

Case Report: Mucoepidermoid Carcinoma: high Grade of Parotidgland



Medical Science

KEYWORDS : Fine needle aspiration cytology(FNAC), High grade,Mucoepidermoid carcinoma(MEC),Necrosis.

Dr.Sujata S Giriyan

Department of Pathology,Karnataka institute of Medical sciences(KIMS), HUBLI=580022,KARNATAKA,INDIA.

Dr.Sushma.k

Postgraduate student in Pathology

ABSTRACT

Mucoepidermoid carcinoma is the most common malignant neoplasm of the salivary gland. Wewreport a case of High-grade Mucoepidermoid carcinoma of parotid gland in a 42 years female patient with facial palsy.

1.INTRODUCTION:

Mucoepidermoid carcinoma is the most common malignant neoplasm of the salivary gland[1][2][3],accounting for 2.8%-15.5% of all salivary gland tumours,1%-10% of all major salivary gland tumours,6.5%-41% of minor salivary gland tumours[1].It is seen in all age groups,common in 35-65yrs of age[1] ,peaking at 4th decade[2].Female predilection is seen[1].Most commonly seen in parotid gland[1][3].

2.CASE REPORT:

2.1. A 42 year old female patient presented with history of swelling in left cheek since 15 years.

Past history: she gave history of swelling in left (cheek) parotid region noticed 20 years back,which was incidious in onset, for which she underwent surgery (? superficial parotidectomy)-details not available,then she gave history of swelling at the same site 5 years after surgery. It has progressively increased in size since 15 yrs. She gave h/o pain in swelling since 2 months. No h/o trauma, fever, hemoptysis , breathing difficulty.

2.2. Local examination:

Tender,firm to hard Swelling in left parotid region, measured 6x7cms with diffuse borders. Skin over the swelling was stretched & shiny and was free from tumour. Swelling was fixed to underlying muscle, not fixed to bone.Old scar was seen in front of left ear. No discharge from swelling. No palpable lymph nodes. Left sided lower motor neuron type of facial nerve palsy was seen.

Clinical differential diagnosis were :

- ? Pleomorphicadenoma ;
- ? Recurrent acinic cell carcinoma;
- ? Recurrent carcinoma of parot id gland with facial nerve involvement.

2.3. FNAC OF LEFT PAROTID SWELLING WAS DONE. ON FINE NEEDLE ASPIRATION CYTOLOGY:

Cellular smears showed necrotic background with malignant epithelial cells in sheets,cohesive clusters & in singles. These cells were polygonal Squamoid with large pleomorphic, hyperchromatic nucleus with increased nuclear to cytoplasmic (N:C) ratio, with moderate amount of cytoplasm.Few mucous secreting cells with abundant vacuolated cytoplasm with eccentrically placed small nucleus were seen.Many mitotic figures were seen [Figure 1to5]. Features were suggestive of Mucoepidermoid carcinoma of left parotid gland.

Fig.1.FNAC : Squamoid cells in group and co hesive clusters showing pleomorphism in a dirty background (4x ,wright stain).

Fig 2.FNAC:Squamoid cells with hyperchromatic nucleus with high N:C ratio, mitotic figure (10x, wright stain).

Fig.3.FNAC: (Pap stain ,40x) squamoid cells showing large pleomorphic hyperchromatic nucleus.

Fig.4.FNAC:Squamoid cells with highly pleomorphic ,large nucleus , mitotic figure, few mucous secreting cells seen in a dirty background (40x, wright stain) .

Fig.5.FNAC-:(40x , H & E Stain) Squamoid cells with large hyperchromatic nucleus.

1.Professor & Head of department of pathology, 2.Postgraduate student

2.4 .ULTRASONOGRAPHY :

Mixed echoic focal lesion measured 3x3.5x 3.8cms noted in left parotid region.No evidence of enlarged lymph nodes noted on both sides of neck. USG IMPRESSION : ? Pleomorphic adenoma. Left Total parotidectomy with facial nerve and cervical lymph nodes and fat was excised .

3. PATHOLOGICAL FEATURES

3.1.GROSSFEATURES:

Specimen 1: Excised specimen of Left Total Parotidectomy with facial nerve. AND

Specimen 2 :Cervical lymph nodes with fat ex cised from left side, was received.

