



## Case Report

# FNAC induced histological changes in warthin tumor mimicking as cancer

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### Keywords:

Warthin tumor;  
Metaplastic changes;  
FNAC;  
Squamous cell;

### ABSTRACT

Warthin tumor is the second most common salivary gland tumor affecting male in 6<sup>th</sup> to 7<sup>th</sup> decade of life. It can grow in peri- parotid or cervical lymph nodes too. Preoperative FNAC procedure can induce partial to near total infarction and metaplastic changes in tumor masquerading with malignancy, mainly squamous cell carcinoma or low grade mucoepidermoid carcinoma.

Here, I present a case in which FNAC procedure was performed. Later on histopathology, metaplastic changes in epithelium of Warthin tumor and extensive infarction were noted. Such lesion could have been mistaken as Squamous cell carcinoma or low grade mucoepidermoid carcinoma. Thus acquaintance with morphological alteration caused by FNAC procedure is very important to avoid misdiagnosis.

## INTRODUCTION

Warthin tumour (Adenolymphoma) is the second most common benign tumor of salivary gland . In past definitive diagnosis often required tissue diagnosis. Nowadays, FNAC is being widely used (with overall accuracy of 87% to 97%) for diagnosis of Warthin tumor which can lead to metaplastic changes. This metaplastic change may mimic as malignancy, mainly squamous cell carcinoma and low grade mucoepidermoid carcinoma. The metaplastic or infarcted variant is characterized by replacement of much of original oncocyctic epithelium by metaplastic squamous cells and ruptured lymphoepithelial cystic area along with extensive necrosis, fibrosis and inflammatory change.<sup>1,2</sup> The pathogenesis is unknown but it is most likely to be vascular in origin. Where it is rare for a malignant lesion to be misclassified as Warthin tumor, as many as 26% of Warthin

tumor may be misclassified as malignant on FNAC.

## CASE REPORT

A 53 year-old normotensive nondiabetic male was admitted with complaint of right cervical lymph node swelling. Patient was evaluated and investigated further. He had diagnosis of a typical cells on FNAC from outside. Slides were reviewed and found to show sub optimal processing along with few suspicious looking cells with high nuclear cytoplasmic ratio. CT (noncontrast) scan of head, neck, thorax and abdomen showed peripherally enhancing lesion with internal non enhancing area suggestive of necrosis at level II right cervical lymph node. CECT Thorax and Abdomen was essentially normal. PET-CT done at our institute revealed hypermetabolic (PET avid) necrotic right cervical lymph node-likely to be inflammatory / infective in nature. Rest organs did not show increased uptake on PET scan. Right cervical lymph node excision biopsy was done .Postoperative period was uneventful and wound margins

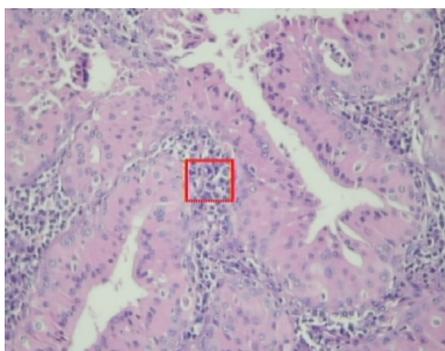
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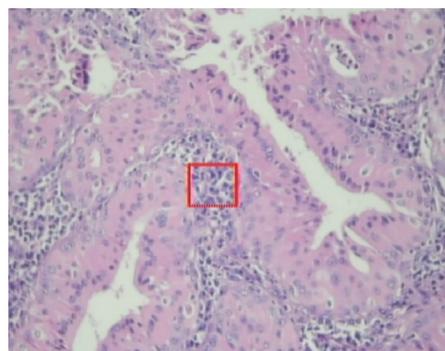
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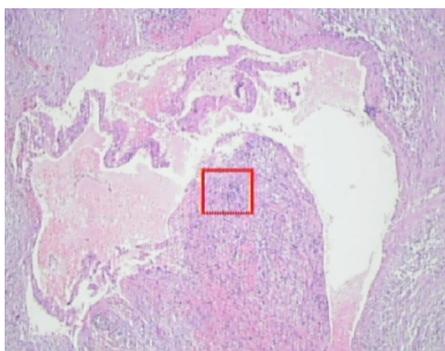
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**Figure 1:** Photomicrograph of residual fragments of Warthin tumor giving clue to diagnosis- bilayered oncocytic cell fragment and lymphoid stroma (HE stain, X100)



**Figure 2:** Photomicrograph of FNAC induced squamoid metaplastic morphological alteration in Warthin tumour (HE stain, X100).



