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CASE REPORT

Spindle cell myoepithelial carcinoma of the oral cavity—A report of two cases

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KEYWORDS

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Summary Myoepithelial carcinomas are not as rare as is generally believed, but they are simply not well recognized. Those arising in the oral cavity and exhibiting pure spindle cell morphology are often difficult to diagnose primarily and are likely to be misinterpreted as other more common spindle cell lesions of the oral cavity. Use of ancillary studies like Electron microscopy (EM) and immunohistochemistry (IHC) is very much essential for confirmation of diagnosis. Here we present two such cases of spindle cell myoepithelial carcinoma, which were initially misinterpreted as nerve sheath tumours after IHC and later presented with multiple recurrences and lymph node metastasis.

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Introduction

Myoepithelial carcinomas displaying the usual plasmacytoid or clear cell morphology can be confidently diagnosed on routine histology itself.^{1–3} On the contrary, pure spindle cell myoepithelial carcinomas arising in the oral cavity are rare and often difficult to diagnose.^{4,5} High index of suspicion is the prerequisite for diagnosis. Ancillary studies like Electron microscopy (EM) and immunohistochemis-

try (IHC) are necessary for confirmation. We present two such cases of spindle cell myoepithelial carcinoma diagnosed after recurrence or lymph node metastasis and discuss their clinicopathological features and behaviour.

Clinical history

Case 1

In January 2000, a 32-year-old male attended the surgical OPD with complaints of difficulty in

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opening the mouth. On examination, a $3 \times 2 \times 1$ cm ulcerative lesion was noted on the right buccal mucosa extending to the upper alveolus, accompanied by palpable right cervical nodes. Wide excision of the buccal mucosa with upper alveolectomy and right modified neck dissection was performed at the same sitting. The tumor was diagnosed as "malignant peripheral nerve sheath tumour" with metastasis to right level II nodes (Fig. 1) on histology, aided by IHC (positivity with S100p and Vimentin, and negativity with Cytokeratin-CK). In February 2001, the patient developed recurrence at the primary site, for which

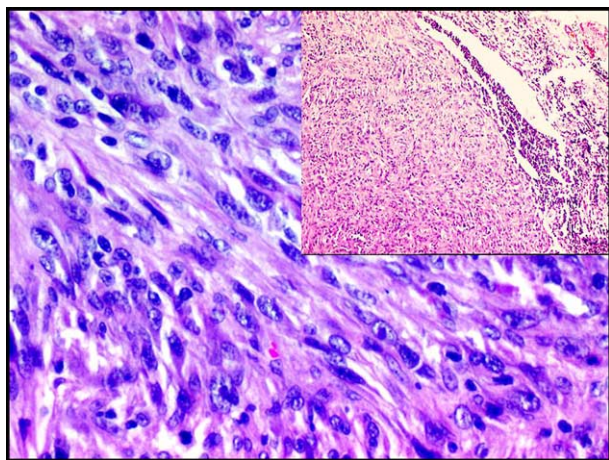


Figure 1 High power magnification of spindle cell myoepithelial carcinoma showing fasciculations (Haematoxylin & Eosin stain, $\times 400$). Inset—Note the metastasis of spindle cell myoepithelial carcinoma in the cervical node (Haematoxylin & Eosin stain $\times 100$).

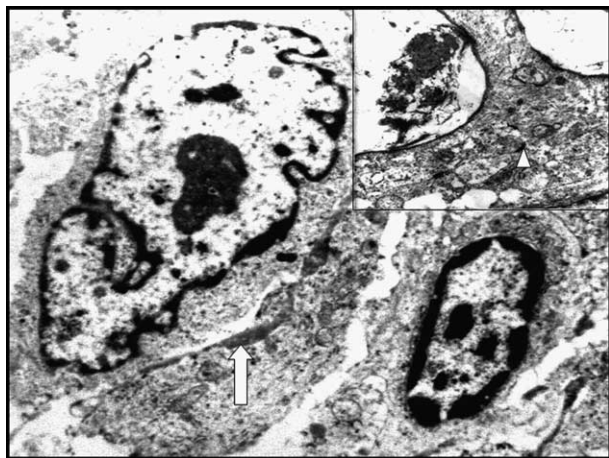


Figure 2 Two spindle shaped tumour cells are situated in close proximity. The larger cell shows continuous basal lamina (arrow) $\times 4000$. Inset—Note the cell junctions (arrow head) between the tumour cells $\times 12000$.

