CASE REPORT

CYTOLOGICAL DIAGNOSIS OF MUCOEPIDERMOID CARCINOMA OF PAROTID – A DIAGNOSTIC DILEMMA

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ABSTRACT
Mucoepidermoid carcinoma (MEC) of parotid, a rare disease, was diagnosed by fine needle aspiration in a young child and later confirmed on histopathology. Of all salivary gland tumors, mucoepidermoid carcinoma is the most difficult to diagnose by fine needle aspiration cytology due to overlapping cytomorphology with benign lesions. So, fine needle aspiration cytology helps in early diagnosis and management.

KEY-WORDS: Mucoepidermoid Carcinoma (MEC); Cytological Diagnosis ; Fine Needle Aspiration; Parotid Gland

Introduction

Fine needle aspiration (FNA) is a valuable tool to pre-operatively diagnose various salivary gland lesions, determine the need for surgical intervention and assist in planning the appropriate surgical approach prior to resection.[1]

Mucoepidermoid carcinoma (MEC) is the second most common tumor of the parotid gland in the pediatric age group after pleomorphic adenoma.[2]

Of all salivary gland tumors, mucoepidermoid carcinoma is probably the most difficult to accurately diagnose by aspiration cytology.[3] At times the diagnosis of MEC (mainly low-grade tumors by FNA) can be difficult due to overlapping cytomorphology with benign lesions.[4]

Case Report

A 15 year male child came with complaints of swelling in his left pre-auricular region that had gradually increased in size over five months. It was associated with pain and tenderness. On examination, the swelling was found to be ill-defined, ulcerated, firm, tender, and measuring 12x8cms in the left parotid region (Figure-1). Fine needle aspiration cytology (FNAC) was performed. The aspirate was stringy and mucoid. Light microscopy showed all the three cell types i.e., intermediate, mucus-producing, and squamous cells with necrotic background (Figure-2,3,4). Based on above features a diagnosis of mucoepidermoid carcinoma was given on FNAC. Later excision biopsy was done and was confirmed as low grade mucoepidermoid carcinoma (Figure-5).

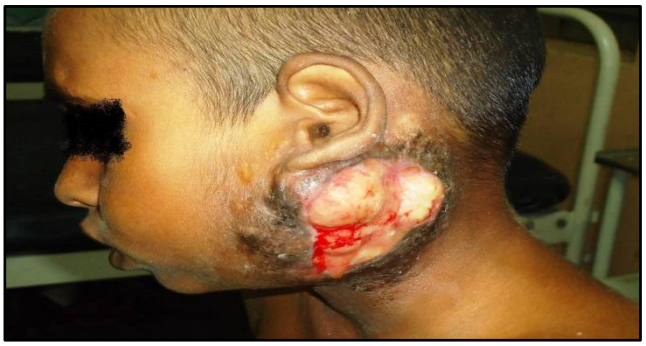

Figure-1: Clinical Photograph showing Pre-Auricular Mass with Ulceration

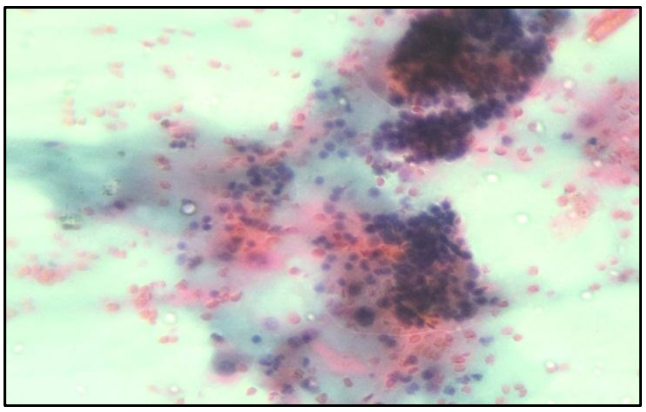

Figure-2: Photomicrograph showing Extracellular Mucin, Squamous Cells & Intermediate Cells. (Pap 4x)

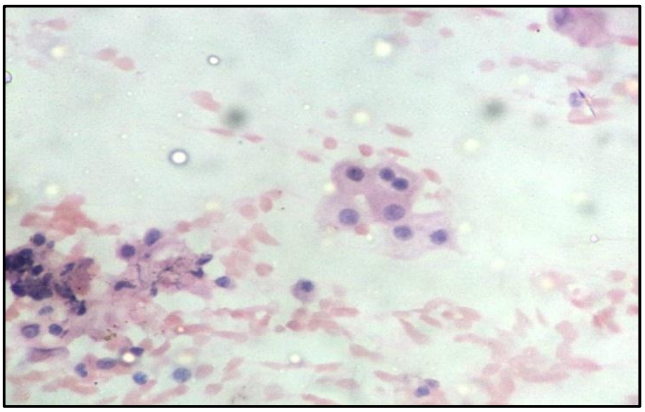

Figure-3: Photomicrograph shows Squamous Cells. (H&E, 10x)

