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## STUDY OF CLASSIFICATION OF TUMOURS OF SALIVARY GLANDS

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### ABSTRACT

In this paper, we studied about the salivary glands and its classifications.

**KEYWORDS:** Salivary Glands, Aspiration Cytology, FNAC

### 1. INTRODUCTION

The present study has been carried out in the Pathology Department of PMCH, Patna and relevant department of ENT and Surgery. The tumours of salivary glands have been classified in different ways, in different centuries by different workers. This has created a confusing variety of names. Thus, the nomenclature and classification, still to some extent remains a matter of excessive complexity. The great variety of histological pattern and a number of views concerning their histogenesis are the factors for this problem. The workers of W.H.O have cautioned the histopathologists that most of benign tumours have malignant counter parts.

### 2. MATERIALS AND METHODS

#### Material:

The material in the present study comprised of specimens of salivary glands received from the department of **ENT and Surgery, Patna Medical College and Hospital, Patna.**

#### Method:

Each specimen has been studied under the following heading:

1. Age, sex of the patient from whom the specimen was collected.
2. Macroscopic examination of specimen including size, shape, colour any evidence of necrosis, haemorrhage or any other abnormality, on the outer surface and on cut section in different part of the specimens.
3. Examination of micro section prepared from the specimens.

#### *Preparation of microsection:*

##### 1. Fixation of tissues:

Approximately 5 mm thick slices from different part of specimen were taken and were put in 10% formative for 24 hours.

##### 2. Dehydration:

After fixation, the tissues were dehydrated by passing through ascending grades of alcohol for 4 hours in each 50%, 70% and 90% alcohol and then 2 changes in absolute alcohol 2 hours each. The tissues were then cleared in two changes of xylol – 1 hour each or till the tissues were transparent.

##### 3. Embedding:

The tissues were impregnated in paraffin kept at constant temperature of 60<sup>0</sup> (55<sup>0</sup> C – 65<sup>0</sup>C) in a paraffin bath for two hours, subsequently tissue blocks were prepared with the help of suitable (L) moulds. Small amount of molten paraffin was layered first then the tissue was placed suitably on paraffin and more molten paraffin was poured to cover the entire mould was left to cool.

#### 4. Section Cutting:

Serial sections were cut at 4 to 6 microns by rotary microtome and the sections were floated on a warm water bath (40-45°C) for expansions of curled sections. Then the sections were received on albuminised slide and the sections were kept at 37°C in an incubator overnight for fixation of micro section to the glass slides.

### 3. CLASSIFICATION OF TUMOURS OF SALIVARY GLANDS

The importance of examining all part of tumour has been emphasized. Most salivary glands are pleomorphic varying in histological appearance from area to area and adequate sampling is essential.

#### CLASSIFICATION AS FOLLOWS:

##### Malignant Epithelial Tumours:

- Acinic cell carcinoma
- Mucoepidermoid carcinoma
- Adenoid cystic carcinoma
- Polymorphous low- grade adeno carcinoma
- Epithelial-myoepithelial carcinoma
- Clear cell carcinoma, not otherwise specified.
- Basal cell adeno carcinoma
- Sebaceous carcinoma
- Sebaceous Lymph adeno carcinoma
- Cyst adenocarcinoma
- Low- grade cribriform cystadeno carcinoma
- Mucinous adeno carcinoma
- Oncocytic carcinoma
- Salivary duct carcinoma
- Adeno carcinoma, not otherwise specified
- Myoepithelial carcinoma
- carcinoma ex pleomorphic adenoma
- Carcino sarcoma
- Metastasizing pleomorphic adenoma
- Squamous cell carcinoma
- Small cell carcinoma
- Large cell carcinoma
- Lympho epithelial carcinoma
- Sialoblastoma

##### Benign Epithelial Tumours:

- Pleomorphic adenoma
- Myoepithelioma
- Basal cell adenoma
- Warthin tumour
- Oncocytoma
- Canalicular adenoma
- Sebaceous adenoma
- Lymph adenoma
- Sebaceous

Non- sebaceous

##### Ductal Papillomas:

- Inverted ductal papilloma
- Intra ductal papilloma
- Sialadenoma papilliferum
- Cystadenoma

##### Soft Tissue Tumours:

- Haemangioma

##### Haematolymphoid Tumours

- Hodgkin lymphoma
- Diffuse large-B- Cell lymphoma

- Extranodal marginal zone B- cell Lymphoma.

### Secondary tumours

#### THE NON-NEOPLASTIC LESION:

#### CYST:

Any salivary gland major or minor may be the site of a cyst. The cyst are enclosed in epithelium of ductal, oncocytic, mucous secreting or mixed cell type.

Cyst fluid may be clear or viscid or saliva. Pure retention cyst collapse after aspiration. Aspiration has only a few macrophages.

Residual mass should always be reexcised.

#### SIALADENITIS:

##### Acute sialadenitis:

Gland is swollen, tender aspirate shows a mixed cell population of neutrophils foamy cells and clumps of endothelial cells.

##### Chronic sialadenitis:

Predominant ductal cells, very few acinar cells and inflammatory cells.

#### BENIGN TUMOURS-PLEOMORPHIC ADENOMA:

Synonymous - mixed tumors, complex adenoma, pleomorphic, sialadenoma). First described by **Billroth in 1859**.

It is the most common tumor of salivary gland forming 60% of parotid tumours. It contains both epithelial and mesenchymal structures.

On palpation these present as smooth freely movable swelling, non-tender & skin free.

