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Pathology

MUCOEPIDERMOID TUMOURS OF SALIVARY GLAND- A CYTOMORPHOLOGICAL DIAGNOSIS

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ABSTRACT

INTRODUCTION: Mucoepidermoid carcinoma (MEC) is the most common malignant neoplasm of major salivary glands. The most common site is Parotid glands. It arises from the pluripotent reserve cells of execretory ducts that are capable of differentiating into squamous, columnar and mucus cells. It can occur in all age groups including children and adolescents.

CASE PRESENTATION: In the present series, we discuss the cytomorphological features of 5 cases of MEC of salivary glands which presented to us within a consecutive period of 3 months duration. Fine Needle Aspiration Cytology (FNAC) was performed with the aim of early diagnosis and management.

CONCLUSION: Mucoepidermoid carcinoma should be considered in the differential diagnosis of a slow growing swelling in the pre-auricular or submandibular region. FNAC is an important and accurate diagnostic tool in the pre-operative evaluations of salivary gland lesions.

KEYWORDS : Malignant neoplasm, Salivary glands, Mucoepidermoid Carcinoma, FNAC

INTRODUCTION:

Salivary gland tumors comprise almost 5% of head and neck malignancies and about 0.5% of all malignancies.[1] Mucoepidermoid carcinoma (MEC) is the most common malignant neoplasm of salivary glands[2]. MEC constitutes 3–10% of all tumors of major salivary glands and 10–15% of tumors of minor salivary glands. About two-third of MEC arise within the parotid gland, and one-third develops within the minor salivary glands. When it develops in minor salivary glands, it can be located on the palate, retromolar area, floor of the mouth, buccal mucosa, lips, and tongue.[4,5] It occurs most frequently in adults during fifth and sixth decades of life and affects women more than men (F:M - 3:2).[6] Although uncommon, it is the main malignant salivary gland tumor in adolescent.[7] It arises from pluripotent reserve cells of excretory ducts that are capable of differentiating into squamous, columnar and mucus cells.[8] MEC was first reported by Massao and Berger in 1942 and by Stewart et al.[9] in 1945 as a distinct pathologic entity.

CASE SERIES:

We present cytomorphological features of five cases of mucoepidermoid carcinoma of salivary gland which presented to us within a short period of 3 months. Three patients presented with swelling in the pre-auricular region while two had submandibular swellings. Ultrasonography revealed well circumscribed hypoechoic lesion with few cystic areas. There was no associated cervical lymphadenopathy. Fine Needle Aspiration Cytology (FNAC) was performed with the aim of early diagnosis and management.

CASE 1: A 60 year old female presented with a 2x2 cm painless, firm but fluctuant swelling in the right pre-auricular area. The swelling had recurred following excision which was performed 3 months back.

S. No.	Age/Sex	Site	Cytological diagnosis	Cytological features
1	57/M	Parotid	Intermediate MEC	Moderate cellularity smear having mucus cells and squamous cells and intermediate cells in a dirty background
2	51/M	Parotid	high grade MEC	Moderate cellularity smear reveals atypical squamous cells showing mild to moderate dysplasia and few mucus cells in a dirty background.
3	33/M	Parotid	High grade MEC	Pleomorphic squamous cells showing mild to moderate dysplasia, mitotic figures & few mucus cells in a necrotic dirty background
4	50/M	Submandibular	High grade MEC	Moderate cellularity smear reveals predominantly scattered as well as clusters & sheets of atypical squamous epithelial cells & few mucus cells
5	35/M	Submandibular	Low grade MEC	Moderate cellularity smear reveals mucus cells and squamous cells in a dirty background

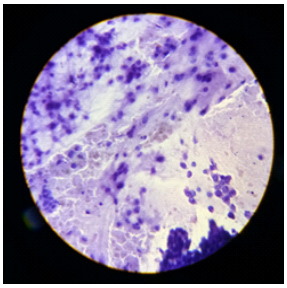

FIGURE 1: Smears reveals moderate cellularity with squamous cells ,intermediate cells and mucin secreting cells in a dirty background

CASE 2: A 50 year old male presented with a 1.5x1.5 cm swelling in the left pre-auricular area for the past 6 months

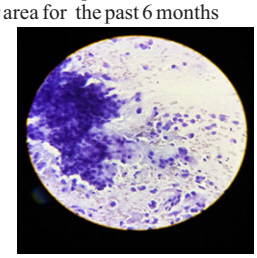

FIGURE2: good cellularity smear reveals atypical squamous cells showing mild to moderate dysplasia in the form of high

nucleocytoplasmic ratio,hyperchromatic nuclei ,prominent nucleoli.few mucus cells are also seen in a dirty necrotic background.