infrastructured maxillectomy was done, followed by radiotherapy. Spindle cell morphology was noted on microscopy. Part of the tissue submitted for EM showed presence of basal lamina, tight junctions, and intermediate and fine filaments (Fig. 2). The diagnosis of "spindle cell myoepithelial carcinoma" was rendered following EM. Finally, the tumor recurred in the right retromolar trigone in January 2002. Biopsy and IHC (Calponin positivity) confirmed the diagnosis, but the patient refused surgery and went to native place.

Case 2

A 45-year-old male patient presented with a $2 \times 1 \times 1$ cm ulcerative palatine tumor. Wide local excision of the tumor was performed, which was diagnosed as "low grade nerve sheath sarcoma" supported by positive immunostaining with S100p and Vimentin. Adjuvant radiotherapy was not offered, as excision had been wide. Six months later, the patient presented with palpable right neck nodes and underwent right radical neck dissection. One of the 16 nodes showed metastases of spindle cell tumour. At this stage, the slides were reviewed. A diagnosis of spindle cell myoepithelial carcinoma was suspected and the paraffin blocks were submitted for IHC. IHC revealed strong positivity for Vimentin, S100p, Calponin (Fig. 3), CD10, and Smooth Muscle Actin (SMA) with focal positivity for CK and CK7. The tumor cells were negative for HMB 45, Epithelial Membrane Antigen (EMA) and Ckit (CD117). Proliferation markers like MIB-1 and p53 were also negative. Finally a review diagnosis of "Spindle cell myoepithelial carcinoma" was offered. Patient is

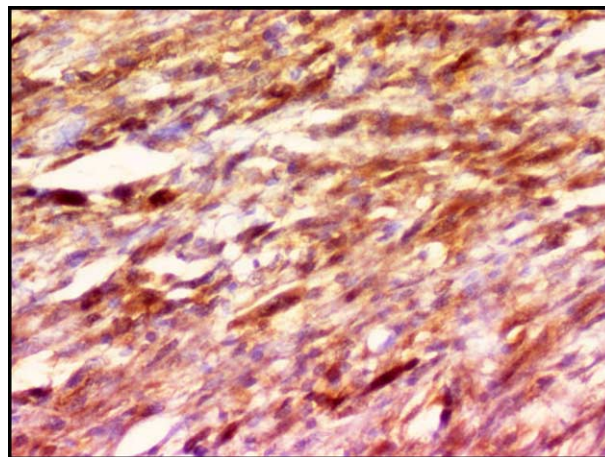


Figure 3 Strong immunoreactivity of the spindle shaped tumor cells to Calponin (Dako immunostain, $\times 100$).

followed up for two years without any recurrence or distant metastasis.

Discussion

Spindle cell myoepithelial carcinomas of the oral cavity are very rare primary salivary gland tumors and have remained under diagnosed until recently, essentially due to lack of awareness of such an entity and also due to varied immunoreactivity in spindle cell variant. The common sites of occurrence in the oral cavity are the tongue, buccal mucosa, palate, mandible, lip, etc.⁴⁻⁶ As these tumors are misinterpreted on biopsy, largely as "Benign mesenchymal tumours", they are usually treated with inadequate surgical excision without lymphadenectomy, leading to high chances of recurrence and lymph node metastasis subsequent to recurrence.^{4,6,7} Similar findings were observed in both cases.

Spindle cell myoepithelial carcinomas need to be differentiated from other spindle cell lesions of the oral cavity like sarcomatoid squamous carcinoma, melanoma, nerve sheath sarcoma, etc. and this necessitates the help of ancillary investigations like IHC and EM.^{2,6} In presence of lymph node metastasis, these tumors need to be distinguished from the more common sarcomatoid squamous carcinoma, which usually presents as a polypoidal mass on the tongue, palate, lip and larynx. On microscopy, the tumor cells show extensive spindling with marked nuclear atypia, mitosis and necrosis. The overlying epithelium usually shows an in situ squamous carcinoma component, close to which some squamous differentiation may be seen.

