

## Hyalinised Oncocytoma of Parotid Gland: A Case Report

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**Abstract:** *Oncocytoma or oxyphilic adenoma is defined since the classic works of Hamperl as a benign tumor exclusively composed of oxyphilic cells ; the large eosinophilic cuboidal to columnar cells with more than 60% of their cytoplasm occupied by mitochondria. Oncocytomas are 1-2% of salivary gland neoplasms, hyalinised oncocytoma with calcification is still rare.*

*We report a case of 60 year female with swelling at the submandibular area since 4 months which was progressively increasing, and was non tender .fine needle aspiration was not done. Subsequently a biopsy was received in the pathology department which was clinically suspected to be submandibular lymph node but on microscopy it was diagnosed as hyalinised oncocytoma of parotid gland.*

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### I. Introduction

Oncocytes are epithelial cells which appear as cells with abundant granular, eosinophilic cytoplasm, central pyknotic nucleus and ultrastructurally are crammed with numerous mitochondria of various sizes. Oncocytes are seen in various organs like salivary glands, thyroid, parathyroid, pituitary, nasal cavities, sinuses, ocular caruncle, lacrimal glands, buccal mucosa, eustachian tube, larynx, oesophagus and organs like liver pancreas and kidney.<sup>[1]</sup>

Oncocytes may be seen in normal glands or may be part of neoplastic process. Since oncocytes are capable of undergoing mitotic division, a supervening neoplastic change is possible.<sup>[2]</sup>

The World Health Organisation (WHO) classification of Salivary Glands neoplasms recognises three oncocytic entities: oncocytosis, oncocytoma, oncocytic carcinoma.<sup>[3]</sup> The parotid gland is the most commonly involved salivary gland, accounting for 78-84% of salivary glands oncocytomas. Oncocytomas occurring in submandibular glands and minor salivary gland has been reported but are relatively uncommon.<sup>[4]</sup>

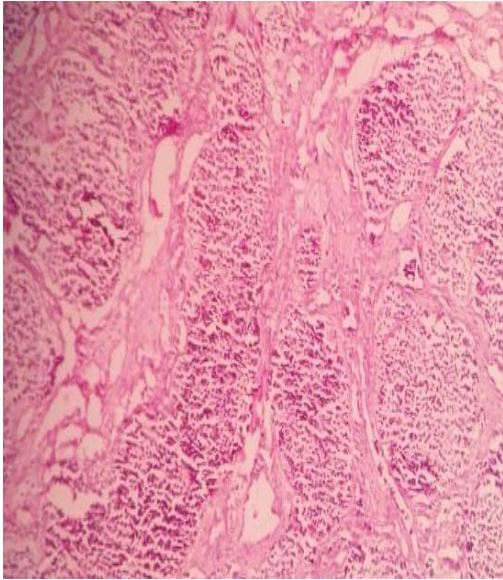
In one large series, 20% of patients had either a history of radiation or of long term occupational exposure.<sup>[5]</sup> Oncocytomas most often occur as asymptomatic, well circumscribed, solitary, painless masses usually measuring 3-4 cm but may reach upto 7 cm in diameter. Rarely they may present with pain and discomfort. They may also occur as multifocal or bilateral neoplasms.

Grossly oncocytomas are solid, well circumscribed, tan to red brown, nodular or multinodular lesions. Fibrous encapsulation has been a criteria used to distinguish oncocytoma from oncocytic hyperplasia, although in some oncocytomas it may be minimal.<sup>[6]</sup>