CASE 3: A 30 year old male with a 2x2 cm swelling in the right pre-auricular area for the past 5 months

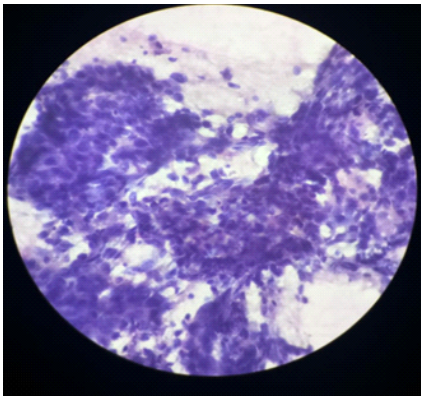

figure 3 : Good cellularity smear revelas Pleomorphic squamous cells showing mild to moderate dysplasia in the form of high nucleocytoplasmic ratio,hyperchromatic bizarre nucleus with few mitotic figures ,Few mucus cells were also seen .background is dirty necrotic background

CASE 4

A 50 year old man presented with submandibular swelling for 6 months he also complained of difficulty in swallowing and loss of appetite.

Microscopic findings of case 4:Moderate cellularity smear reveals predominantly scattered as well as clusters & small sheets of atypical squamous epithelial cells showing mild dysplasia in the form of high nucleo cytoplasmic ratio,hyperchrommatic nuclie

CASE 5: a 45 year old man presented with submandibular swelling for 3.5 months .no other significant history present
Microscopic findings of case 5 : Moderate cellularity smear reveals predominantly mucus cells with bland nuclei and vacuolated cytoplasm and squamous cells in a dirty background

DISCUSSION: Mucoepidermoid carcinoma is the most frequently diagnosed malignancy of the salivary gland. Among the major salivary glands, the parotid gland is most commonly involved, other sites include palate. Only a few have been well-documented in minor salivary glands.[9] Epithelial neoplasms originating in the minor salivary glands account for approximately 15% of all salivary gland neoplasm.[10]

MEC is believed to arise from pluripotent reserve cells of excretory ducts that are capable of differentiating into squamous, columnar, and mucous cells. It occurs commonly in parotid glands with minor glands being the second most common site. It accounts for <3% of all head to neck tumors with a female predilection.[6]

The most common presenting symptom is a slowly enlarging painless mass, can be of several years duration, clinically mimicking a pleomorphic adenoma or other benign neoplasm. Low-grade malignancy is characterized by a slow-growing painless swelling which rarely exceeds 5 cm, while high-grade malignancies are rapidly growing, painless mass, infiltrate into adjacent tissues, and are associated with distant metastases and extra-oral ulceration. MECs are best treated by surgery, the extent of which depends on location, size and histo-pathological grading. Prognosis depends on clinical stage, site, grading, and adequacy of surgery.

Identification of mucus cells, intermediate cells and squamous cells in smears are necessary for definitive diagnosis[11]. Ironically, not all these features are present conspicuously in all cases, especially the low grade lesions[12,13]. In such a scenario, MEC may be mistaken for other benign or malignant entities. Low grade MEC are often cystic [14,15] and may pose diagnostic confusion with mucus cyst and other benign cystic lesions[11,12] Khafaji et al., have described Warthin tumours and lymphoepithelial cysts causing diagnostic difficulty with MEC particularly of the low grade variant on FNA, owing to the bland cytological features, hypocellularity or non-representative nature of the aspirate. The misdiagnosis of MEC as pleomorphic adenoma has also been described by Joseph TP et al.[12], and Kocjan G et al.[16], they opined that the presence of squamous metaplasia can lead to this error Young JA et al., recognized leukocytes, cell debris and degenerate epithelial cells owing to secondary infection or presence of lymphoid rich infiltrate causing mistaken diagnosis[17]. MEC, acinic cell carcinoma and warthin tumours are few of the common salivary gland tumours known to have a rim of dense lymphoplasmacytic infiltrate[18,19] Selective sampling from these areas during FNAC may contribute to diagnostic errors.