Specimen 1 : consisted of globular grey-brown mass measured 7x6x4.5cms with borders marked,Firm in consistency. Cut-Section: solid grey-white area measured 4.6x3.8 cms, whitish area had pushing & infiltrating margins.Focal mucoid area was seen in it [Fig.6].

Specimen 2 :consisted of 3 bits of grey-brown tissue, largest measured 3x2.5x1.5cms, 3 lymph-nodes dissected from larger bit, among them, largest measured 2 cms in diameter. cut-section of this largest lymph-node showed grey-white solid area. In another 2 smaller bits, 7 small lymph nodes were dissected.

Fig:6:Gross picture: solid grey-white area with pushing margins.

3.2: MICROSCOPIC FEATURES:

Section studied from tumour showed tumour cells in groups and sheets, with few interspersed cystic spaces. Majority of the cells were large polygonal, pleomorphic with eosinophilic cytoplasm with distinct cell borders and hyperchromatic nuclei. Few mucin secreting cells were seen. Mitotic figure and Dense foci of necrosis with chronic Inflammatory infiltrate was seen. Foci of fibrosis and Perineural invasion was seen. Sections studied from superior margin was Positive for tumour, section from medial, lateral and inferior margins were Negative for tumour. Section studied from lymph nodes,4 out of 10 lymph nodes were positive for tu-

mour deposits [Fig7to11]. Features suggestive of : high-grade muco-epidermoid carcinoma of left parotid gland with tumour deposits in four lymph nodes.

Fig 7: Squamoid (epidermoid) cells, fibrosis, lymphocytic infiltration (HPE ,4x, H &E Stain)

Fig 8: HPE: Epidermoid(squamoid) cells infiltrating stroma(10x ,H&E stain)

Fig. 9: HPE: Extensive necrosis seen (40x, H&E stain)

Fig10a , Fig10b , Fig 10a&10b:HPE: Malignant epidermoid cells in sheet & clusters (40x,H&E Stain)

Fig 11:HPE: Perineural invasion by malignant epidermoid cells (40x ,H&E stain)

4. DISCUSSION:

Mucoepidermoid carcinoma of salivary gland is an invasive malignant epithelial neoplasm composed of various proportions of epidermoid, mucous & intermediate cells with clear cell, columnar & oncocytic features[2]. Mucoepidermoid carcinoma arises from pluripotent reserve cells of excretory ducts that are capable of differentiating into squamous, mucous and columnar cells[3]. Commonly seen is parotid gland (45%) & palate (21%)[2]. It is also a common salivary gland malignancy in childhood[1][2][4]. Grading is also important to determine prognosis[4].

3 grades of mucoepidermoid carcinoma are low grade, intermediate grade & high grade [2]. Traditional grading: Low grade /well differentiated (tumour exhibiting greater than 50% of mucous elements), intermediate grade(10%-50% of mucous elements) & high grade (less than 10% of mucous elements)[5].

AFIP: Armed forces institute of pathology grading system: AFIP point system[2]:

- 2 points if <20% intra-cystic component
- 3 points if necrosis
- 2 points if neural invasion
- 3 points if 4+ mitotic figures/10 HPF
- 4 points if anaplasia Low grade if total score is 0-4 points, intermediate grade if 5-6 points, high grade if 7+ points[2][6].

4.1.Molecular biology:

Mucoepidermoid carcinoma characterised by chromosomal translocation t(11;19)(q21;p13) resulting in MECT1-MAML2 fusion gene (Mucoepidermoid carcinoma translocated 1: mastermind like gene family 2) disrupts Notch signalling pathway. Notch signalling pathway plays a key role in normal development of many tissues & cell types, cellular differentiation,survival & proliferation of cells[2].

4.2.Differential diagnosis :

1. Pleomorphic adenoma with squamous differentiation: Presence of Chondromyxoid stroma with myoepithelial cells, ductal cells & Lack of invasive growth differentiates from MEC.
2. Warthins tumour with squamous/mucinous metaplasia: Presence of oncocytes with lymphocytes & lack of invasive growth differentiates from MEC.
3. Squamous cell carcinoma:Identification of interspersed mucinous tumour cells,predominantly sclerotic rather than desmoplastic stroma are the features favouring a diagnosis of mucoepidermoid carcinoma.

