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Case Report

Mucoepidermoid carcinoma with Warthin like features- rare case report

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ABSTRACT

Mucoepidermoid carcinoma with Warthin like features is a deceptive tumour and can be potentially misdiagnosed as a Warthin tumour which is benign, Warthin tumour with mucinous and squamous metaplasia or MEC transformed from Warthin tumour. We are presenting a case of a 25-year-old woman with recurrent solitary mass in the left parotid gland. Microscopically it consists of predominantly cystic areas and focal solid infiltrative tumour with mucinous, intermediate and epidermoid cells having complex architecture in a fibrotic stroma. Extracellular mucin pools seen. Cystic areas are lined by monolayered as well as bilayer epithelium with lymphoid stroma (Warthin like morphology). Occasional mitosis noted. No necrosis and perineural invasion seen. Immunohistochemically, the tumour is positive for P63, P40, CK5/6, EMA, Mucicarmine stain, diffusely positive for CK7. We reached at the final conclusion of low grade MEC, Warthin like features. Even though the cytogenetic studies are confirmatory, we emphasize the role of histomorphology study with IHC and clinical history in identifying this rare variant of MEC with Warthin like features.

1. Introduction

Majority of salivary gland neoplasms involve parotid gland. Benign neoplasms are more common in major salivary glands while malignant neoplasms represent greater proportion of tumours in minor salivary glands. Salivary gland neoplasms are rare in children but Mucoepidermoid carcinoma is common in adults as well as children. It is the most common salivary gland malignancy in children. Mucoepidermoid carcinoma has epidermoid and glandular features similar to excretory ducts and Warthin tumour has oncocytic features mimicking striated ducts. For the first time, Ishibashi and colleagues' group used the nomenclature Mucoepidermoid carcinoma with Warthin like features in 2015.[1] Mucoepidermoid carcinoma with Warthin like features closely resembles Warthin tumour. Histologically, it may be misdiagnosed.[2] English literature has described less than 10 cases of Mucoepidermoid carcinoma with Warthin-like features till now.[3] In this study we represent one case of mucoepidermoid carcinoma with Warthin like features arising in parotid gland.

2. Case Report

25-year-old lady presented with swelling of size 2.7x2.1 cm in Lt parotid region for 6-7 months. She gave the history swelling in the same region 5-6 years back but no reports were available with her.

USG findings reveals hypoechoic lesion 27x21 mm in superficial lobe of left parotid having lobulated margins with mild vascularity. CT scan reveals solid, irregular, lobulated infiltrative lesion involving entire superficial lobe of Lt parotid gland likely to be recurrent neoplastic lesion. Also, enlarged submandibular lymph nodes [Level 1 b].(Figure 1)

Microscopically, it consists of predominantly cystic areas with focal solid infiltrative tumour with mucinous,

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Figure 1: Photomicrograph of Macroscopy of Mucoepidermoid carcinoma with Warthin like features- Gray white, Mucoid, solid and cystic mass in left parotid gland

intermediate and epidermoid cells having complex architecture in a fibrotic stroma. Extracellular mucin pools seen. Cystic areas are lined by monolayered as well as bilayer epithelium with lymphoid stroma (Warthin like morphology). Occasional mitosis noted. No necrosis and perineural invasion noted.

Immunohistochemically, the tumour is positive for P63, P40, CK5/6, EMA, Mucicarmine stain, diffusely positive for CK7.

A final diagnosis of low grade MEC, Warthin like variant was made.

3. Discussion

MEC with Warthin like features is a deceptive neoplasm. For the first time, Ishibashi et al. diagnosed Warthin like variant of MEC.[1] Similarly, Heatley et al. presented a case of 17 years female with cystic lesion which was described as Warthin tumour but when she presented with recurrent tumour it turned out to be classic mucoepidermoid carcinoma.[3] In salivary gland pathology, as there is morphological overlap between Warthin tumour and WT MEC, histopathologists could not reach to the correct diagnosis in the past.[4] Percentagewise conversion of Warthin tumour to squamous metaplasia is more (7.5%) than conversion of Warthin tumour to both squamous and mucinous metaplasia (0.2%).[5]

