Fine Needle Aspiration Cytology Of Salivary Gland Oncocytoma And Its Diagnostic Challenges – A Case Report

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Abstract

Oncocytoma are benign neoplasms constituting approximately 1.5% of all salivary gland tumors. Their preferred location is in the parotid, oncocytomas of the submandibular gland are however definitely rare. Fine needle aspiration cytology (FNAC) is increasingly being employed in the diagnostic work up of salivary gland lesions, moreover these aspirates can prove challenging because of overlapping between various lesions. We describe the cytological findings of oncocytomas and their diagnostic differentials in a 17year old male with a submandibular oncocytoma. This case is unique because of the younger age and rare location of the lesion.

INTRODUCTION

Oncocytomas of the salivary glands are a group of rare tumors, more commonly seen in the parotid glands (80%), occasionally in the submandibular gland(9%) and rarely affect the intraoral minor salivary glands.[1,9] Oncocytoma are benign neoplasms constituting approximately 1.5% of all salivary gland tumors.[1,2] On review of literature, majority of cases favored an older population for this rarity, most often after the sixth decade.[3] The clinical presentation is essentially similar to other benign salivary tumors, that of a slow growing, non tender firm submandibular mass. Fine needle aspiration (FNA) smears of oncocytic neoplasms reveal cohesive clusters of cells more often in papillary fragments with granular cytoplasm, representing mitochondria. FNA is the procedure of choice and the accuracy rate of FNA material is high.[4]

CASE REPORT

A 17 year old male presented to the ENT Outpatient Department with a gradually increasing painless swelling in the left submandibular region for the past 1 year. It had an insidious onset and was progressive in nature with no history of associated pain. The swelling failed to resolve following a course of antibiotics. Physical examination revealed a 5X4 cm firm non-tender mass in the left submandibular region which was mobile and the overlying skin was unaffected. No lymphadenopathy was made out. The patient was referred to the Pathology department for FNA, which was performed using a 22-guage needle attached to a 10ml syringe. Blood mixed particulate material was obtained, air dried and 95%ethanol-fixed smears were made and stained with Giemsa, Haematoxylin &Eosin and Papanicolaou techniques, respectively. Cytological examination revealed moderate cellularity smears composed of epithelial cell clusters which consisted of an exclusive population of oncocytic cells seen in sheets and papillary clusters alongwith abundant single cells.[Figure1,2,3] Moderate to abundant densely stained granular cytoplasm with round nuclei and nucleoli were seen. A cytological diagnosis of Oncocytoma of the submandibular gland was made. Under general anaesthesia the swelling was excised and sent for histopathological examination.

A firm nodular ovoid mass was received which had a uniform grey white appearance on cut section. Microscopic examination of the routinely processed sections revealed sheets of polygonal cells with small rounded nuclei and intensely staining eosinophilic granular cytoplasm thus confirming the cytological diagnosis of oncocytoma.

Figure 1

Figure 1 Moderate cellularity smears of oncocytic smears (Giemsa, 10X)

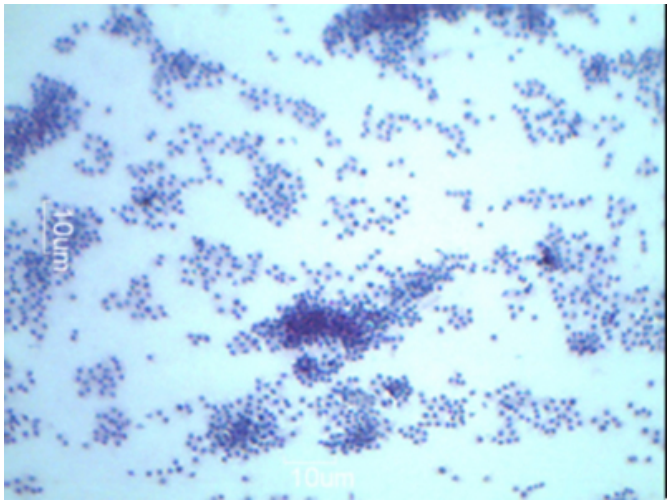


Figure 2

Figure 2 Moderate cellularity smears of oncocytic cells seen in sheets (H&E,40X)