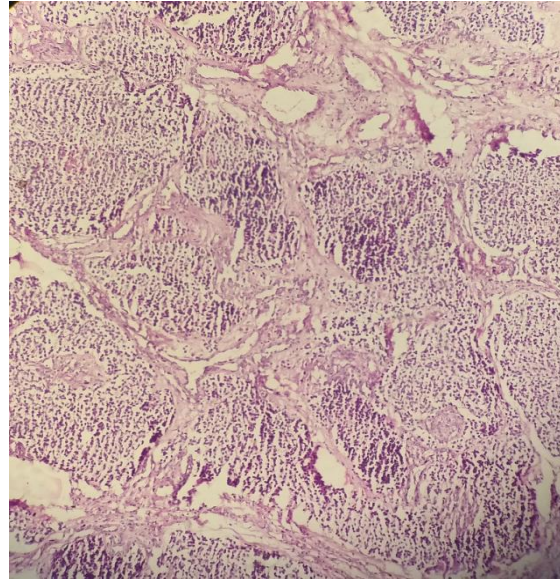
### II. Case Report

We present a case of 65 year female who came to surgery outpatient department with complaint of painless swelling on submandibular region since 4 months which was hard in consistency, increasing progressively and was non tender. Clinically it was diagnosed as submandibular lymph node and was excised and swelling was sent to our department for histopathological examination. On gross examination a creamish grey soft tissue piece measuring 3x2.5x1 cm was whole passed.

On microscopic examination: multiple sections studied from the received tissue show fibrous capsule. underneath seen are lobules of irregular sizes and shape having large cells with uniform nucleus and clear to eosinophilic granular cytoplasm. The lobules are separated by thick hyalinised stroma having blood vessels along with areas of calcification.

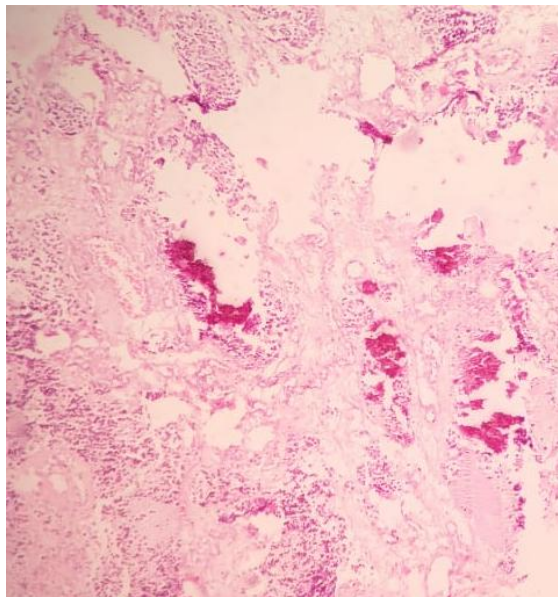


**Figure -1**

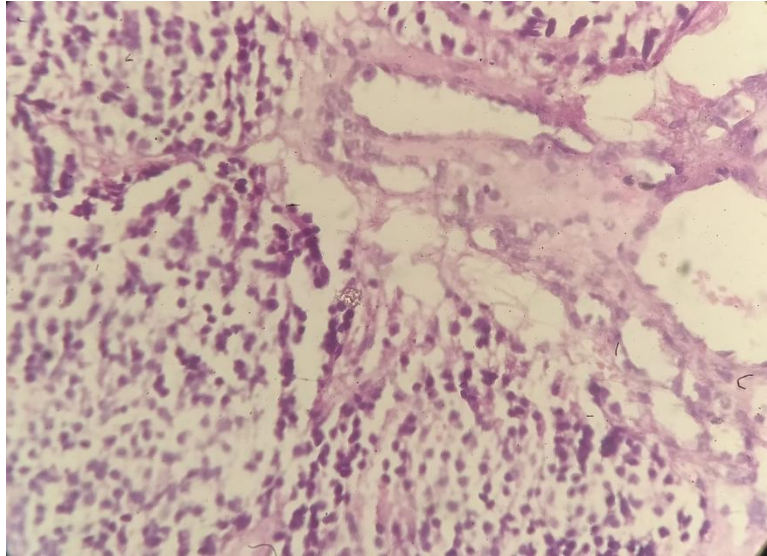


**Figure -2**

**Figure 1,2** – Sections show lobules of oncocytes with hyalinised stroma ( H and E, original magnification 4x )



**Figure-3**– Sections show areas of calcification ( H and E, original magnification 40x )



**Figure 4-** sections show cells with large nucleus with clear to eosinophilic cytoplasm ( H and E, original magnification 100x )

