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Cytodiagnosis of Mucoepidermoid Carcinoma- A Rare Presentation.

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Abstract

Mucoepidermoid carcinoma (MEC) is the most common malignant tumour of major and minor salivary glands. It is very difficult to diagnose mucoepidermoid carcinoma in aspiration cytology because it has overlapping cytological features of benign salivary condition. This case of 7years duration thought to be benign because it was well circumscribed, mobile, nontender but showed features of malignancy on fine needle aspiration cytology and was confirmed on biopsy as mucoepidermoid carcinoma.

Key words: Mucoepidermoid carcinoma, Fine needle aspiration cytology, salivary glands.

Introduction

Fine needle aspiration (FNA) is safe, effective and is valuable tool to preoperatively diagnose the lesional tissue and to determine the extent of surgical resection. Some studies demonstrated that overall Sensitivity, specificity and accuracy is 92%, 100%, 98% respectively [1] however diagnosis of mass lesions by FNAC remain controversial [2]. Overlapping architectural patterns and nuclear cytology leads to challenges on cytological examination [3]. Mucoepidermoid carcinoma (MEC) is most common Malignancy of salivary gland neoplasm accounting for 5-10% of all salivary gland neoplasms and majority cases occur in parotid gland [4]. It is most commonly seen in 20-40 years of age group. There is no gender predilection. Patient presents as preauricular painless mass which may be firm to hard in consistency and grossly it is not encapsulated.

Case report

A 38 year old male patient presented with swelling in right preauricular region for last 7years. Patient was a smoker and tobacco chewer for 15years. The swelling was gradually increasing in size.

On examination: Swelling of size 2x2 cm, firm, freely mobile, nontender in parotid region, not attached to skin, overlying skin was normal.

Clinical diagnosis was kept as pleomorphic adenoma due to well circumscribed, mobile mass and history of long duration.

USG showed well circumscribed encapsulated mass showing solid and cystic areas.

USG diagnosis was: 1) Lymph node abscess

2) Necrotic lymph node.

Investigation: CBC was done.

TLC-12000/cu.mm, DLC-Neutrophils (76%)

Lymphocytes (20%)

Eosinophil (2%)

Monocytes (2%)

FNAC: Aspirated blood tinged gelatinous material mixed with pus. FNAC revealed cellular smears which were in clusters and as singly scattered cells. Clusters of polygonal cells having moderate amount of cytoplasm and round to oval nuclei. Few cells had round to oval nuclei with irregular nuclear membrane. At places acinar arrangement was seen. Few cells with squamoid appearance were seen. Few cells show mild to moderate nuclear enlargement with or without prominent nucleoli. Binucleation was also present. Occasional bizarre nuclei were seen. Few cells had abundant cytoplasm and eccentric nuclei. Degenerative changes were seen in some cells. Small fibrous stromal fragments were seen. Background contained red blood cells and focally necrotic material. Classical fibromyxoid stroma was not seen.[Figure1,2,3] Cytological diagnosis was suspicious of low grade mucoepidermoid carcinoma, but clinical diagnosis was not correlating with cytology so excisional biopsy was advised to rule out malignant change.

Histopathological examination revealed circumscribed tumour composed of cysts lined by multi-layered to thinned out epithelium. The cells were round to polygonal with oval vesicular nuclei. Lumen of the cystic space contains proteinaceous material. Many nests of squamous cells also seen. Occasional small cystic space contains mucoid material. Surrounding area shows normal salivary gland, lymphocytic inflammatory infiltrate, lymphoid collections and focal areas of necrosis seen. There was no evidence of neural invasion, anaplasia, or increased mitotic activity. [Figure 4] The surgical margins were free from tumor. Histopathology confirmed the diagnosis as low grade mucoepidermoid carcinoma.