The 5-year survival rate has been reported to be as high as 95% in low-grade tumours, and 50% in intermediate/high-grade tumoursIn our study, there was 1 female and 2 male patients, one of them being of 30 years of age.All of them presented to us in a short duration of 3 months i-e(july to august)

CONCLUSION: Mucoepidermoid carcinoma should be considered in the differential diagnosis for a slow growing swelling in the pre-auricular region.FNAC helps in early diagnosis, thereby aids in adequate surgical intervention.The cytological and histopathological correlation of MECs is quite evident.

REFERENCES:

1. Ettl T, Schwarz-Furlan S, Gosau M, Reichert TE. Salivary gland carcinomas. Oral Maxillofac Surg. 2012;16:267-83.
2. Jones AV, Craig GT, Speight PM, Franklin CD. The range and demographics of salivary gland tumours diagnosed in a UK population. Oral Oncol. 2008;44:407-17
3.3. Pires FR, Pringle GA, de Almeida OP, Chen SY. Intra-oral minor salivary gland tumors: A clinicopathological study of 546 cases. Oral Oncol 2007;43:463-70.
4. Munhoz Ede A, Cardoso CL, Tjioe KC, Sant'ana E, Consolaro A, Damante JH, et al. Atypical clinical manifestation of mucoepidermoid carcinoma in the palate. Gen Dent 2009;57:e51-3.
5. Da Cruz Perez DE, Pires FR, Lopes MA, et al. Adenoid cystic carcinoma and mucoepidermoid carcinoma of the maxillary sinus: report of a 44-year experience of 25 cases from a single institution. J Oral Maxillofac Surg 2006;64:1592-7.
6. Neville BW Damm D Allen CM Bouquot JE. Salivary gland pathology. Oral and Maxillofacial Pathol2009;495-7.
7. Batsakis JG. Salivary gland neoplasia: An outcome of modified morphogenesis and cytodifferentiation. Oral Surg Oral Med Oral Pathol 1980;49:229-32.
8. Stewart FW, Foote FW, Becker WF. Muco-Epidermoid tumors of salivary glands. Ann Surg 1945;122:820-44.
9. Ritwik P, Cordell KG, Brannon RB. Minor salivary gland mucoepidermoid carcinoma in children and adolescents: a case series and review of the literature. Journal of medical case reports. 2012;6:182.
10. Eveson JW, Cawson RA. Tumours of the minor (oropharyngeal) salivary glands: A demographic study of 336 cases. J Oral Pathol. 1985;14:500–9. [PubMed]
11. Rupani AB, Kavishwar VS, Achinmane V, Puranik GV. Fine needle aspiration cytology of low-grade mucoepidermoid carcinoma of the parotid gland: A diagnostic challenge. J Cytol. 2008;25:115–16.
12. Joseph TP, Joseph CP, Jayalakshmy PS, Poothiode U. Diagnostic challenges in cytology of mucoepidermoid carcinoma: Report of 6 cases with histopathological correlation. J Cytol. 2015;32:21–24
13. Al-Khafaji BM, Nestok BR, Katz RL. Fine-needle aspiration of 154 parotid masses with histologic correlation-Ten-year experience at the University of Texas M. D. Anderson Cancer Center. Cancer Cytopathology. 1998;84:153–59.
14. Veder LL, Kerrebijn JD, Smedts FM, den Bakker MA. Diagnostic accuracy of FNAC in warthin tumours. Head Neck. 2010;32:1635–39.
15. Bocatto P, Altavilla G, Blandamura S. Fine needle aspiration biopsy of salivary gland lesions-a reappraisal of pitfalls and problems. Acta Cytol. 1998;42:888–98.
16. Kocjan G, Nayagun M, Harris M. Fine neddle aspiration cytology of salivary gland lesions: Advantages and pitfalls. Cytopathology. 1990;1:269–65.
17. Young JA. Diagnostic problems in fine needle aspiration cytopathology of the salivary glands. J Clin Pathol. 1994;47:193–98.
18. Veder LL, Kerrebijn JD, Smedts FM, den Bakker MA. Diagnostic accuracy of FNAC in warthin tumours. Head Neck. 2010;32:1635–39.
19. Bocatto P, Altavilla G, Blandamura S. Fine needle aspiration biopsy of salivary gland lesions-a reappraisal of pitfalls and problems. Acta Cytol. 1998;42:888–98.