#### CYTOLOGICAL CRITERIA FOR DIAGNOSIS INCLUDES:

- (1) Fibrillary chondromyxoid ground substance
- (2) Epithelial cells single and in loose sheets.
- (3) Small oval nuclei, bland nuclear chromatin well defined dense cytoplasm.
- (4) Spindle shaped mesenchymal cells seen mainly in matrix.

Epithelial cell is small uniform in size, round to oval eccentric nuclei. In Papanicolaou stain epithelial cell cytoplasm stain green or reddish brown and matrix grey to pink.

In MGG stain stromal cells have grayish cytoplasm, myxomatous area red, cartilage stain purple, epithelial cytoplasm is pale blue.

In case of doubt immunoperoxidase staining for intermediate filaments may be helpful for differentiation.

#### HISTOLOGY-

##### GROSSLY: -

Pleomorphic adenoma is a circumscribed pseudo encapsulated round at time multilobulated, firm mass 2-5 cm in diameter, with bosselated surface.

C/S grey, white and bluish occasional may show small cystic space. The consistency is soft and mucoid.

##### Microscopic:

It is characterized by pleomorphic or mixed appearance in which there are epithelial element present in a matrix of mucoid, myxoid and chondroid tissue.

#### The epithelial component:

Various pattern like ducts acini, tubules, sheets and strands of cells of ductal or myoepithelial origin. The ductal cell are cuboidal or columnar and the underlying myoepithelial cell may be polygonal or spiral shaped resembling smooth muscle cell.

The material found in the lumina of duct is PAS positive focal area of squamous metaplasia and keratinisation may be present.

Immuno histochemically Tumour cells are immuno reactive for epithelial (cytokeratin, EMA, CEA) as well as myoepithelial (actin, vimentin).

#### The mesenchymal element:

Contains loose connective tissue, myxoid, mucoid and chondroid matrix.

#### Monomorphic adenoma:

The salivary gland tumour that shows a more uniform type of adenomatous structures are referred to as monomorphic adenoma.

Mono morphic adenoma have a well-defined capsule and it uniformity of the cellular pattern is prominent. It differs from the pleomorphic adenoma by the absence of myxoid area.

**ADENOLYMPHOMA:-**

Synonymous- Papillary cystadenoma, Lymphomatous Warthin tumour, Adenolymphoma was first described as a distinct neoplastic entity by **Albrecht and Arzt in 1910**.

They called it papillary cyst adenoma in hydrogen. In **1929 Warthin** describe two tumours with similar histological structure, he named it papillary cyst adenoma, Lympho matosum

The tumor consists of epithelial parenchyma and lymphoid stroma. Cystic spaces are lined by double layered epithelium. The inner layer being a surface palisade of columnar cells oncocyte overlying a single layer of cuboidal cells.

Histogenesis most widely accepted is that proposed by **Brecht and Arzt**. According to which the tumor arises from salivary gland inclusions in lymph nodes such inclusion are relatively common in the parotid, so adenolymphomas are almost exclusive to this salivary gland or adjacent to it. In a clinical review of 52 adenolymphomas by **Enorth C.M, Franzen S and Zajicek J in 1976**; All were found to be in or close to parotid gland, 46 were sub auricular, 6 were preauricular, on a level with the tragus, one was multicentric with 4 foci in the same parotid region, 3 had bilateral adenolymphoma or parotid, clinically it appears as a doughy swelling with poorly defined border on palpation.

**CYTOLOGY REVEALS:**

The aspirate of mucoid, murky fluid, back ground of amorphous and granular debris, oncocytes cell in cohesive, monolayered sheets, many lymphoid cell. Oncocytes with PAP stain shows dense cytoplasm orangeophilic and granulated. In MGG it is dense grey blue and homogenous.

A review of cytological slides and report from 52 histopathologically confirmed adenolymphomas at **Radium hemmet** showed. 1 case- no aspiration, 49 cases aspirates had cystic fluid mixed with amorphous material.

In 7 cases lymphocytes and/ or amorphous material. 42 cases remaining showed oncocytes together with sometimes amorphous substance lymphocytes and/or cystic fluid; 2 were misdiagnosed as mucoepidermoid carcinoma derivation of squamous cell from oncocytes has been described by **Hamperl (1926)**.

**4. CONCLUSIONS**

The value of aspiration biopsy in clinical management of salivary gland tumours was first established by studies carried out at **Radiumhemmet** during **1953 to 1965**, 1000 case were studied out of which surgery was performed on 960 cases after FNA cytology and comparisons made between the cytological and histopathologic finding. The parotid was involved in 604 of 690, lesions, submandibular in 69, sublingual in 3, and minor salivary gland in 14 cases.

Histology showed no tumour in 74 cases 51 tumor metastasis is 23 and local recurrence tumor in 91 cases (benign in 51 and malignant in 40) out of 91 recurrent tumours 86 (95%) were cytologically recognized. In 461 of 502 primary neoplasm in this study (92%) were initially diagnosed by FNA aspiration cytology. In 346 cases of histologically confirmed pleomorphic adenoma. Previous cytology diagnosis was 320 (92.5%) as pleomorphic adenoma 2(0.6%) carcinoma, 15 (435) neoplasm unsatisfactory aspiration specimen in 9(2.6%) cases. Similarly in 52 cases of adenolymphomas histologically confirmed, 22 (42.3%) were cytologically diagnosed previously correctly as Warthin's in 21 (40.4%) cases aspiration yielded unsatisfactory specimen. In 9.6% cases it was misdiagnosed as oncocytoma 1.9% case as pleomorphic adenoma and neoplasm and in 3.8% cases as carcinoma, i.e., total of 17.2% cases. In similar study of carcinoma out of 38 histologically confirmed cases of salivary gland carcinoma, 24 were previously correctly diagnosed cytologically.

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