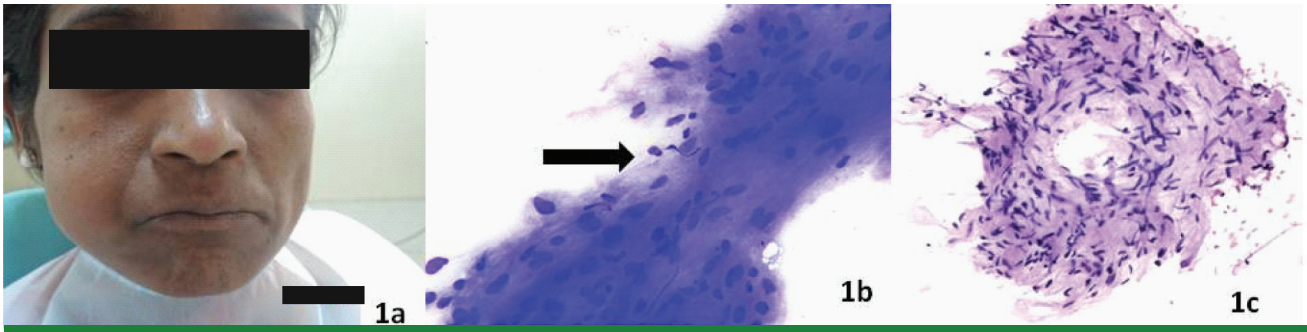
CASE REPORT

Case-1

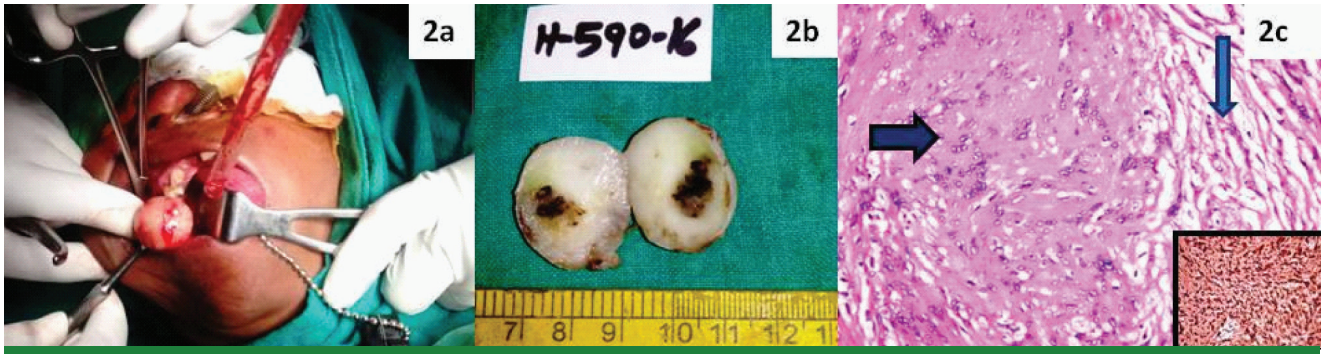
A 45-year-old female presented to the Dental Outpatient Department with chief complaint of slowly growing swelling in her right cheek for two years without any associated pain. Extraorally there was a discrete swelling in her right side middle third of face [Table/Fig-1a]. Skin over swelling appeared normal without any colour change. Intraoral examination revealed a submucosal nodular lesion in the right buccal mucosa measuring 2x1.5 cm. The lesion was firm in consistency, non tender and non fluctuant. MRI of the swelling showed a well defined T1 hypointense and T2 hyperintense lesion of size 2.4×2×2.0 cm in the right buccal space anteromedial to right masseter muscle with a small cystic area. Fat plane between the lesion and adjacent structures was maintained. With these findings a provisional clinical diagnosis of a benign soft tissue lesion was made.

Fine Needle Aspiration Cytology (FNAC) was performed using 23G needle, the aspirate was scanty and particulate. Both Papanicolaou and May-Grünwald-Geimsa stained smears were examined. Cytosmears were cellular, comprising of cohesive fragments of spindle cells set in a fibrillary background [Table/Fig-1b,c]. Individual cells were oval to spindle shaped with elongated, slender, vesicular nuclei with ill defined cell border. Based on the above cytological findings a diagnosis of benign spindle cell neoplasm consistent with schwannoma was made. Surgical enucleation was done under general anaesthesia and the lesion was removed in toto [Table/Fig-2a].

The gross specimen received was a well circumscribed greyish white tumour of size 2.5x2x1.8 cm. On cut section it was solid with focal myxoid and haemorrhagic area [Table/Fig-2b]. Histopathological examination revealed a well encapsulated spindle cell tumour with hypercellular and hypocellular areas [Table/Fig-2c]. At cellular areas vague palisading arrangement of spindle cells forming verocay bodies are noted. Dilated and congested vessels



[Table/Fig-1]: (a) Extraoral photograph showing swelling over right check; (b,c) Cytosmears showing cohesive fragments of spindle cells over a fibrillary background with vague palisading arrangement (1b:MGG[400X],1c:Papanicolaou[400x]).



[Table/Fig-2]: (a) Intraoperative photograph; (b) Gross showing well encapsulated tumour with cystic and haemorrhagic area; (c) Histopathology picture showing spindle cell tumour having cellular area with verocay body (thick arrow) and hypocellular area (Antoni B) (thin arrow) (H&E 400X). Inset shows spindle cells are diffusely immunopositive for S-100 (400X).

