CASE REPORT

Myoepithelial carcinoma of the parotid gland

A Kalogeraki MD, PhD, P Korkolopoulou* MD, PhD, DTamilakakis MD, PhD, CE Papadakis** MD, PhD, C Sepsa* MD, E Lagoudaki MD and E Patsouris* MD, PhD

Department of Pathology-Cytopathology, University of Crete, Faculty of Medicine, Heraklion, Crete, Greece. *Department of Pathology, University of Athens, Medical School, Athens, Greece and **Ear-Nose-Throat Department, General Hospital of Chania, Crete, Greece.

Abstract

Myoepithelial carcinomas exhibit a wide spectrum of cytomorphologic features and diverse clinical outcomes. As a result of their morphologic heterogeneity, they can be confused easily with many tumours. Herein we report the morphological features of myoepithelial carcinoma in a 74-year-old female clinically presenting with a parotid mass. FNAB revealed hypercellular, three-dimensional clusters with considerable overlapping and crowding of pleomorphic neoplastic cells which consisted predominantly of spindle cells, with oval to elongated to spindle shaped nuclei showing considerable variation in size. The excised tumour was solid, with cells arranged in trabeculae, nests and cords. Tumour cells were mixed epithelioid and spindle with eosinophilic or clear cytoplasm, with eccentric nuclei and prominent nuclei. Neoplastic cells were found in blood vessels, in the skin and facial nerve. Tumour cells were immunopositive for PAS, PAS-D, S-100 protein, GFAP, P63, CK5/CK6, CK7, and CK14. This case illustrates that cytological features in FNAB generally reflect the histology. FNAB was able to confirm the diagnosis and guide patient management.

Key words: Salivary gland tumours, myoepithelial carcinoma, FNAC, cytology, immunocytohistochemistry

INTRODUCTION

There is limited data on the cytomorphological profile of myoepithelial carcinoma arising in the parotid gland, due to the lack of large case series. FNAC is an easily accessible, cost and time effective method for diagnosis. An understanding of the combined cytological and immunocytochemical features of this tumor is valuable in differentiating it from other primary neoplasms arising in the parotid.

CASE REPORT

A 74-year-old female presented at hospital, having a 4.7cm painless solid mass in the right parotid gland. Physical examination showed signs of invasion of the facial region (skin and facial nerve). Radiographic examination of the facial bones did not reveal signs of bony invasion. No distant metastasis was found. A CT guided FNAB was performed using a 21-gauge needle. The cytological diagnosis was of a myoepithelial carcinoma (MCA) of the parotid gland. The neoplasm was then surgically resected and cervical lymph node dissection was performed. The patient underwent postoperative radiotherapy and is without evidence of disease after 32 months.

Cytology

Alcohol-fixed and air dried smears from the FNAB were stained with Papanicolaou and Giemsa stains, respectively. Immunostaining for S-100 protein and GFAP were preformed in air dried aspirate smears.

Cytological examination revealed hypercellularity, three-dimensional clusters with considerable overlapping and crowding of neoplastic cells (Fig.1), pleomorphism of tumour cells which consisted predominantly of spindle cells, oval to elongated to spindle shaped nuclei with considerable variation in size. The chromatin was coarsely granular and nucleoli were evident. Neoplastic cells were found to be weakly positive for S-100 protein and GFAP.
Histopathology
A right superficial parotidectomy was performed. The resection consisted of a well-circumscribed tumour weighing 72 gr and measuring 5.2 cm in maximum diameter. The neoplasm was largely surrounded by a thin fibrous capsule, but in some areas small foci of tumour were seen outside the capsule. Tumour was present at the surgical resection margins. Cervical lymph nodes were tumour free.

Histopathological examination showed the tumour to be solid, with cells arranged in trabeculae, nests and cords (Fig. 2). Tumour cells were mixed epithelioid and spindle with eosinophilic or clear cytoplasm, with eccentric nuclei and prominent nuclei. Neoplastic cells were found in blood vessels, in the skin and facial nerve. Tumour cells were immune positive for PAS, PAS-D, S-100 protein, GFAP, P63, CK5/CK6, CK7, and CK14 (Fig. 3).

DISCUSSION
Myoepithelial carcinomas have been underrecognized in the past, primarily by being lumped under a broader category of “malignant mixed tumour.” Awareness of their unique cytoarchitectural patterns and immunohistochemical profile is crucial for accurate identification. Myoepithelial carcinoma (MCA), also known as malignant myoepithelioma, is a rare focally aggressive primary salivary gland neoplasm, accounting for less than 1% of all salivary gland tumours. About 60% to 70% of MCA develop in a benign mixed tumor. It was first described by Stroymer et al. in 1975, and was included in the World Health Organization (WHO) classification of salivary gland neoplasms as a distinct clinicopathological entity in 1991. This malignant tumor is composed almost exclusively of neoplastic cells with myoepithelial

FIG. 1: Aspirate smear. Three-dimensional clusters with considerable overlapping and crowding of neoplastic cells. a: PAP stain X 200, b: PAP stain X 400

FIG. 2: Histology. The tumour exhibited a solid architecture with cells arranged in trabeculae, nests and cords. a & b: H/E stain X 200.
FIG. 3: Immunohistochemistry show the tumour to be positive for p63, CK 5/6, S-100 protein, CK14, GFAP, CK7. IHC X 200.

differentiation and characterized by infiltrative growth and potential for distant metastasis. The mean age of presentation is about 55 years and the sex incidence is approximately equal. The tumour usually appears as an asymptomatic mass that slowly increases in size. Histologically, myoepithelial carcinomas are composed of one or several cell types: spindle, plasmacytoid, epithelioid, and clear cells. Frequently, one of the cell types predominates. The neoplastic cells grow either as multiple nodules or as large solid sheets separated by variable amounts of intervening hyaline or myxoid stroma. The cytological features in FNABs generally reflect the histology. The cytological smear can show spindle, epithelioid, or plasmacytoid cells. Scant fragments of metachromatic stroma intermixed with the neoplastic cells might
be observed in the cytological specimens of malignant myoepithelioma, regardless of the composition of the cell types.

In this case, the FNAB was a useful diagnostic tool for the evaluation of the tumour. We report this case to illustrate that FNAB can confirm the malignant nature of this rare neoplasm and guide patient management.

REFERENCES