Case Report

Fine Needle Aspiration Cytology of Basal Cell Adenoma of Parotid Simulating Adenoid Cystic Carcinoma

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Abstract
Basal cell adenoma is a rare type of monomorphic salivary adenoma most commonly involving the parotid gland. Cytology of basal cell adenoma closely mimics many other benign and malignant basaloid neoplasms. Cytological features of membranous basal cell adenoma simulate adenoid cystic carcinoma in fine needle aspiration cytology (FNAC) smears. Here, we are presenting a rare case of cytodiagnostics of membranous basal cell adenoma of parotid gland in an elderly lady, which mimicked adenoid cystic carcinoma on FNAC. We discuss the cytomorphology of this rare case with an emphasis on cytological differences between membranous basal cell carcinoma and adenoid cystic carcinoma as well as other basaloid neoplasms.

Keywords: Adenoid cystic carcinoma, basal cell adenoma, cytology, parotid gland

Introduction
Basal cell adenoma is a rare benign salivary gland tumor accounting for only 1–3% of salivary gland tumors.¹⁻⁴ Although it is most common in the parotid gland (75%), it also occurs in other major and minor salivary glands.¹⁻³ Most cases are found in elderly females clinically presenting as painless mobile swelling.²⁻⁵ Cytological diagnosis of basal cell adenoma is always challenging because it mimics many other basaloid tumors (e.g., cellular pleomorphic adenoma, adenoid cystic carcinoma, basal cell carcinoma and metastatic small cell carcinoma etc.⁶⁻⁻¹⁰) Here, we are presenting the cytology of basal cell adenoma of parotid in an elderly female patient, which mimicked adenoid cystic carcinoma on cytological diagnosis.

Case History
A 62-year-old lady presented with gradually increasing painless mass in the left parotid region of 6 months duration. On examination, the swelling was firm and mobile measuring 4 × 3 cm in diameter. She was approached with fine needle aspiration cytology (FNAC) by a 23-gauge needle attached with a 10-ml syringe. The smears were fixed in alcohol and stained by Leishman–Giemsa and hematoxylin and eosin (H and E) stains. The smears were cellular and comprised clusters and sheets of basaloid cells around hyaline globules and acellular dense hyaline material [Figure 1a and b]. The cells were small, monomorphic with scanty cytoplasm, round to oval bland nuclei, fine chromatin, and conspicuous nucleoli. Ribbon of basement membrane material and palisading of tumor cells at the periphery were present in some clusters [Figure 1a–c]. There was no necrosis and pleomorphism in tumor cells and mitosis was absent. We reported the cytology smears as suggestive of basal cell adenoma. However, we advised biopsy and histopathological study to exclude the possibility of adenoid cystic carcinoma.

The patient underwent left total parotidectomy and the specimen was sent to our histopathology laboratory. On gross examination, it was a 3.5 × 2× 2 cm solid lobulated mass with a tan cut surface. On histology, the tumor composed basaloid cells separated by amorphous hyaline membranous stroma

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reported a similar case of basal cell adenoma with scanty pale cytoplasm, round-to-oval bland nuclei, fine chromatin, and indistinct nucleoli. Absence of chondromyxoid stromal matrix, cytological atypia, necrosis, and mitosis are the key features.

In our case, there was peripheral palisading of basaloid cells around the hyaline globules.

Similar features are also found in adenoid cystic carcinoma. Singh et al. reported a similar case of basal cell adenoma misinterpreted as adenoid cystic carcinoma in cytology. They concluded that cell-stromal interface is a very useful differentiating feature. In basal cell adenoma, cells are intermingled [Figures 1a and 1b] with adjacent stroma, whereas in adenoid cystic carcinoma stroma is sharply demarcated.

Cytology of membranous subtype closely mimics adenoid cystic carcinoma because in both the cases abundant hyaline membrane material (globule) surrounded by basaloid cells is seen. In cytology of both the tumors, basaloid cells are arranged in sheets, three-dimensional cell clusters, and acinar pattern. Our case was a membranous variant of basal cell adenoma where cytomorphology was closely similar to adenoid cystic carcinoma.

Other cytologic features that help to differentiate basal cell adenoma from adenoid cystic carcinoma are (1) acellular hyaline membrane material in membranous basal cell adenoma is denser than hyaline globules in adenoid cystic carcinoma; (2) fibrous lines and fragments can be seen in basal cell adenoma but not in adenoid cystic carcinoma, where it is mucoid and more homogeneous; (3) absence of mitosis in cytology of basal cell adenoma where as in adenoid cystic carcinoma frequent mitoses are found.

Two close benign cytologic mimickers of basal cell adenoma are cellular pleomorphic salivary adenoma and myoepithelioma. Absence of chondro-myxoid stroma and myoepithelial cells in cytology smears of basal cell adenoma differentiate basal cell adenoma from Pleomorphic salivary adenoma (PSA). Another two malignant entities which also simulate basal cell adenoma are basal cell adenocarcinoma and basaloid squamous cell carcinoma. Presence of significant cytological atypia, mitosis, and necrosis differentiates these two lesions from basal cell adenoma.

Other rare cytological and histological differential diagnoses of basal cell adenoma are dermal cylindroma, trichoepithelioma, and spiradenoma, where the location of the tumor is a very important distinguishing feature.

In the diagnosis of basal cell adenoma of salivary gland, cytologists should be careful in identifying basaloid cells, arrangement, presence of other cell and stromal components, cell-stroma interface, and mitosis to avoid cytological misinterpretation. Our case report of cytology of basal cell adenoma of membranous variant exposes close differential diagnoses and pitfalls of cytodagnosis which may help cytologists in evaluation of basaloid neoplasm of salivary glands.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients...
understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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