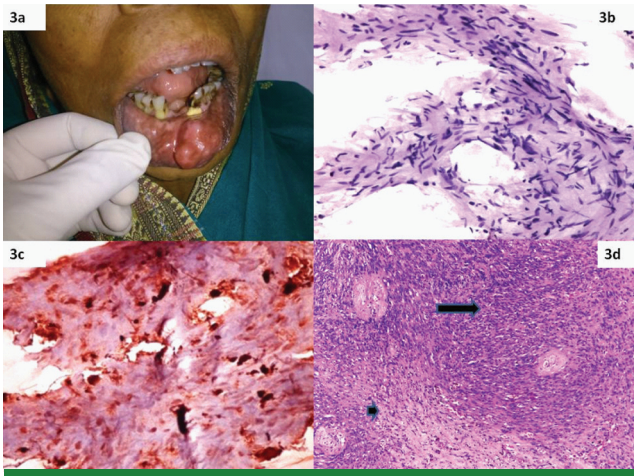
with hyalinised wall and areas of haemorrhage are seen at hypocellular zone. On immunohistochemistry the spindle cells were diffusely immunopositive for S100 [Table/Fig-2c (Inset)]. Thus, the diagnosis of schwannoma was confirmed.

Patient was on regular follow-up for last six months and she is doing well with no clinical evidence of tumour recurrence.

Case-2

A 57-year-old female presented to the Surgery Outpatient Department with chief complaint of swelling in her lower lip for 3 years which was painless. Intraoral examination revealed lesion was submucosal, lobulated, soft to firm in consistency, non-tender measuring 2.5X2.5 cm and the overlying mucosa was normal with mild pigmentary change [Table/Fig-3a]. With a provisional diagnosis of salivary gland lesion, FNAC was advised.

The aspirate was scanty and revealed spindle cells arranged in tissue fragments and discretely. The nuclei were slender with pointed ends and at foci nuclear buckling was noted. The tissue fragments showed foci of nuclear palisading forming verocay bodies [Table/Fig-3b]. There was no nuclear pleomorphism or mitosis. On immunocytochemistry tumour cells were diffusely positive for S100 [Table/Fig-3c]. With this cytological diagnosis of benign spindle cell tumour of nerve sheath origin was made. Enucleation of the tumour was done under local anesthesia. Histopathological examination confirmed the diagnosis of schwannoma [Table/Fig-3d]. Patient did not report for the follow-up.



[Table/Fig-3]: (a) Lower lip swelling; (b) Cytosmear showing slender spindle cells in a fibrillary matrix (PAP,400X); (c) Immunocytochemistry revealing the spindle cells are diffusely immunopositive for S100 (400X); (d) Histopathology of the same, revealing cellular(Antoni A) and paucicellular myxoid (Antoni B) zone. (H & E 100X).

DISCUSSION

Schwannoma is a benign tumour arising from the neural crest derived Schwann cells. It has a very wide anatomic distribution but majority of cases develop in distal extremities or head and neck regions. Though, this neoplasm has a predilection for head and neck region, intraoral lesions are rare [1,2].

The prevalence rate of intraoral schwannoma is approximately 1% and majority of these cases have been reported as case reports or small series [3,4]. Leu and Chang reviewed 52 cases of head and neck schwannoma over a period of eight years and they identified only seven cases with intra oral location [5]. In another study by Wang B et al., out of 46 patients with extra cranial non-vestibular head and neck schwannomas, only one case (2.2%) was detected in the oral cavity [6].

The clinical sign and symptoms vary according to the size and location of the tumour, but the symptoms are usually non specific. Both the cases presented with slowly growing painless swelling without any associated pain. On the basis of intraoral site, other benign lesions like fibroma, lipoma, neurofibroma, mucocele, fibroepithelial lesions and benign salivary gland tumours were differential diagnosis. Preoperative diagnosis of schwannoma is important to preserve the nerve function. For which preoperative investigations like FNAC and radiographic imaging with CT or MRI are usually performed.

The distinctive histopathologic features of schwannoma is dimorphic growth pattern comprising of cellular (Antoni A) and a hypocellular (Antoni B) areas with hyalinised vessels. Verocay bodies are seen in cellular area. But the

cytomorphology of schwannoma depends on which area of the tumour is hit by the needle. When the Antoni A areas are sampled cohesive tissue fragments are commonly seen. Sample from Antoni B area mostly displays dispersed cells and a myxoid background. However, Schwannomas are frequently difficult to characterize on FNAC [7,8]. This is because of the degenerative changes, sparse cellularity and relative absence of recognizable tissue architectural pattern. Ancient schwannoma is another diagnostic pitfall. The degenerative nuclear changes like hyperchromasia, pleomorphism and multinucleation leads to a misdiagnosis of malignancy. However, the neural origin of these spindle cells can be confirmed by the positive staining for S-100 protein in immunocytochemistry. In both the cases, the cytosmears revealed benign spindle cells arranged in tissue fragments and discretely. Foci of nuclear palisading forming Verocay bodies are also noted. In the second case immunocytochemistry was done and confirmed the neural origin of the lesion. Later on histopathology and immunohistochemistry confirmed the diagnosis of Schwannoma in both the cases.

Extensive review of literature did not reveal any case of intra oral schwannoma diagnosed by cytological examination. Here, the role of FNAC and ancillary technique like immunocytochemistry was emphasised in diagnosis of intraoral schwannoma.

CONCLUSION

Intraoral schwannoma is rare and clinically indistinguishable from other benign soft tissue and salivary gland tumours. Though, the final confirmation of diagnosis is made by histopathology and immunohistochemistry, cytology and immunocytochemistry aids a preoperative diagnosis that helps the clinicians to preserve the nerve function during intervention.

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