International Journal of Medical and Pharmaceutical Research
Website: https://ijmpr.in/| Print ISSN: 2958-3675 | Online ISSN: 2958-3683
NLM ID: 9918523075206676
Volume: 4 Issue:2 (Mar-Apr 2023); Page No: 170-174

Case Report

Warthintumor in a young non-smoker female diagnosed on Fine Needle Aspiration Cytology – A rare Case Report

Dr Agam Hans[1], Dr Prem Singh[1], Dr Rupinder Kaur[1], Dr Irbinder Kour Bali[1]

[1]Department of Pathology, MMIMSR, Mullana, Ambala

ABSTRACT

Warthintumor is the second most common benign tumor occurring in the Salivary Glands following Pleomorphic Adenoma. It gets its name from the American Pathologist – 'Aldred Scott Warthin,' who described it in 1929. The tumor commonly affects males with incidence peaking around 6th-7th decade. Smoking is a well-established etiological agent of Warthin tumor. We hereby describe a case of a young non-smoker female who presented with a painless swelling in the infra-auricular region. Fine needle aspiration cytology of the swelling revealed oncocytes arranged in sheets, clusters and scattered singly. Cells had abundant amount of granular cytoplasm with eccentric nuclei. Background was composed of lymphocytes and granular debris. Diagnosis was rendered as - **'Milan Category IV-A' – NEOPLASM: BENIGN suggestive of Warthin tumor** according to The Milan System for Reporting Salivary Gland Cytopathology. The patient underwent superficial parotidectomy and the specimen of the same was received in the histopathology department. Gross examination revealed that the tumor was ovoid and well circumscribed with cut section showing solid-cystic areas. Microscopy revealed that the tumor comprised of both epithelial and lymphocytic component with epithelium thrown into papillary folds. The epithelium was oncocytic with foci showing squamous metaplasia. The final diagnosis was confirmed as 'Warthin tumor.' A young non-smoker female presenting as Warthin tumor is a rare entity. The recent changing trends in mean age and decrease in gender predilection for men not only needs careful and comprehensive evaluation of the patients by the clinicians but also more research work regarding the pathogenesis needs to be carried out.

Key Words: *Warthin tumor, young non-smoker female, FNAC, Cytopathology, Histopathology, Pathogenesis*

***Corresponding Author**
Dr Agam Hans
Department of Pathology, MMIMSR, Mullana, Ambala

INTRODUCTION

Warthintumor is the most common Monomorphic adenoma of Salivary Glands and the second most common benign tumor occurring in the Salivary Glands following Pleomorphic Adenoma, which being the most common. It has been known in the literature by more than 20 names, including adenolymphoma, cystadenolymphoma and papillary cystadenoma lymphomatosum but Warthin remains the most preferred. It gets its name from the American Pathologist – 'Aldred Scott Warthin', who comprehensively described this tumor in 1929.

Warthin tumor accounts for ≈ 5-14% of all salivary gland tumors and almost exclusively occurs in the superficial lobe of parotid [1]. The incidence peaks around sixth-seventh decade and rarely occurs below the age of 40 years [2]. A definite male predominance has been seen, with ratio varying from 5:1 to 26:1 [2]. Etiological factors include tobacco smoking, EBV infection, Ionizing Radiations, Autoimmune diseases with tobacco smoking being the most established risk factor [3]. Malignant transformation is rare and accounts for less than 0.3 % of the cases [4]. Ours is Case Report of young female patient diagnosed with Warthin tumor, which is a rare occurrence at this age.

CASE REPORT

A 19years old female with no history of tobacco smoking presented with a painless swellingin the left infra-auricular region since 1 week**(Fig 1A).** The patient also complained of on and off head ache with no history of any weight loss, fever, or cough. On local examination the swelling was 2x1cm in size, soft, non-tender and fixed to underlying tissue. The overlying skin was normal with no change in temperature. There was no facial weakness or deviation present and the swelling did not alter in size with chewing. It was not associated with any lymphadenopathy.

FNAC was advised and after taking consent from the patient it was conducted in our department using 22 G needle. Around 0.3 ml of blood mixed material was aspirated and were spread on to slides. Slides were air dried as well as wet fixed and were subsequently stained with Leishman-Giemsa (L&G) and Hematoxylin & Eosin (H&E). Microscopic Examination revealed oncocytes arranged in sheets, clusters and were also dispersed singly. Cells revealed abundant

granular cytoplasm and centric to eccentric nuclei with few of them showing prominent nucleoli. Background showed large number of lymphocytes and granular debris**(Fig 1B-1D)**. Diagnosis was rendered as - **'Milan Category IV-A' – NEOPLASM: BENIGN suggestive of Warthin tumor** according to The Milan System for Reporting Salivary Gland Cytopathology. For further evaluation excision of the mass was advised.