Discussion

FNAC is capable of providing important information to the physician as it is widely used, safe and less traumatic procedure. FNAC helps to determine whether the lesion is inflammatory, benign, or malignant. Although the treatment for neoplastic salivary gland is surgical excision, the extent of surgical excision is determined by preoperative diagnosis whether it is benign or malignant disease [5]. MEC can be graded into three types as low or well differentiated (tumour exhibiting greater than 50% of mucous elements), intermediate grade (10–50% of mucous elements) and high grade (less than 10% of mucous elements). Mucoepidermoid carcinoma is the second most common malignancy of salivary gland [6]. Mucoepidermoid carcinoma is most diagnostic when three types of cells are seen: intermediate, mucus producing and squamous cells which are present in varying amounts[7] Zajicek et al reported that when all the three cellular components are present there is diagnostic accuracy of 37%[8]. Pitts et al[9] studied diagnostic accuracy of 50% for MEC in his study. In the present case there were mucus cells, intermediate cells, and squamous cells seen. As there is multiple histological components and heterogeneous cells which gives rise to challenge in the diagnosis of low grade MEC. To know whether there is involvement of margins or not is important as there are lot chances of recurrence in mucoepidermoid carcinoma [10]. In this study margins were free. There are chances of misdiagnosis of mucoepidermoid carcinoma with pleomorphic adenoma due to overlapping features and if mucinous metaplasia is present. Also epithelial mucin can be confused be myxoid ground substance. The presence of chondromyxoid stroma will help to distinguish both. Mucoepidermoid carcinoma is the most difficult to diagnose on aspiration cytology as compared to all salivary gland tumors[11].Kotwal et al[12] observed that ¾ lesions were confused with pleomorphic adenoma. Other

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than pleomorphic adenoma the differential diagnosis could be squamous cell carcinoma, both primaries as well as metastatic carcinoma. The high grade poorly differentiated MEC can be confused with poorly differentiated squamous cell carcinoma. MEC can also be confused with benign cystic lesions if the tumour is cystic and thick mucus is aspirated with paucicellular smear [13].

Grading of MEC is based on three things: [14]

1. Proportion of solid and cystic components.
2. Proportion of various cell types like mucin secreting, intermediate and squamous cells.
3. Presence and degree of cytomorphological atypia

Conclusions

Even in circumscribed, mobile lesions of very long duration, we should extensively search for malignant cells to rule out diagnosis of low grade malignancy. The cytological diagnosis of low grade MEC is challenging due to overlapping feature seen in other salivary gland lesions. Presence of extracellular mucin, mucous cells, and intermediate cells gives the direction for diagnosis of MEC and to rule out other diagnosis.

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List of Figures:

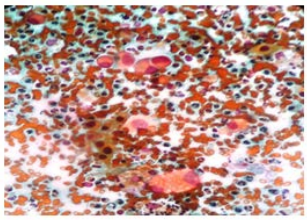


Figure.1: Clusters of squamous cells, few mucinous cells and plenty of neutrophils,(PAP, X400)

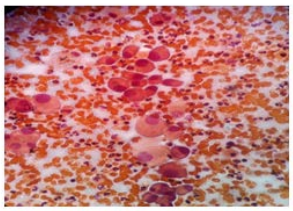
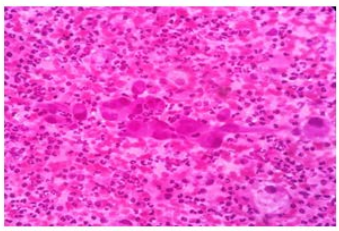


Figure 2: Columnar and intermediate cells are seen (PAP, X400)



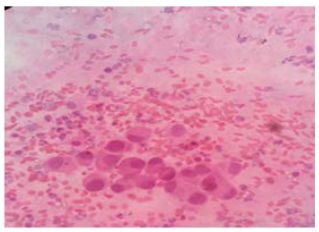


Figure.3: Columnar and intermediate cells are seen. (HandE, X400)

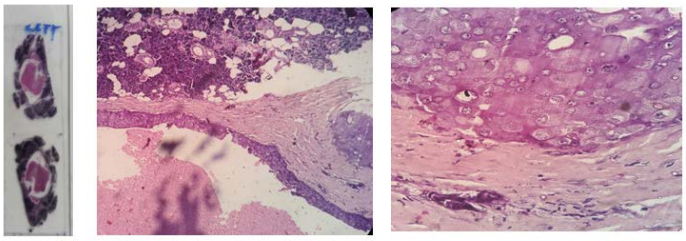


Figure.4-HP: Solid and Cystic tumor mass showing features of mucoepidermoid carcinoma (H&E)

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