Canalicular adenoma of parotid: A cytology diagnosis and review of literature

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Abstract
Introduction
The canalicular adenoma is an uncommon, benign salivary gland tumor that most frequently occurs in the upper lip and very rarely in other sites like parotid. This tumor can be misdiagnosed with adenoid cystic carcinoma, polymorphous low grade adenocarcinoma or basal cell adenoma on cytology, so its important to understand the cytological appearance of this neoplasm on FNAC smears.

Case report
We describe an unusual case of canalicular adenoma of parotid gland in a women aged 24 years who presented with slightly painful, firm parotid swelling since 6 years duration. Fine needle aspiration cytology of nodule revealed a benign neoplasm and cytological diagnosis of canalicular adenoma was made.

Conclusion
Pathologists should be aware of the occurrence of this neoplasm in the parotid gland and of its cytopathology so that they can distinguish it from malignant tumors of salivary gland and patient could be managed with conservative surgery alone.

Introduction
Canalicular adenomas are a rare form of benign tumours of salivary glands. They represent 4-6% of all tumours in minor salivary glands. B5% of canalicular adenomas occur in the upper lip or buccal mucosa adjacent to the lip. They are more commonly seen in females. The male to female ratio is 1:1.8. Only a few cases of canalicular adenoma of the parotid gland have been reported in literature. They represent 4-6% of all tumours in minor salivary glands. They are more commonly seen in females. The male to female ratio is 1:1.8. Only a few cases of canalicular adenoma of the parotid gland have been reported in literature.

Case report
A 24 year old female presented to our department with a firm, tender and slightly mobile nodule in her left parotid gland for the last 6 years. Fine needle aspiration of the nodule was done using a disposable 20ml syringe and 22-gauge disposable needle, maintaining negative pressure. FNA smears were stained with haematoxylin and eosin (H&E) and May-Grunwald-Giemsa stain.

Cytology Findings
H&E stained smears revealed predominantly pseudopapillary clusters of oval or spindle shaped basaloid cells with scant cytoplasm as well as fair number of singly lying cells, which were round to oval and had round to oval nuclei and scant to moderate amount of eosinophilic cytoplasm. The nuclear chromatin of these cells was bland and finely granular with no visible nucleoli (Figure 1). There was no evidence of chondroid or myxomatous components (Figure 2). A cytological diagnosis of canalicular adenoma was made and excisional biopsy was advised.

Histological sections revealed tumour, which was composed of double rows of short to tall columnar cells that form a meshwork of branching and inter-connecting cords in a very loose stroma. The neoplastic cells were amphophilic to eosinophilic with uniform, round to elliptical nuclei. Focal areas also revealed basaloid cells between rows of columnar cells. The intervening stroma was loose with few fibroblasts and many scattered capillaries (Figure 3). The final diagnosis of canalicular adenoma of parotid gland was made.

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Figure 1: Richly cellular smear revealing predominantly pseudopapillae (H&E100x).
Discussion

Canalicular adenoma is a benign neoplasm of the salivary glands. The most common site of occurrence is the upper lip. Other locations are buccal mucosa, the palate and the parotid gland. Its occurrence in parotid is very uncommon. In 1953 Bauer and Bauer used the term canalicular adenoma, while Bhaskar and Weinmann were the first to use the term to describe this lesion. In 1970 Rauch and colleagues classified benign salivary gland neoplasms into two broad categories, monomorphic and pleomorphic adenoma. Canalicular adenoma and basal cell adenoma were once considered to be a type of monomorphic adenoma.

In 1972, WHO histological classification of salivary gland tumours classified them under other types of monomorphic adenoma. Among the “monomorphic adenomas” there are the following varieties; warthins tumour, oncocytoma or oxyphilic adenoma. In 1981 Batsakis and Brannon had given histological classification of monomorphic adenomas. Canalicular adenoma and basal cell adenoma have relatively specific clinical and histopathological features, categorizing this tumour is ambiguous.

Basal cell adenoma and adenoid cystic carcinoma are the principal considerations in the differential diagnosis. Canalicular adenomas are closely related to basal cell adenomas. Distinguishing canalicular adenoma from basal cell adenoma has little therapeutic significance, but distinction from adenoid cystic carcinoma has important prognostic and therapeutic implications. FNA of basal cell adenoma has uniform small blue cells associated with variable amount of collagenous stroma. Sometimes, single cells and naked nuclei are numerous.

Another important entity to be distinguished from canalicular adenoma is adenoid cystic carcinoma. The cells of adenoid cystic carcinomas are similarly small with high nuclear cytoplasmic ratio, but nuclei are less regular, hyperchromatic, with a coarsely granular chromatin, and nucleoli are more prominent. Nuclear moulding is a common finding in adenoid cystic carcinoma but is not seen in canalicular adenoma.

Immunohistochemical studies of canalicular adenomas have demonstrated consistent immunoreactivity for S-100 protein and cytokeratin and only very limited reactivity for GFAP. However, it is now well established that the S100 protein is not a specific myoepithelial marker. In 135 normal salivary glands, Prasad et al. observed that only the myoepithelial cells surrounding the acini and intercalated ducts reacted to calponin. These aspects were also noted in all 17 canalicular adenomas. This fact confirms the antibody to be a highly specific marker of normal and neoplastic myoepithelium. This tumour has excellent prognosis, after conservative surgical treatment in all locations. Recurrence is uncommon. Pathologists should be aware of the occurrence of this neoplasm in the parotid gland and of its cytopathology so that they can distinguish it from malignant tumours of the salivary gland.

Conclusion

Canalicular adenoma is a benign neoplasm of the salivary gland occurring uncommonly in parotid. This tumour can be distinguished from malignant tumours of the salivary gland.
be misdiagnosed with adenoid cystic carcinoma or low grade adenocarcinoma on cytology, so its important to understand the cytological appearance of this neoplasm on FNAC smears, so that cytopathologist can distinguish it from malignant tumours of the salivary gland and patients can be managed with conservative surgery alone.

**Consent**

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

**References**