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MUCO EPIDERMOID CARCINOMA OF THE PAROTID - AN INTERESTING CASE REPORT

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Abstract:
Mucoepidermoid carcinoma as an entity was first described by Stewart in 1945. He considered this tumor to arise from the pluri-potent reserve cells of salivary gland ducts. These reserve cells have the potential to develop into squamous, columnar and mucoid cells. This tumor constitutes about 5% of all malignant salivary gland tumors. It is more common in the parotid gland. Usually these tumors are asymptomatic, but may cause pain when they become aggressive. These tumors usually do not involve the facial nerve and commonly is confined to the superficial lobe of parotid gland. This tumor commonly arises in middle aged and young adults and is rare in elderly. This case is being reported because it is a rarity in this age group and duration. Mucoepidermoid carcinoma may become cystic because of the presence of mucoid cells which secrete mucous. There are two malignant lesions that are known to cause cystic lesions in the parotid gland. They are mucoepidermoid carcinoma and adenocystic carcinoma.

Keyword: muco epidermoid cancer, pluri-potent reserve cells, parotid

INTRODUCTION
In 1945, Stewart et al recognized Mucoepidermoid of the salivary gland as a separate entity among salivary neoplasm. Mucoepidermoid Carcinoma is thought to arise from pluri-potent reserve cells of the excretory ducts of salivary gland that have the potential to differentiate into squamous, columnar and mucous cells. Although no specific etiologic factors have been identified exposure to ionizing radiation has been reported in some cases. A mucoepidermoid carcinoma account for 5% of all salivary gland tumours commonly arise within the parotid gland and is the most common malignant tumour to arise in children and adolescents under 20 years of age. The tumour is a firm to hard mass and usually asymptomatic. Pain is associated with high grade malignant tumours. Mostly they do not cause facial
nerve paralysis when they occur in parotid gland. Mucoepidermoid carcinoma, have a prognosis based upon the clinical stage and histological grade with a good prognosis of Mucoepidermoid carcinoma in children as majority of them are well differentiated or grade I neoplasm. Low grade mucoepidermoid carcinoma has a better 5 year survival rate from 92–100 % compare to high grade mucoepidermoid carcinoma with 0–43 % survival rate with an overall incidence of lymph node involvement ranges from 18–28%. Postoperative local recurrence is more likely to occur in patients with positive margins regardless of the grade. We report on an unusual unique case of mucoepidermoid carcinoma parotid presented as a unilocular cyst.

CASE REPORT:
A 55 year female came with c/o swelling in the right side of the neck for the past 10 years which was initially small in size, gradually increasing in size, and rapidly increased in size over the past 3 to 4 years to attain the present size. She had no h/o fever, trauma, pain, facial asymmetry or difficulty in mouth opening. She had no h/o loss of weight and appetite or similar swelling anywhere in the body. She had no h/o radiation exposure. She had history of carries tooth extracted 10 years back. Her bowel and bladder habits were normal. She was a known Hypertensive but not a known diabetic or asthmatic. She had taken ATT 9 years back with h/o contact with TB patient at present (her husband). She had no history of surgeries in the past.

picture of neck swelling
On examination her vitals were stable. She had no pallor / generalised lymphadenopathy. Local examination of the swelling revealed an 8X5 cm, club shaped swelling in the antero-lateral aspect of Rt upper neck. All margins were well defined except the upper margin. Its surface was smooth and skin over the swelling was normal. There was no impulse on cough or pulsations over the swelling. The swelling was not warm or tender. It was mobile and became more prominent on muscle contraction suggesting its plane to be deep to deep fascia. The carotids were felt separately. The trachea appeared to be in midline and other neck regions were normal.

CT-neck Tc99 scintigraphy
Her investigations revealed a normal CBC, RFT and other routine work up. Her TFT was within normal limits. Her ENT examination was also normal. USG guided FNAC of the swelling was suggestive of hemorrhagic and cystic change in a papillary neoplastic deposits in a lymph node -?Thyroid follicular adenoma. Her CT NECK showed normal Thyroid gland, b/l submandibular and b/l parotid glands; Soft tissue density lesion with central necrotic area below the Rt Side ramus of the mandible - Possibly level III lymph nodes on right side with no displacement of great vessels. A 99m Tc-thyroid scintigraphy revealed minimal enlargement and overall low uptake in both thyroid lobes and prominent salivary glands.

Hence an Excision Bx of the cystic swelling was done which showed Hemorrhagic fluid in the cyst on cut section. The histopathology report of the specimen showed salivary gland parenchyma with a neoplasm arranged in sheets few clusters with no perineural or lympho vascular invasion suggestive of Mucoepidermoid carcinoma of the salivary gland – low grade, with margin positive for malignancy. In order to look for residual malignant lesions / lymph nodes, An MRI neck was done which showed normal submandibular and parotid glands and small ill defined hypo density noted between inferior end of Rt parotid and lateral aspect of Rt submandibular gland at the scar site

**Gross specimen**

On cut section shows multiple cystic and solid components with hemorrhagic fluid. Upper pole of the swelling attached to lower pole of the parotid.

With these results we planned and did a conservative total parotidectomy with Rt submandibular sialadenectomy. The HPE report of the specimen did not show any evidence of malignancy. Her postoperative period was uneventful. She received 25 cycles of adjuvant Radiotherapy and is now under regular follow up.

