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Mucoepidermoid Carcinoma Of The Hard Palate - A Case Report

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Abstract:
Mucoepidermoid carcinoma (MEC) is the most common of the salivary gland malignancies, accounting for one third of cases. Only 10% of salivary gland cancer arises in the minor salivary glands. This study includes the gold standard investigation for diagnosis and timely management.
Objectives:
This study's primary goal is to demonstrate how important it is to include malignant lesions in the differential diagnosis of palatal swellings in younger age groups since it is not common.
Methods:
This was an observational research conducted at the Government General Hospital in Kurnool, Andhra Pradesh, on a young adult patient with MEC case and symptoms such as palatal swelling. This investigation included histopathology, MRI diagnosis, and surgical treatment.
Results:
At initial examination of mouth and neck found the lesion was non-tender and had a varied consistency. After haematological and radiological examinations, It was conformed that a MEC on hard palate. Treating salivary gland cancer is difficult and requires surgical excision followed by post-operative radiation.
Conclusions:
This Case report confirms that the histopathological examination is a gold standard investigation for the diagnosis and timely management.MEC should be considered as one of the differential diagnosis for cystic mass over hard palate.

Keywords: *Cystic mass over hard palate, Minor salivary gland, Mucoepidermoid carcinoma (MEC), Histopathology, Treatment planning, Follow up.*

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I. Introduction

Head and neck cancer is among the top ten cancers worldwide, with most lesions in the oral cavity [1]. The most common type of hard palate cancer is squamous cell carcinoma [2]. MEC is the epithelial salivary gland neoplasm of the oral cavity. It accounts for less than 3% of all head and neck tumours. About 5% of these tumours occur in patients younger than 18-year-old with females mostly affected.[3]. Most patients present with a smooth lump, usually on the palate ,with no associated nerve palsies or lymphadenopathy. Rapid enlargement, pain or the presence of nerve palsies is a sign of malignancy unlike in this case. The vast majority of minor salivary gland cancers are adenoid cystic carcinoma about 70% and most of the remainder are MECs about 19%. Half of all minor salivary gland cancers are on the palate (50%) and approximately 15% on the lips or buccal mucosa, tongue and floor of mouth are relatively unusual sites [4].

In mucoepidermoid cancer there are mucus secreting cells, epidermoid cells and intermediate cells [5]. Batsakis maintains, however, that nearly all salivary cancers originate from a common progenitor cell, the intercalated duct reserve cell [6]. MEC may be usefully classified histologically in terms of low grade and high grade.

low-grade tumours tend to be cystic, whereas high -grade tumours tend to be solid with areas of necrosis and haemorrhage. The tumour was previously divided into three grades: low, intermediate and high. The clinical relevance of the intermediate grade is, at least, dubious with no prognostic relevance. Patients with

low-grade tumours have a five-year survival of 96 % whereas high-grade tumours are associated with a death rate ten times this. King JJ, Fletcher GH et al have reported similar figures with a 70% cause specific survival for low-grade tumour's and a 47% survival for high grade tumours.[7]

In 1942 Masao and Berger reported mucoepidermoid carcinoma MEC and by Stewart *et al*. in 1945 as a distinct pathologic entity. All mucoepidermoid tumours are malignant, albeit in degree. Low grade tumours commonly develop a nesting pattern with multiple well-circumscribed squamous nests containing numerous clear cells. High-grade tumours are predominantly solid, with greater degrees of atypia [8].

The most common histological type is Squamous cell carcinoma (SCC) and the main etiological factors are tobacco and alcohol use[9].Non-squamous cell carcinomas of the oral cavity are uncommon. Minor salivary gland carcinomas represent < 5% of the oral cavity cancers. MEC is the most common type (54%), followed by low-grade adenocarcinoma (17%), and adenoid cystic carcinoma (15%)[6].

MEC is a malignant epithelial tumour that arises from the pluripotent cells of excretory ducts of salivary gland epithelium [10].Previously it was termed as mucoepidermoid tumour, and was considered to be a benign lesion[3].

II. Case Report

A 18 year old male individual came to ENT outpatient department, government general hospital, Kurnool with chief complaints of pain less swelling over right posterior part of the hard palate sine two months. He had no other complaints except foreign body sensation while chewing & swallowing of food. On clinical examination, oral hygiene was satisfactory swelling of size apparently 5*4 cm present over right part of the hard palate. Surface was smooth bluish hue at centre; periphery was same as hard palate.it was extended antero-posteriorly from right canine to the junction of hard &soft palate. Medial to lateral extension was from median raphe of hard palate to third molar.

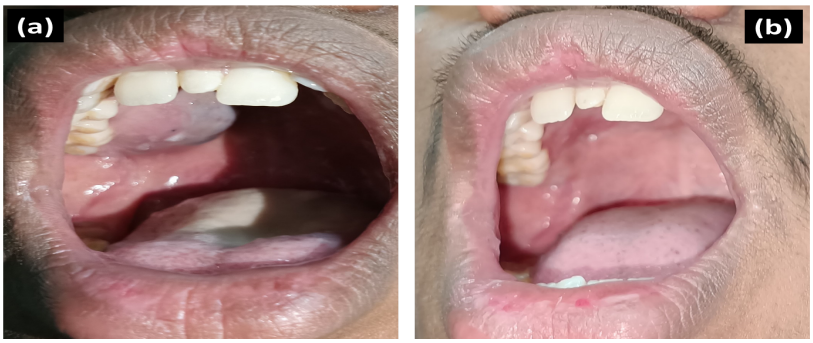


Figure 1: Intraoral view
(a) before surgery showing the lesion.
(b) Intra oral view after excision of lesion post operative period – day 20

On palpation all inspector findings were confirmed. Lesion was non tender and variable in consistency i.e, firm around peripheries and soft in the centre. oropharyngeal examination was normal. ear, nose and neck examination were normal. Initially the differential diagnosis was haemangioma of hard palate, mucocele, minor salivary gland tumour. Pre operative FNAC of swelling confirmed as mucous retention cyst. Pre operative MRI head and neck showed lobulated T2 and STIR hyperintense lesion (Figure 2) with flow voids in right hard palate,and the conclusion was Palatal haemangioma.no evidence of bone erosion

After all the haematological and radiological examination, case posted for excision of lesion under general anaesthesia. Lesion was completely excised and sent for histopathological examination. Excisional biopsy showed low-grade MEC. On histopathological examination H&E stain showed well differentiated cells with high proportion of mucus cells.