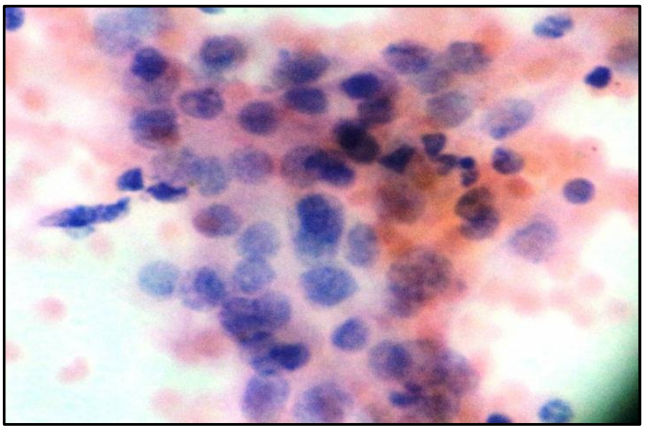

Figure-4: Photomicrograph showing Intermediate Cells. (H&E 40x)

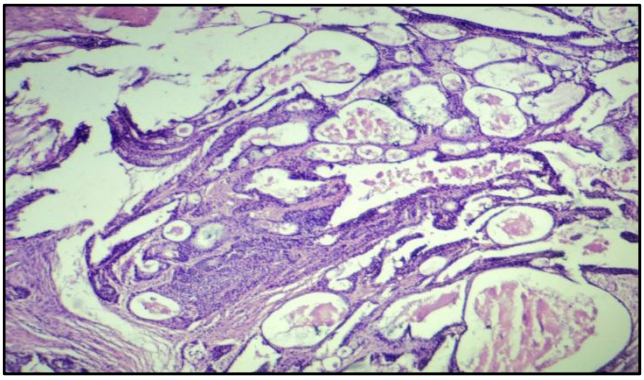

Figure-5: Photomicrograph of histopathology slide showing tumour tissue comprised of cystic component with extra cellular mucin, squamous cells & intermediate cells. (H&E 4x)

Discussion

Mucoepidermoid carcinoma (MEC) is the second most common malignant salivary gland tumor.[1] Identification of three types of cells: intermediate, mucus-producing and squamous cells in the smear is most predictive of mucoepidermoid carcinoma.[2] It is usually composed of varying amounts of epidermoid (squamoid) cells, intermediate cells, and mucocytes (often seen lining the microcysts).[5]

Zajicek et al. reported a diagnostic accuracy of 37% when all the 3 cellular components (epidermoid cells, intermediate cells and mucous cells) were present.[6] In the present case, the morphologic features seen in both the cytologic and histologic specimens of MEC were mucus cells (pseudo-goblet cells), extracellular mucin, intermediate cells and squamous/epidermoid cells.

The diagnosis of low-grade MEC by FNA can be challenging due to spatial heterogeneity and multiple histologic components. Therefore, adequate sampling of various components within the tumor is essential to arrive at correct diagnosis. To know the involvement of margins by tumor cells is very important, since mucoepidermoid carcinoma are prone for recurrence.[2] In the present case margins were not involved.

Mucoepidermoid carcinoma and pleomorphic adenoma need to be differentiated as it is a recognized pitfall. Kotwal et al[7] observed the same in his case series in which 3/4 lesions were misdiagnosed as PA. Sometimes the intermediate cell population of mucoepidermoid carcinoma were closely resembled the basal or myoepithelial cells of pleomorphic adenoma. On the other hand occasional squamous or mucinous differentiation is also seen in pleomorphic adenoma but myxochondroid stroma is usually not seen in mucoepidermoid carcinoma. For mucoepidermoid carcinoma detection of intracellular mucin is the key feature. Romanowsky stain could help in the recognition of stroma and some special stain like PAS-D and mucicarmine would definitely help for detection of intracellular mucin.[7]

The high grade, poorly differentiated tumours may be difficult to recognize as MECs and they may be misdiagnosed as poorly differentiated squamous cell carcinomas. When the tumour is cystic and the aspiration yields only mucous material, a diagnosis of MEC may be missed.[6]

Conclusion

Whenever extracellular mucin is seen, it may be quite rewarding if a careful search for intermediate cells, squamous cells and mucus-

producing cells is done, which are diagnostic of MEC.

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