5.CONCLUSION :

High grade mucoepidermoid carcinoma of salivary gland is highly aggressive tumour, metastasis may be lymphatic or haematogenous. The most common site for haematogenous spread

are Lungs, rarely bones,liver,brain,skin & other sites. FNAC diagnosis of mucoepidermoid carcinoma is very important because surgical treatment is the main therapeutic method & diagnosis is confirmed by histopathology. Radiation therapy is considered cornerstone of adjuvant therapy because of positive surgical margins. Follow-up should continue for an extended time to rule out late recurrences.

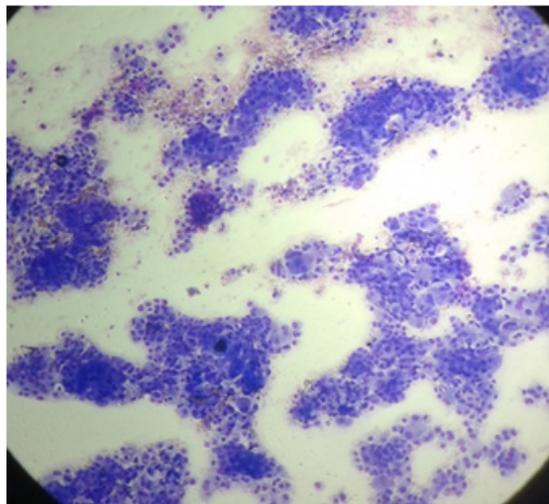


Fig.1.FNAC: Squamoid cells in group and cohesive clusters showing pleomorphism in a dirty background (4x, wright stain)

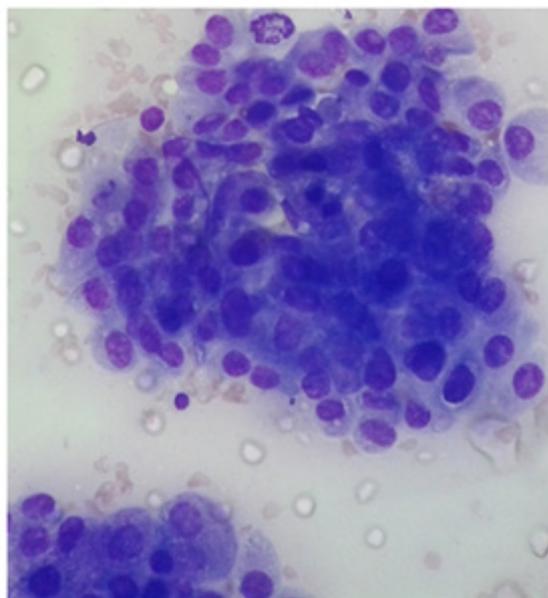


Fig 2.FNAC:Squamoid cells with hyperchromatic nucleus with high N:C ratio,mitotic figure(10x,wright stain)

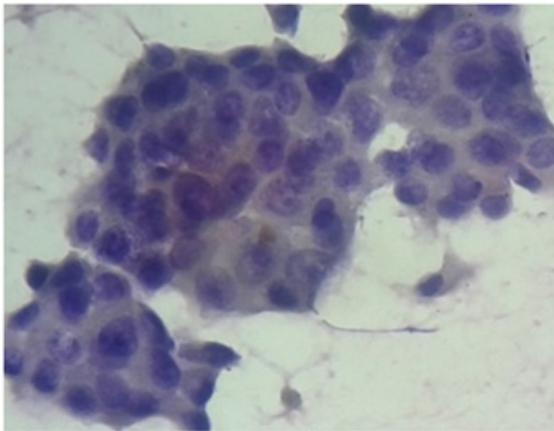


Fig.3.FNAC: (PAP stain ,40x) squamoid cells showing large pleomorphic hyperchromatic nucleus.