Multiple sections studied shows tumour composed of cystic spaces filled with abundant mucinous material (Figure 3a). Solid area shows cells-round to polygonal with intermediate squamous type of cells, occasional areas show mucinous cells. Stroma shows mild inflammation (Figure 3a) and fibrosis tumour cells have bland nuclei (Figure 3b). Features are in favour of low-grade MEC, and Patient followed up for every week for the first month, and then every month for first 6 months and quarterly.

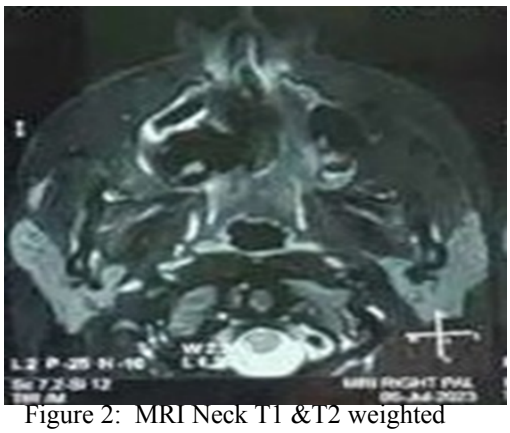
a) 

Figure 2: MRI Neck T1 &T2 weighted

Histopathological Examination (H&E stain):

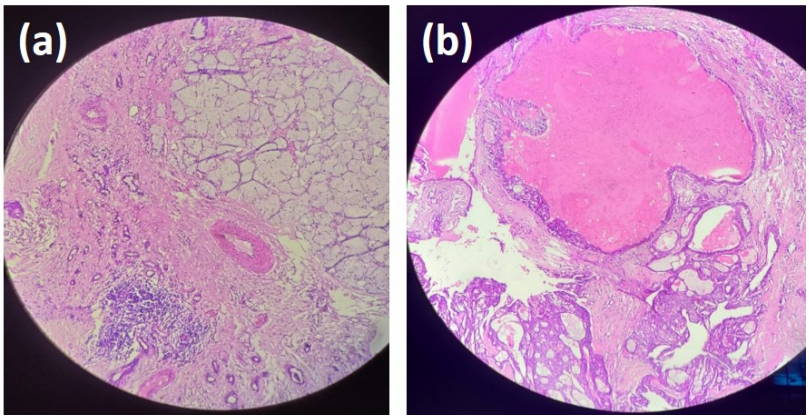


Figure 3: Histopathology: (a) Shows Cystic spaces filled with abundant mucin material and Stroma shows Inflammation, (b) shows Intermediate cells, and Bland nuclei

III. Discussion

MEC is the most prevalent malignant salivary gland tumour in children. It makes up less than 3% of all tumours in the head and neck. It accounts for 10–15% of salivary gland neoplasms. Of these, 5% affect people under the age of 18. Aggressive behaviour related to chromosomal genetic anomalies that change CDKN2A, TP53, CDKN2B, and BAP1 is thought to originate from reserve cells of excretory ducts that are pluripotent.

Salivary gland cancer is, despite multimodal treatment, a particularly demanding tumor for both patient and oncologist. This usually involves a radical excision, followed by post-operative radiotherapy. Even with aggressive therapy, the primary site recurrence rate at 20 years is more than 90% for major salivary cancers and nearly 75% for minor salivary cancer.

Systemic therapies, including immunotherapy, targeted therapy, and chemotherapy, Depending on the patient's condition, may be recommended as a component of a therapy plan. These are not a specific treatment for MEC, although they are useful in treating its symptoms.

IV. Oncogenes Involved In Mec& Targeted Drug Therapy

Targeted agent	Oncogenes involved in MEC
sorafenib	VEGF and ANG2
nintedanib	VEGF ,FGFR and PDGFR
Trastuzumab	HER2/neu
Lapatinib	EGFR and erbB2
ANA-12	TrkB and BDNF

Table 1: Shows a list of targeted agent and Oncogenes involved in MEC.

Even with aggressive therapy, the primary site recurrence rate at 20 years is more than 90% for major salivary cancers and nearly 75% for minor salivary cancer. Moraes et al. suggested that low to intermediate grade MECs originating from oral minor salivary glands in children and adolescents managed by wide local surgical excision, if there is no bone erosion /bony involvement as in this case tumour dissected down to the periosteum. high grade MEC require surgical approach with or without postoperative radiotherapy [11]. Lee WH et al. suggested Low to intermediate grade MECs has a very low recurrence rate and high survival rate [12].

V. Conclusions

Case report confirmed that the histopathological examination is the gold standard investigation for diagnosis and timely management. Cystic mass over the hard palate in adolescent age, MEC is one of the differential diagnosis and this case report also supports the occurrence of MEC usually in children and adolescents. Low grade MECs are well managed with wide local excision without post-operative radiotherapy if there is no bony erosion and spread. But needs follow up care which involves regular check-ups and imaging studies.

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Conflict Of Interest Statement

Authors do not have any financial, academic, or otherwise conflict of interest for this work.

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