**Figure 3:** Photomicrograph of FNAC induced rupture of cystic area in Warthin tumor with mixed inflammatory infiltrate and dense fibrosis (HE stain, X40).

were healthy.

### Pathologic Finding

Gross examination of right level II cervical lymph node measuring 2.5x1.7x1.0 cm showed cystic area. Microscopic examination showed cuff of lymphoid stroma lining intraluminal papillary projections with bi layering of flattened cuboidal cells and luminal oncocytic cells. (fig.1) Surface blebs and cilia were noted. No mitotic activity was noted. Cytological atypia was probably induced by preoperative FNAC leading to metaplastic changes in form of squamoid morphological alteration. (fig.2) Haemorrhagic infarction and dense inflammation comprising of lymphoplasmacytic infiltrate were also seen. Fibrosis was extensive.(fig.3) Typical Warthin tumor with metaplastic changes and haemorrhagic infarction due to FNAC procedure was observed in right level II cervical lymph node.

### DISCUSSION

Warthin tumor is the second most common benign tumor of salivary gland with preferential location to lower pole of parotid gland growing as soft cystic painless mass affecting

mainly male in sixth to seventh decade. Occasionally tumor may arise in peri-portal lymph node or rarely in salivary duct inclusion in cervical lymph node. Pain is due to infarction induced mostly by FNAC procedure which often produces morphological changes. Awareness of pathologist of FNAC induced morphological alteration is of paramount importance to avoid misdiagnosis. Preoperative FNAC procedure in Warthin tumor (6-7%) can lead to infection or infarction or metaplastic changes (squamous metaplasia of the epithelium along with regressive changes in stroma) masquerading with low grade mucoepidermoid carcinoma or squamous cell carcinoma.<sup>3</sup> Extensive necrosis or ghost architecture of papillary structure is often identified.<sup>4,5</sup> Cords of spongiotic metaplastic squamous cells with pseudo-infiltrative pattern in surrounding stroma can be observed. Cytologic atypia can be prominent and mitosis may be brisk. Stroma shows dense fibrosis with hypocellular collagen and myofibroblastic proliferation.<sup>6</sup> Heavy mixed inflammatory infiltrate in form of neutrophils, chronic inflammatory cells and sheets of macrophages are accompanying features. Residual undamaged Warthin tumor can be seen in lymph node or salivary gland which gives clues to correct diagnosis.<sup>7</sup>

Immunohistochemistry has very limited role in diagnosing the metaplastic epithelium with epithelial markers, especially when no residual viable Warthin tumor can be identified. Warthin tumor and its metaplastic (infarcted) variant both express CK<sup>7,8,18,19</sup>, which are typical for columnar differentiation. Cytokeratin typical of squamous differentiation are absent from Warthin tumor and its metaplastic variant, irrespective of Squamous morphology of metaplastic epithelium. The expression of CK 5/14 and 17, which are typical of regenerative cells, is restricted to basal cells in Warthin tumor, but is expressed also in surface cells in metaplastic Warthin tumor.<sup>8</sup> Stroma is reactive in nature on Immunohistochemistry.

Absence of keratinization in squamous metaplastic epithelium (squamous cell carcinoma shows keratinization in most cases) and much less mucinous goblet cells

(numerous in low grade mucoepidermoid carcinoma) help to differentiate condition. It is pertinent to note that malignant change in form of squamous cell carcinoma is though rare but can take place (0.3%) in Warthin tumor which can be clinically appreciated with rapid and progressive salivary gland enlargement.

## CONCLUSION

This case highlights importance of recognition of FNAC induced metaplastic changes which can mislead one towards diagnosis of malignancy and its possible consequences thereafter.

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