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Adenoid Cystic Carcinoma Mimicking Pleomorphic Adenoma on Cytology – A Case Report

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Abstract

Fine needle aspiration cytology (FNAC) is most commonly used investigation for evaluation of salivary gland lesions. However, the cytological features may overlap so one salivary gland lesions may mimic other. Pleomorphic adenoma is the most common lesion that is confused with other lesion. We report an interesting case which was given diagnosis of pleomorphic adenoma on cytology and came out to be adenoid cystic on histopathology.

Keywords: Pleomorphic adenoma, Adenoid Cystic Carcinoma, Cytology

Introduction

Fine needle aspiration cytology (FNAC) is commonly being used modality for the pre-operative diagnostic work-up of salivary gland lesions. It has certain pitfalls. There is morphological overlap of one salivary gland neoplasm with other salivary gland neoplasm. PA is the most common salivary gland neoplasm, it should always be considered and ruled out as the first differential in the diagnosis of salivary gland on cytology^[1]. But there is variations in the expected cytology of pleomorphic adenoma which makes the diagnosis difficult. So it should be used in conjunction with histopathology to reach the final diagnosis. The most common problem encountered is during interpretation of suspected pleomorphic adenoma cases. We reported a case which highlights the dilemmas while reporting pleomorphic adenoma.

Case

A 50 year female presented to ENT opd with complain of right preauricular painful swelling since 10 years. The swelling was peanut size initially but was progressively increasing and attained the presenting size. On examination, swelling was firm, tender and measured 3x2.5cm in size. CT revealed bulky parotid with heterogenous lobulated mass measuring 1.8x1.0cm with multiple foci of calcification. Radiological features were suggestive of pleomorphic adenoma. FNA was performed now, which showed cohesive clusters of ductal cells and fragments of myxoid stroma with a fine fibrillar structure (Figure 1a & 1b). Metachromatic stroma interdigitating intimately with plasmacytoid cells and occasional small tumor cells with uniform nuclei with scanty cytoplasm embedded in eosinophilic fibrillary material noted. At places, these cells were arranged around small hyaline. A cytodiagnosis of PA was made based on the above findings. Histologic examination revealed tumor showing epithelial and myoepithelial elements. At one place, close association of epithelial element showing ductal differentiation with cartilaginous tissue was also seen. But, some areas showing cribriform arrangement of small tumor cells was also evident (Figure 1c). A careful search revealed neural invasion in one area. Hence, a final histodiagnosis of Adenoid Cystic Carcinoma (ACC) was rendered.

Discussion

Differentiation of heterogenous tumor PA, from malignant lesions like ACC become difficult on clinical, radiological and cytological grounds.alone. So FNAC should be used in combination with other investigations like biopsy. On cytology, pleomorphic adenomas are show various combinations of three elements: ductal cells, chondromyxoid matrix and myoepithelial cells. Hence making the diagnosis difficult. The chondromyxoid matrix is a

more specific and diagnostically helpful feature [2] but still sometimes confusion arises.

PA is commonly confused with Adenoid cystic carcinoma, because both PA and ACC can grow in a cylindromatous or cribriform pattern, complete with hyaline globule formation [3]. The differentiation of PA from ACC is especially critical because there is significant differences in management. Superficial parotidectomy is surgery of choice [4] whereas for ACC, a total or radical excision of the gland is usually performed, often with sacrifice of the facial nerve [5].

Careful identification of plasmacytoid myoepithelial cells is the most helpful cytomorphologic feature for distinguishing PA from parotid malignancies, especially ACC [4] because in ACC round basaloid cells will be seen as compared to plasmacytoid cells with moderate cytoplasm along with hyaline globules. Besides this, non-specific collagenous stroma of many lesions is thought to represent mixed tumor matrix.

Thus, the cytologic identification of ACC rests on adequate sampling and careful inspection of all material to rule out the possibility of ACC [6]. In summary, FNAC is a fairly accurate pre-operative procedure for the diagnosis of pleomorphic adenomas. Some diagnostic problems do occur in differentiating PA from ACC. As PA is the most common salivary gland neoplasm, it should always be considered and ruled out as the first differential in the diagnosis of salivary gland FNACs. Complexity and variability of this neoplasm emphasizes the need to base definitive cytologic diagnosis on as many criteria as possible. Therefore, in order to avoid diagnostic pitfalls, we emphasize a diagnostic approach based on the mandatory presence of all three of the following elements of PA before signing out the report: 3 - dimensional cohesive clusters of ductal cells, background of singly lying plasmacytoid myoepithelial cells and dense fibrillary brightly metachromatic stroma with partially obscured entrapped myoepithelial cells.

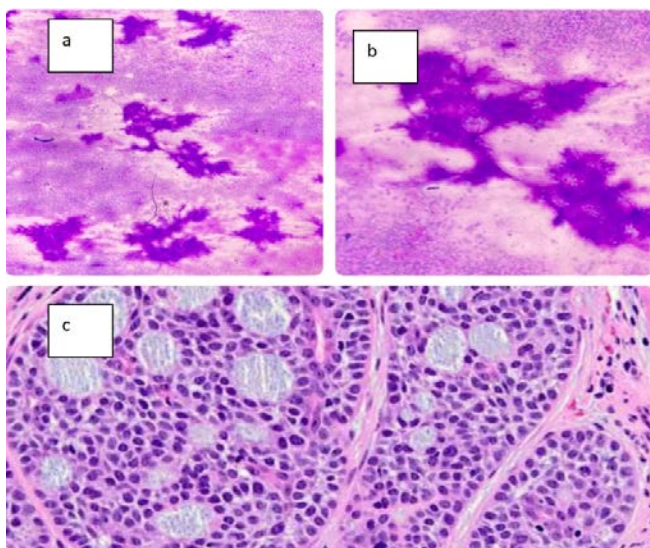


Fig 1 a) & b): Cells in abundant chondromyxoid stroma (10X; MGG). **Fig. 1c:** Tumor cells in cribriform pattern (10X; H&E)

Conclusion

Although FNAC is primary modality for diagnosis of salivary gland neoplasm but it should be used in combination with other investigations like biopsy, IHC and radiological findings.

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Data availability statement: The supporting data is not shared

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