Salivary gland tumours, Mucoepidermoid carcinoma and Warthin tumour both have different histomorphology features, clinical presentation and therapeutic implications. So, we can't assign these two-differential diagnoses to same lesion. Warthin tumour is clearly demarcated benign parotid tumour and commonly occurs in males as against other salivary gland tumors which occurs more frequently in females. Warthin tumour has histomorphology consisting

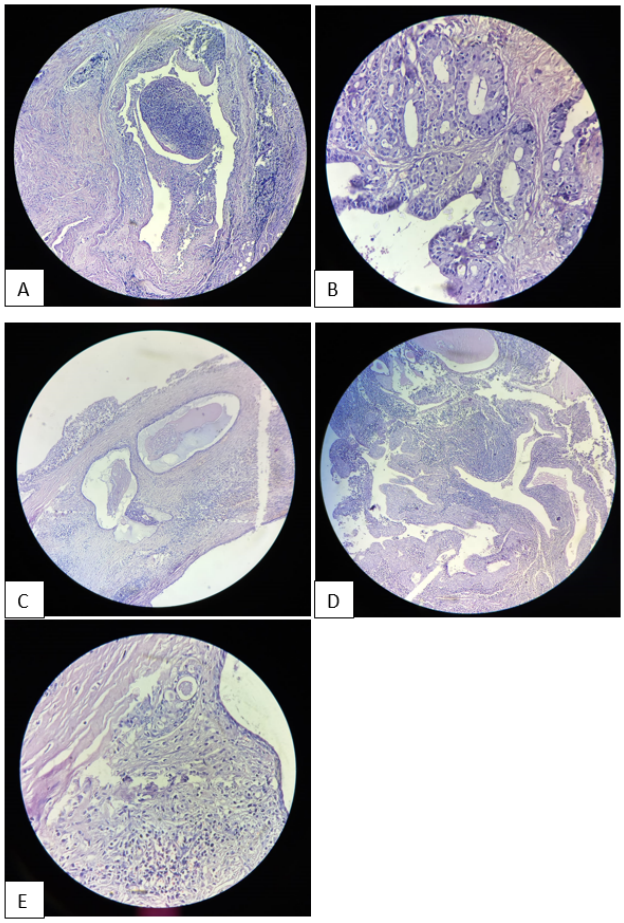

Figure 2: Photomicrographs from histological examination of haematoxylin and eosin stained Mucoepidermoid carcinoma with Warthin like features- (**A** and **B**): Cystic structure comprising of epithelial and lymphoid cell components; (**C** and **D):** Tumour is covered by two layers of epithelium with lymphoid stroma and eosinophilic secretions; (**E**): Tumour with mucus cells, lymphoid stroma and cystic epithelium

of cystic papillary projections lined by bilayer oncocytic epithelium with underlying lymphoid stroma. The inner layer consisting of columnar epithelial and outer layer of cuboidal epithelial cells.[6] On the other hand, in salivary gland tumours the most common malignant tumour in adults as well as children is mucoepidermoid carcinoma composed of varying proportion of mucocytes, intermediate cells and epidermoid cells.[7] However the tumour having the histomorphology characteristics of both Warthin tumour and mucoepidermoid carcinoma in a single lesion is very deceptive and potentially misleading, which is presented in our case.

Warthin tumor with metaplastic squamous or mucinous cells can be considered as the critical differential diagnosis of Warthin like MEC. When we compare Warthin like MEC with typical Warthin tumour, WT has classic bilayer

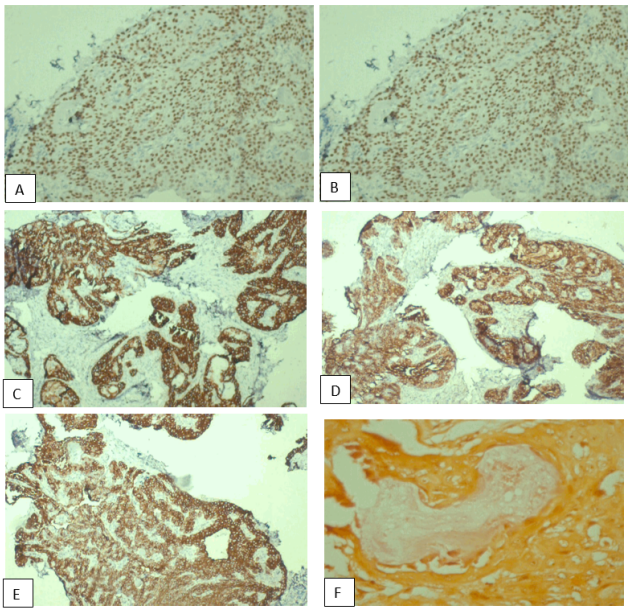

Figure 3: Images of IHC done on H&E stained Mucoepidermoid carcinoma with Warthin like features- **A)**: P63 positive, **B)**: P40 positive, **C)**: CK5/6 positive, **D)**: EMA positive, **E)**: CK7 positive, **F)**: Mucicarmine stain demonstrates mucin