Fig.5: Gross picture: solid grey-white area with pushing margins

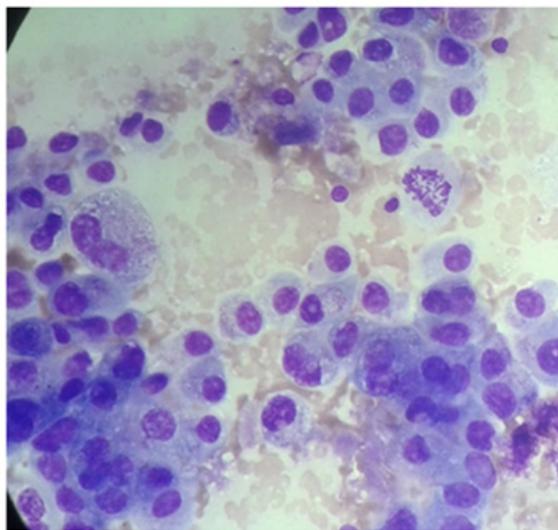


Fig.4.FNAC:Squamoid cells with highly pleomorphic,large nucleus, mitotic figure, few mucous secreting cells seen in a dirty background.(40x,wright stain)

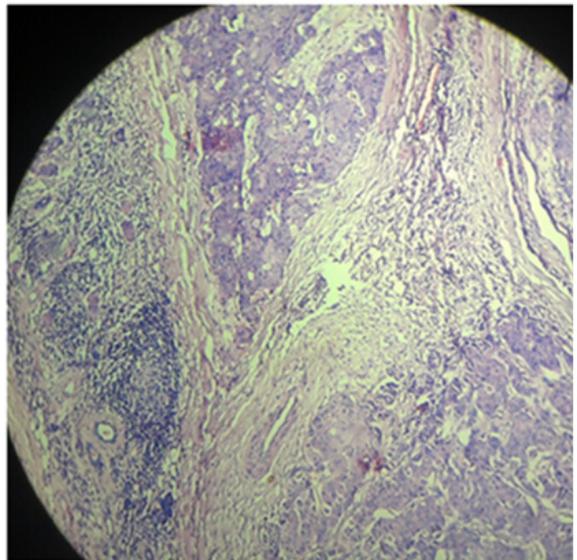


Fig 7: Squamoid (epidermoid) cells, fibrosis, lymphocytic infiltration (HPE ,4x, H &E Stain)

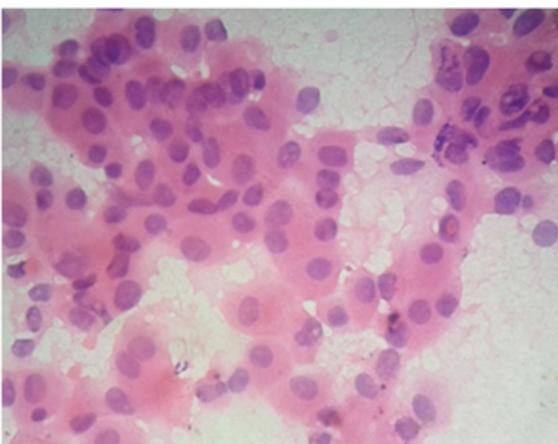


Fig.5.FNAC:Squamoid cells with large hyperchromatic nucleus(40x, H & E Stain)

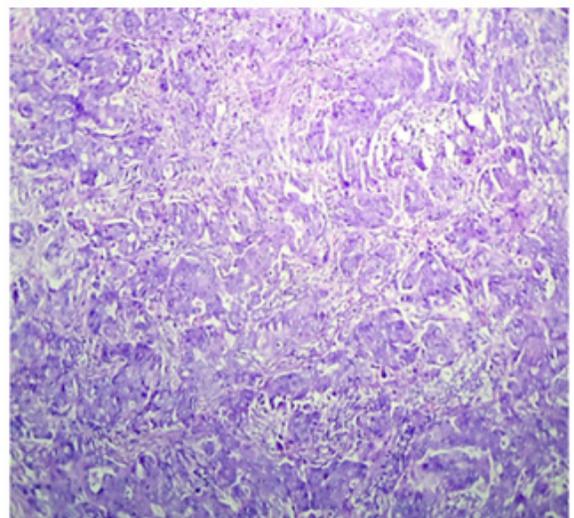


Fig 8: HPE: Epidermoid(squamous) cells infiltrating stroma(10x,H&E stain)

