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CASE REPORT

Fine Needle Aspiration Cytology for Diagnosis of Malignant Acinic Cell Carcinoma of the Parotid Gland: A Case Report

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ABSTRACT

Fine needle aspiration cytology (FNAC) is an essential tool for diagnosing salivary gland tumors. Here we present a case involving a 45-year-old woman with an eight-year history of a slowly growing, painless swelling in her right parotid gland. FNAC showed clusters of polygonal cells with vacuolated cytoplasm, round nuclei, and prominent nucleoli in a bromuscular background, suggestive of acinic cell carcinoma (ACC). Surgical excision and histopathological analysis firm the diagnosis. This case highlights FNAC's crucial role in the early detection and diagnosis of rare salivary gland malignancies.

KEYWORDS

• FNAC • Acinic cell carcinoma • Histopathology • Parotid gland

INTRODUCTION

Fine needle aspiration cytology (FNAC) is commonly used for initial diagnosis of salivary gland lesions due to its ease, safety, and rapid results. Salivary gland tumors constitute approximately 3% of all head and neck cancers.[1] Acinic cell carcinoma (ACC) is a rare malignant tumor accounting for about 2% of salivary gland cancers, predominantly arising in the parotid gland.[2] ACC usually affects middle-aged women, presenting as a slowly enlarging, painless mass.[3]

Cytologically, ACC closely resembles normal salivary serous acinar cells, characterized by abundant granular cytoplasm and positivity for Periodic Acid-Schiff (PAS) and amylase stains[4]. However, distinguishing ACC from benign salivary gland tumors like pleomorphic adenomas and oncocytomas using FNAC alone can be challenging, necessitating further

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histopathological and immunohistochemical analysis[5].

CASE REPORT

A 45-year-old woman presented with an eight-year history of a slowly enlarging, painless swelling in her right parotid gland. Physical examination revealed a firm, mobile, non-tender mass measuring approximately 4 cm × 4 cm without facial nerve involvement or lymph node enlargement. The patient had no other relevant medical or family history.

An ultrasound showed a well-dened hypoechoic lesion in the right parotid gland. FNAC performed with a 22-gauge needle revealed moderate to high cellularity. Cytological examination demonstrated cohesive clusters of polygonal cells with abundant granular cytoplasm, round to oval nuclei, nely dispersed chromatin, and prominent nucleoli. A background of bromuscular stroma was present, leading to a provisional diagnosis of ACC.

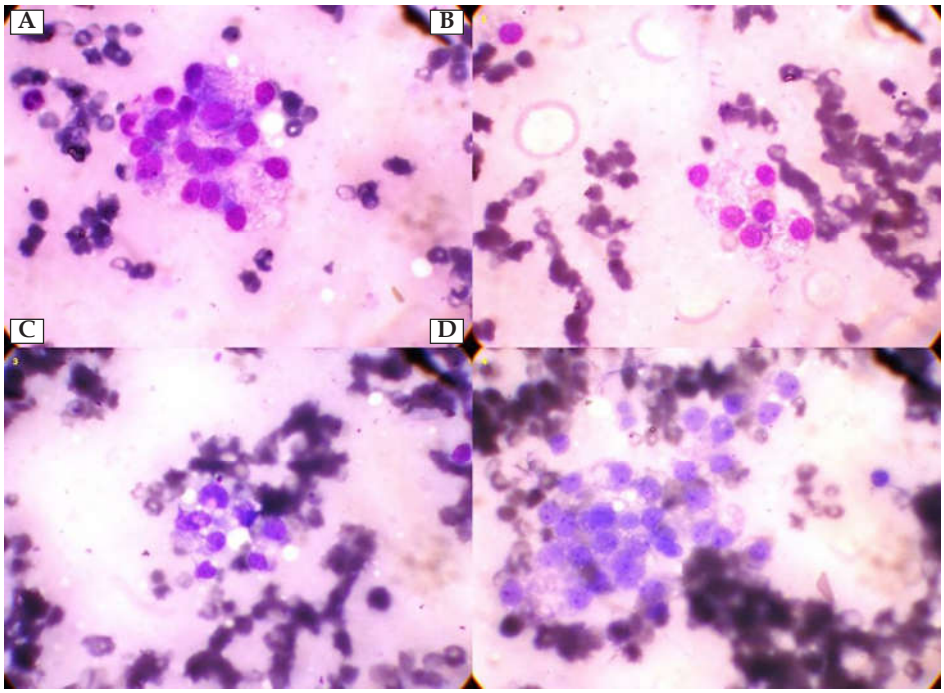
Computed tomography (CT) imaging firm a well-circumscribed, homogeneous, enhancing lesion without signs of invasion. The mass was surgically excised under general anesthesia, preserving the facial nerve.

Histopathological evaluation firm ACC, characterized by serous acinar cells with cytoplasmic zymogen granules arranged primarily in a solid pattern. No significant mitotic activity or necrosis was observed. Surgical margins were negative, and immunohistochemical stains were positive for DOG1 and SOX10, further firm the diagnosis.

The patient had an uneventful postoperative recovery and was advised to undergo regular follow-up visits every six months, with annual imaging to monitor for recurrence or metastasis.

DISCUSSION

ACC is diagnostically challenging due to its slow growth and firm presentation, often resulting in delayed diagnosis. FNAC remains a valuable first-line diagnostic tool for salivary gland lesions, though its effectiveness can be limited by overlapping cytological features with benign tumors[6]. Accurate diagnosis of ACC through FNAC alone can be difcult, making correlation with clinical findings and imaging essential[7].



A. A cohesive cluster of polygonal cells with abundant granular cytoplasm and round to oval nuclei. The background is clean, with minimal inflammation, **B.** Smaller cluster of tumor cells showing granular basophilic cytoplasm and round nuclei with bland chromatin, **C.** Loosely cohesive clusters and scattered cells with moderate pleomorphism and prominent nucleoli, in a proteinaceous background, **D.** Large cell cluster with eccentrically placed nuclei and prominent cytoplasmic granularity, consistent with acinar differentiation.

Histologically, ACC can exhibit various patterns, including solid, microcystic, follicular, and papillary cystic forms[8]. Immunohistochemical markers such as DOG1 and SOX10 help differentiate ACC from similar tumors, enhancing diagnostic precision.[9]

Surgical resection with clear margins is the mainstay treatment, emphasizing preservation of facial nerve function. Prognosis is generally favorable, with five-year survival rates above 90%, although long-term follow-up is recommended due to possible late recurrence or metastasis.[10]

CONCLUSION

FNAC is crucial for the initial evaluation of parotid gland lesions, including rare tumors like ACC. Despite cytological challenges, FNAC greatly aids early diagnosis and treatment planning. Definitive diagnosis relies on histopathological and immunohistochemical examinations, underscoring their importance in comprehensive patient care.

Conflict of Interest

The authors declare no conflicts of interest relevant to this case report.

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