epithelium consisting of palisading oncocytic columnar cells with underlying basal cells. Double layered epithelial cells rest on dense lymphoid stroma. WT MEC lacks the classic bilayer oncocytic epithelium but tends to show more complex epithelial architecture. Warthin tumour with squamous and mucinous metaplasia histomorphologically show metaplastic squamous and mucinous cells arising from oncocytic epithelium.[8] FNA of salivary gland tumours induce trauma along the needle tract and can cause metaplastic and reparative changes. These changes can be in the form of reactive changes like squamous metaplasia, haemorrhage, giant cell reaction, necrosis, microcyst formation with infiltration of macrophages and psudoxanthomatous reaction.[9] The key to the diagnosis of Warthin tumour is classic bilayer epithelium and lack of tumour infiltration into surrounding parenchyma. Also, the key point in diagnosis of Warthin tumour with mucinous and squamous metaplasia is merging of squamous islands with oncocytic epithelium. Also, there is lack of infiltrative growth in the surrounding stroma and absence of atypical cells. The most characteristic molecular mutation seen in MEC and WT MEC is MAML2 rearrangement while the classic WT and WT with squamous and mucinous metaplasia lacks MAML2 rearrangement.[10] The most frequent histological malignant transformation from the epithelial component of WT are squamous cell carcinoma, MEC, oncocytic carcinoma and adenocarcinoma.[11]

WT MEC lacks the classic bilayer oncocytic epithelium but tends to show more complex epithelial architecture. Goblet cells and squamous cell changes can be seen in epithelium.

In our case, swelling in the parotid is the recurrent tumour so the less possibility of classic Warthin tumour which generally has the less tendency to recur. Morever, histologically at places there was monolayer epithelium and infiltrative growth in the surrounding stroma with atypia.

Molecular studies of tumour showing characteristics of both WT and MEC show t(11;19) with CRTC1(MECT1)-MAML2 fusion. Classic Warthin tumour and WT with squamous and mucinous metaplasia lacks MAML2 rearrangement. MAML2 rearrangement should be confirmed by FISH studies or RT-PCR.WT MEC with t(11;19) with CRTC1(MECT1)-MAML2 fusion show better prognosis than classic MEC.[3] Generally, WT MEC have low to intermediate grade MEC component (Grade 1). Warthin tumour has excellent prognosis. Only inadequate excision can lead to recurrence. Very rarely malignant transformation has reported but it is Warthin like carcinoma rather than classic Warthin tumour. Low grade MEC, WT MEC also have good prognosis. Complete total excision is the choice of treatment and many patients are treated successfully.

4. Conclusion

Mucoepidermoid carcinoma with Warthin like features is deceptive tumour and can be potentially misdiagnosed. When WT is lacking classic bilayer oncocytic epithelium and epithelium is showing more complex architecture, with infiltration of squamoid and mucus cells, then the diagnosis of Warthin-like MEC should be considered. WT MEC show MAML2 rearrangement which is lacking in classic WT, thereby very helpful in diagnosis. MAML2 rearrangement should be confirmed by FISH studies or RT PCR. Lack of genetic study is the limitation of our studies. But histomorphological and IHC studies, clinical history and corelation is sufficient to raise the possibility of Warthin like variant of MEC. This entity should be diagnosed by pathologists with equal efficiency as these patients have better prognosis than conventional mucoepidermoid carcinoma.

5. Source of Funding

This research received no specific grant from any source.

6. Conflict of Interest

None.

7. Abbreviations

MEC- Mucoepidermoid carcinoma, IHC-Immunohistochemistry, WT-Warthin Tumour, FISH-Florescence in situ hybridisation, RT PCR-Reverse

transcription polymerase chain reaction.

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