On the contrary, spindle cell myoepithelial carcinoma presents as an ulcerative lesion with a fasciculated arrangement of monotonous spindly cells without nuclear atypia. There is usually a myxohyaline stromal background, which offers an important diagnostic clue. Lack of in situ squamous carcinoma or in situ melanoma component aids further in diagnosis. On EM, sarcomatoid squamous carcinoma reveals presence of desmosomes and tonofilaments. Whereas, myoepithelial carcinoma is characterized by presence of basal lamina, intermediate filaments, fine actin filaments and cell junctions. The tumor cells show strong positivity for myoepithelial markers like S100p, Calponin, SMA, Vimentin, CD10 and p63, with focal positivity for CK. CK and S100p are usually positive in benign myoepithelioma and differentiated myoepithelial carcinoma. It is observed that in spindle cell vari-

ant, S100p and CK positivity is seen variably. In fact, expression of both can be totally absent leading to misinterpretation as mesenchymal tumor. In such a situation, Calponin and p63 positivity supports the diagnosis of myoepithelial carcinoma. Sarcomatoid squamous carcinoma cells are strictly negative for myoepithelial markers except Vimentin and frequently positive for CK.

Spindle cell myoepithelial carcinomas with whorled pattern show immunoreactivity for S100p and Vimentin.⁷ Such positivity is also noted in spindle cell melanoma and nerve sheath sarcoma. However, Spindle cell melanoma is characterized by pleomorphic tumour cells, multinucleated cells, nuclear hyperchromasia, prominent nucleoli and high mitotic activity, features rarely encountered in myoepithelial carcinoma. In situ melanoma and intracytoplasmic pigment offer diagnostic clues. Strong immunoreactivity for HMB 45 and S100p clinches the diagnosis.

Nerve sheath sarcoma shows fasciculated arrangement of the tumor cells with alternate hypocellular and hypercellular areas. Serpentine nuclei point towards the diagnosis. The tumor cells are positive for S100p and Vimentin, but lack immunoreactivity for Calponin, CK and SMA. EM reveals absence of cell junctions and fine filaments. Nerve sheath sarcomas do not have propensity to metastasize to lymph nodes like myoepithelial carcinomas.

Both cases showed strong immunoreactivity for Vimentin and Calponin whereas S100p, SMA, CD 10 and CK were variably positive. Therefore high index of suspicion followed by a number of IHC markers is necessary for diagnosis of spindle cell myoepithelial carcinoma. These are otherwise misdiagnosed either as sarcomatoid carcinoma or as amelanotic melanoma/nerve sheath sarcoma with S100p and Vimentin positivity. Calponin appeared to be the most sensitive marker for neoplastic myoepithelial cells especially of spindle cell morphology.⁸

In our hospital, which is a tertiary referral cancer centre, a total of 28 myoepithelial carcinomas of salivary gland were reviewed over a 14 years' period (1991–2004). Of these, 18 cases were of minor salivary gland origin. Sixteen of these 18 cases showed clear cell, epithelioid or plasmacytoid morphology without nodal metastasis. In contrast, both cases of pure spindle cell myoepithelial carcinoma of minor salivary gland metastasized, pointing towards aggressive behaviour. Similar findings were noted by Nago et al. in their series of 10 cases, where two of their spindle cell myoepithelial carcinomas showed bad prognosis.⁶

Finally to conclude, spindle cell variant of myoepithelial carcinoma of the oral cavity is a rare

entity. High index of suspicion and ancillary investigations like immunohistochemistry and electron microscopy play a major role in the accurate diagnosis. Spindly tumour cells may stain negative with CK and S100p and hence likely to be misinterpreted. Calponin is a useful marker in clinching the diagnosis. Accurate diagnosis enables surgeon to address the nodes.^{3,5,6} Spindle cell morphology may possibly indicate an aggressive behaviour of the tumour with propensity for nodal metastasis. Further studies are necessary to support the hypothesis, as the number of cases is too small.

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