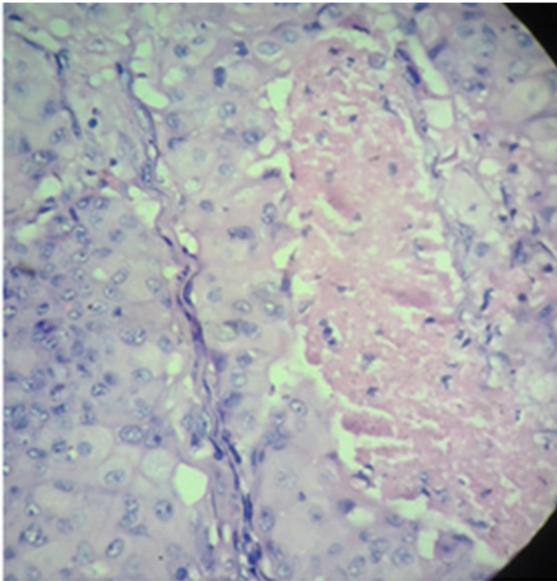


Fig.9: HPE: Extensive necrosis seen (40x, H&E stain)

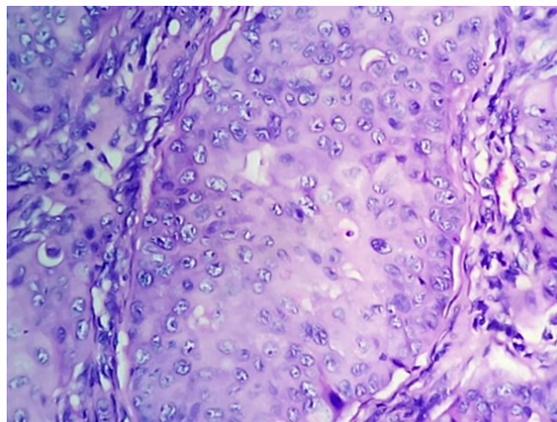


Fig10a HPE

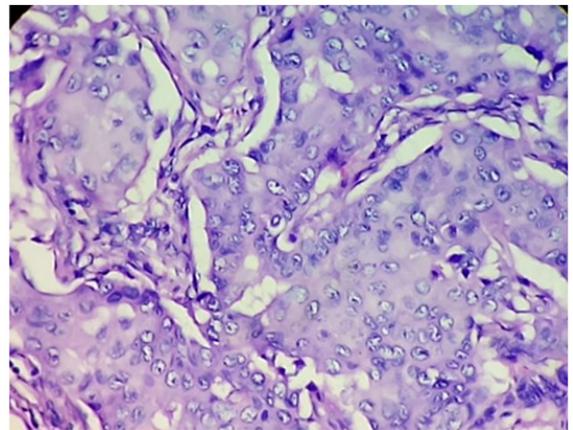


Fig10b ; Fig 10a&10b:HPE:Malignant epithelial cells in sheets & clusters (40x,H&E Stain)

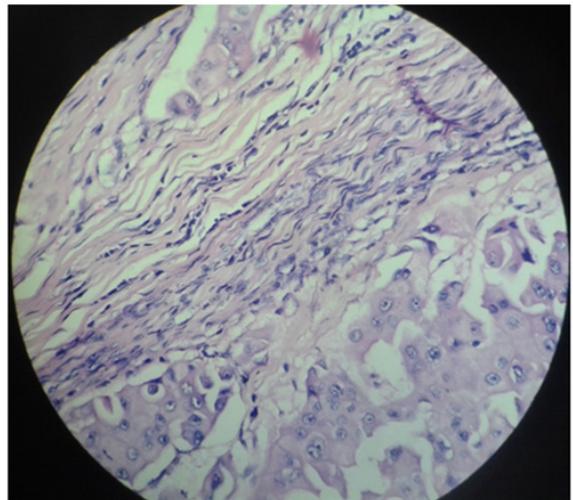


Fig 11:HPE: Perineural invasion by malignant epithelial cells (40x ,H&E stain)

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