**total parotidectomy DISCUSSION Incidence**

Salivary gland tumors-3-4% of all head and neck neoplasm
70% originate in parotid
80% - benign
20% - malignant
Mucoepidermoid accounts 6-10%
Mucoepidermoid carcinoma is the most common salivary gland malignancy ,5 and 9% of all salivary gland neoplasm. most commonly in the major salivary glands, most often the parotid (45-70 %). The second most common site of occurrence is the palate (18%).
Age distribution between the ages of 20 and 70 years, with a slight peak in occurrence in the 5th decade.

Mucoepidermoid carcinoma occurs more frequently in women than in men.

Cell of origin:
salivary gland tumors arise from the adult differentiated counter part of salivary gland unit: Acinar cell: acinous tumor Striated duct cell: oncocytic tumor Excretory duct cells: mucoepidermoid and squamous cell CA

Histology It contains two major elements: mucin producing cells and epithelial cells of epidermoid variety. According to that classified low, intermediate and high grade Low grade: mucus > epidermoid, prominent cyst, mature cellular elements Intermediate: mucus = epidermoid, fewer, smaller cyst High: epidermoid > mucus, solid cell proliferation

Mucoepidermoid carcinoma is the most common malignant neoplasm of the parotid gland and the second most common malignant tumor of the submandibular gland. It constitutes approximately 30% of all malignant tumors of the salivary glands. Mucoepidermoid carcinomas are usually classified as low-grade or high-grade tumors. However, some authors also include an intermediate-grade as well. Low-grade tumors have a higher proportion of mucous cells to epidermoid cells. These lesions behave more like benign neoplasms but are still nevertheless capable of local invasion and metastasis. High-grade mucoepidermoid carcinomas have a higher proportion of epidermoid cells, and it may be difficult to differentiate this entity from squamous cell carcinoma. High-grade tumors are aggressive neoplasms with a high propensity for metastasis. Low-grade tumors are usually small and partially encapsulated. High-grade neoplasms are usually larger and locally invasive. On cut sections, low-grade mucoepidermoid carcinoma may contain mucinous fluid, whereas high-grade tumors are solid. Microscopically, low-grade mucoepidermoid carcinoma demonstrates aggregates of mucoid cells separated by strands of epidermal cells. High-grade tumors have few mucoid elements and the epidermoid cells predominate. Microscopic grading of mucoepidermoid carcinoma is important to determine the prognosis. Mucoepidermoid carcinomas are graded as low grade, intermediate grade, and high grade. Grading parameters with point values include the following:

- Intracystic component (+2).
- Neural invasion present (+2).
- Necrosis present (+3).
- Mitosis (4 per 10 high-power field [+3]). Anaplasia present (+4).

Total point scores are 0 to 4 for low grade, 5 to 6 for intermediate grade, and 7 to 14 for high grade.

Clinical features
Symptoms – parotid:
Starts as a painless swelling.

Advanced stage
- Deviation of angle of mouth and difficulty in eye closure
- Ulceration
- Cervical adenopathy
- Deep lobe tumor – may cause Dysphagia
- Swelling in the parotid region – raises the earlobe.
- Evaluate for involvement of skin, deep structures.

Facial nerve examination
- Inability to close the eyes - (exposurekeratitis) Loss of nasolabial fold.
- Oral cavity- deep lobe pushes the tonsil and uvula medially

Differential diagnosis-parotid swelling
Chronic parotitis. Auto immune conditions-Boecks sarcoid Stone in the duct Cysts. Mandibular neoplasms Parotid Hypertrophy in diabetics, alcoholics. Hypertrophy of masseter

**FNAC-parotid**

Sensitivity- 85-99%.
Specificity-96-100% Pre operative patient counseling.

In inoperable lesions-where radiotherapy is the initial treatment – if FNAC is negative do a trucut biopsy

**Ultrasound**

Inexpensive, noninvasive Used to differentiate solid from cystic tumors. Visualize relatively superficial masses.

**Radiologic investigations**

Routine imaging not necessary.-CT/MRI

**Features which may suggest malignancy**

Irregular margins
Extension of tumor beyond fascial confines.
Mandibular/skull base invasion.
Adenopathy.
Perineural spread- detected early by MRI

**Treatment of parotid gland tumors**

SUPERFICIAL PAROTIDECTOMY - Small tumors of superficial lobe TOTAL PAROTIDECTOMY –Larger tumors involving deep lobe RADICAL PAROTIDECTOMY - Sacrifice of facial nerve EXTENDED RADICAL PAROTIDECTOMY –Tumors extending beyond the confines of the parotid – resection of surrounding structures – skin, mandibular ramus, masseter muscle, infratemporal fossa dissection, subtotal petrosectomy

**Adjuvant therapy indications**

Intermediate & High grade tumors STAGE III&IV tumors Close or positive surgical margins-<5mm Perineural invasion lymphovascular invasion Regional nodal metastasis Recurrent disease/residual disease

Conclusion: Mucoepidermoid carcinoma of the parotid gland is very rare in children. Clinical stage and histologic grade are the main prognostic factors. Complete excision (superficial or total parotidectomy) with preservation of facial nerve is the treatment of choice. Neck dissection should be considered when there is clinical evidence of regional metastasis, high TNM stage, high histologic grade, and involvement of regional nodes. Complete surgical excision is the treatment of choice for MECs. Adequate excision is important in all grades of tumors. Prognosis of MECs is a function of the histological grade, adequacy of excision and clinical staging

**References:**