### III. Discussion

Prabakaran et al in their study discussed oncocytomas with its mimickers<sup>[7]</sup>

1)Oncocytoma : Fibrous encapsulation, solid clusters or cords of oncocytic/clear cells in an organoid pattern. Fibrovascular septa with thin walled blood capillaries. Compression of the surrounding stroma. . PTAH positivity of the conventional oncocytic cells and focal positivity of the clear oncocytic cells. Positive IHC with anti-mitochondrial antibody and cytochrome c oxidase. P63 positivity in the basal cells.

2)Warthin tumor: Cystic cavity with bilayered papillary oncocytic proliferation. Prominent lymphoid component with germinal centre formation. Association with smoking .

3)Oncocytic carcinoma: Cellular and nuclear pleomorphism. Perineural and perivascular invasion. Necrosis, increased mitotic activity, destructive invasion of adjacent tissue and metastasis. p63 positive basal cells.

4)Mucoepidermoid carcinoma: Epidermoid, intermediate and mucous cell differentiation. Clear cells if predominant are often associated with areas that show epidermoid differentiation. Mucicarmine positivity of mucous cells. Clear cells are negative for PTAH.

5)Clear cell adenocarcinoma: Conspicuous hyalinized collagenous stroma. Poorly circumscribed with an infiltrative growth pattern. PAS positive clear cells. The tumor is negative for p63.

6)Acinic cell carcinoma: Presence of acinar differentiation. Classic patterns of acinic cell carcinoma like solid, microcystic, papillary cystic, follicular and macrocystic. The tumors are negative for p63.

Pathologically oncocytoma is defined as a well circumscribed mass composed of layers of oncocytes ( small round nucleus, microgranular, eosinophilic cytoplasm). Fine needle aspiration is the procedure of choice for making the diagnosis in majority of cases although its sensitivity is reported to be 29%.

Pathogenesis is quiet obscure although mitochondrial functional defects are believed to mediate the progressive degeneration of salivary epithelial cells.<sup>[8]</sup>

Aging is also thought to cause functional exhaustion of mitochondrial enzymes, and compensatory hyperplasia of mitochondria can occur which in turn is responsible for oncocytic change. Indeed, solitary oncocytes appear most often as incidental findings in aging salivary tissue, with studies showing upto 80% person older than 70 years of age.<sup>[1]</sup>

Clear cell carcinoma is the only salivary gland tumour that, by definition, is composed entirely of clear cells.<sup>[9]</sup>

It is rare, comprising less than 2% of salivary tumours, and has a slight predominance for the minor glands (60%), with the parotid and palate being the most frequent sites overall. It is composed of sheets or nests of clear cells which contain glycogen. However, diastase-resistant periodic acid Schiff (PAS) positivity may not always be uniformly apparent because glycogen is not well preserved in routinely fixed tissues and many clear cells may be negative. Mucus production is not seen. In some cases dense hyalinized bands of collagenous

connective tissue separate the clear cells.<sup>[10]</sup> , giving a distinctive appearance which was later reported as a new tumour type called hyalinizing clear cell carcinoma.<sup>[11]</sup>

Microscopically the tumor is seen as solid cluster or cords of tightly packed oncocytes separated by thin strands of fibrovascular stroma with scattered lumina of variable sizes. Some with associated eosinophilic intraluminal secretions. The cells are large cuboidal to columnar and arranged in an organoid pattern with prominent eosinophilic finely granular cytoplasm and uniform round, centrally placed nuclei. The eosinophilia is variable and hence may be admixture of light and dark stained cells. Oncocytomas may occasionally show extensive cystic change.<sup>[12]</sup>

#### **IV. Conclusion**

Hyalinised Oncocytomas with calcification are benign epithelial tumors that often occur between the sixth through the eighth decades of life. They present with facial swelling and solid solitary masses upon clinical palpation. Upon histological verification, a surgical approach should be considered to eradicate the tumor.

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