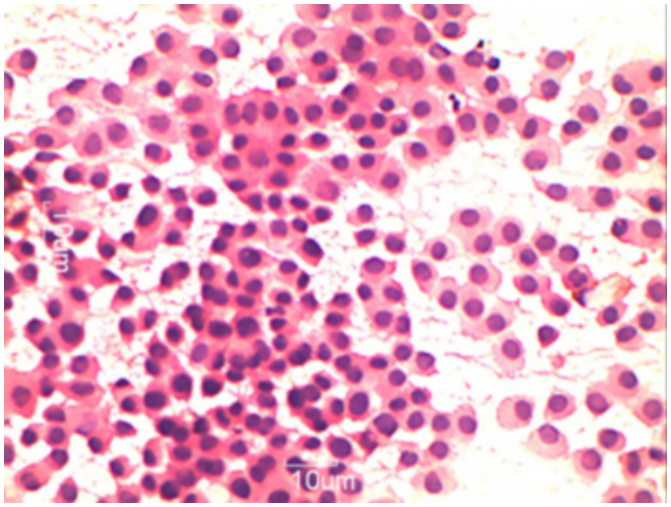
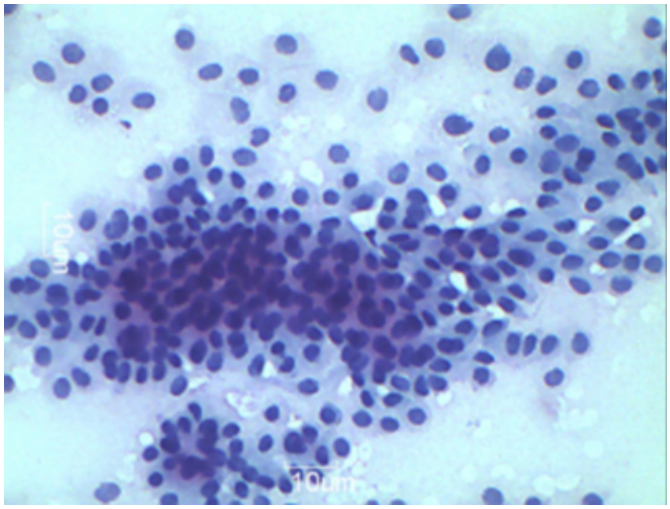


Figure 3

Figure 3 Oncocytic cells in papillary clusters alongwith abundant single cells (Pap,40X)



DISCUSSION

Oncocytomas of the salivary glands are a group of rare tumors usually seen in elderly patients.[5] They present as slow growing unilateral mass in the age group of 50-70years with a slight female preponderance.[6] Their occurance in young individuals is rarely seen. On review of literature, oncocytoma in an adolescent has rarely been reported [3] Oncocytomas generally involve parotid glands however submandibular gland involvement is definitely uncommon. Very few supporting published articles are available till date. This case is unique because of the younger age and rare location of presentation, as the patient was a 17year old male with a submandibular oncocytoma.

FNAC is increasingly being employed in the diagnostic work up of salivary gland lesions, moreover these aspirates can prove challenging because of overlapping between various lesions. It is well known that oncocytes may be seen in a variety of non neoplastic and neoplastic conditions, ranging from normal glands of elderly individuals to tumors such as papillarycystadenoma lymphomatosum (Wharthin's tumor-WT) oncocytoma and oncocytic carcinoma.[7] Cells with oncocytic features may also be seen in tumors such as pleomorphic adenoma, mucoepidermoid carcinoma and rarely acinic cell tumors, salivary duct carcinoma and the uncommon oncocytic papillary cystadenoma.[7]] Another lesion, oncocytic lipoadenoma is an uncommon benign salivary gland tumor, FNAC of which shows oncocytic cells arranged predominantly as microacini in a prominent lipoid background.[8] Diagnostic problems in aspirates rich in oncocytic cells while evaluating FNA from major and minor

salivary glands have been well documented in literature.[9]

Although the list is long, the greatest dilemma in salivary gland aspirates with predominant oncocytes is WT. In oncocytoma, the epithelial cells are in sheets and papillary clusters with an attempt at acinus formation,[4,9] little or no lymphoid cells, single cells are seen in greater abundance. WT on the other hand shows epithelial cells mostly oncocytic, in sheets with occasional papillary fragments, single cells are scarce and variable amount of lymphoid component is present.[9]

The cytological distinction of oncocytoma from rare oncocytic carcinoma is very difficult in aspirates, as benign and reactive oncocytes may show pleomorphism and prominent eosinophilic nucleoi, often mistaken for malignancy. However, presence of mitosis significant nuclear atypia, and necrosis suggest malignancy, but the definitive diagnosis rests on histopathology.

Rarely acinic cell carcinoma(ACC) with cytological features of abundant, granular vacuolated cytoplasm with eccentric nuclei and acinar arrangement may appear oncocytic and are confused with oncocytoma. Acinar cell arrangements are seen more commonly in ACC while sheets and papillary clusters are a feature of oncocytoma.

The accuracy rate for the diagnosis of oncocytoma on FNAC material is high about 92%, however caution should be exercised when interpreting aspirates with predominant oncocytic population. False positive cases do occur and are mostly due to incorrectly diagnosed cases of WT, distinction between the two is however possible on aspirates. Prominent, eosinophilic nucleoli and pleomorphism in oncocytes are often a cause of concern and should not be mistaken for malignancy, as these changes are seen in both benign and reactive oncocytes. . Fine needle aspiration is the procedure of choice for making a diagnosis in the majority of cases. Rarity of the disease, sampling error and lack of interpreter experience account for majority of pitfalls This case highlights the need for increased awareness among pathologists, otolaryngologists and Head & Neck surgeons about the possibility of oncocytomas in the submandibular region arising in the second and third decade of life.

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