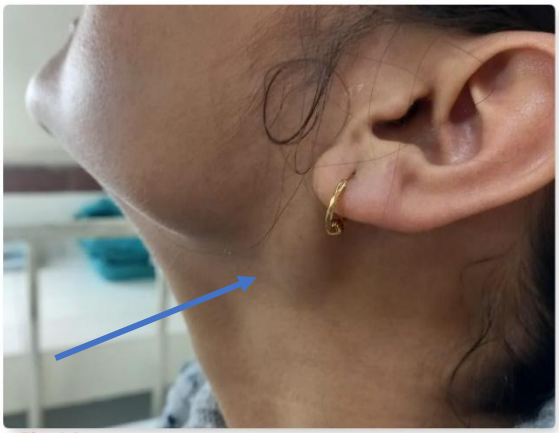

Fig-1A

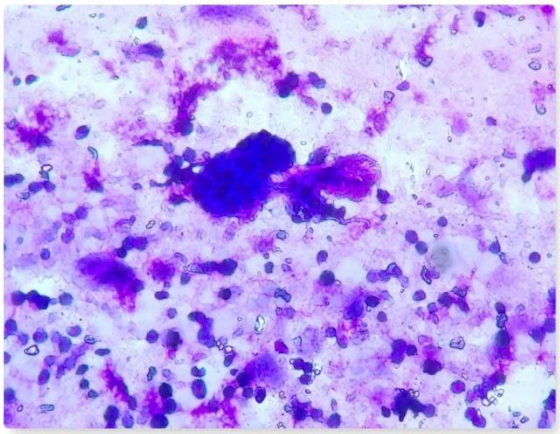

Fig-1B

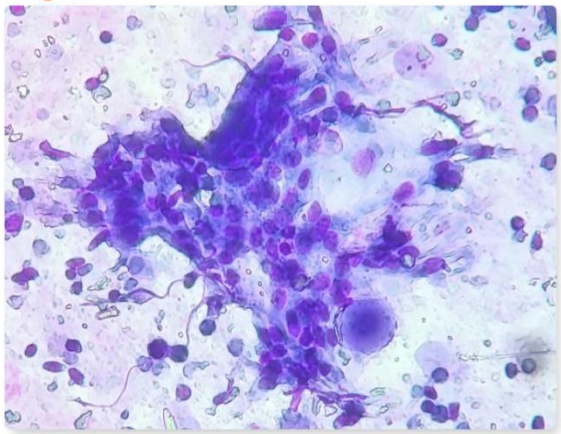

Fig-1C

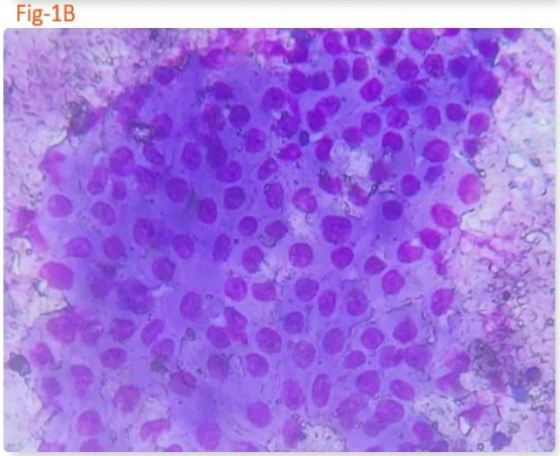

Fig-1D

Fig-1A: Site of FNAC; **Fig 1B-1D**: Sheets of oncocytes against a murky and lymphocytic background
1B & 1C- L&G; X100, 1D – L&G; X400

For further assessment the patient underwent superficial parotidectomy and the specimen of the same was received in the Histopathology Department. On gross examination the specimen measured 5x3.5x1cm with the external surface showing boss elated areas**(Fig 2A)**. The tumor was ovoid and well circumscribed. On cut section there were solid-cystic areas, predominantly solid that appeared grey white and firm along with small foci of hemorrhage**(Fig 2B)**. No necrotic areas were seen. On microscopic examination the tumor comprised of both epithelial and lymphoid components. The irregular cystic structures showed epithelial component thrown into papillary folds and contained granular semisolid debris**(Fig 3A-3B)**. The lining epithelium was comprised of bilayered cuboidal cells and was oncocytic with few areas exhibiting squamous metaplasia**(Fig 3C-3D)**. The stromal component was composed of lymphoid aggregates in varying degrees of reactivity along with few histocytes and plasma cells. Based upon these features the final diagnosis was confirmed as **'Warthin tumor'**.

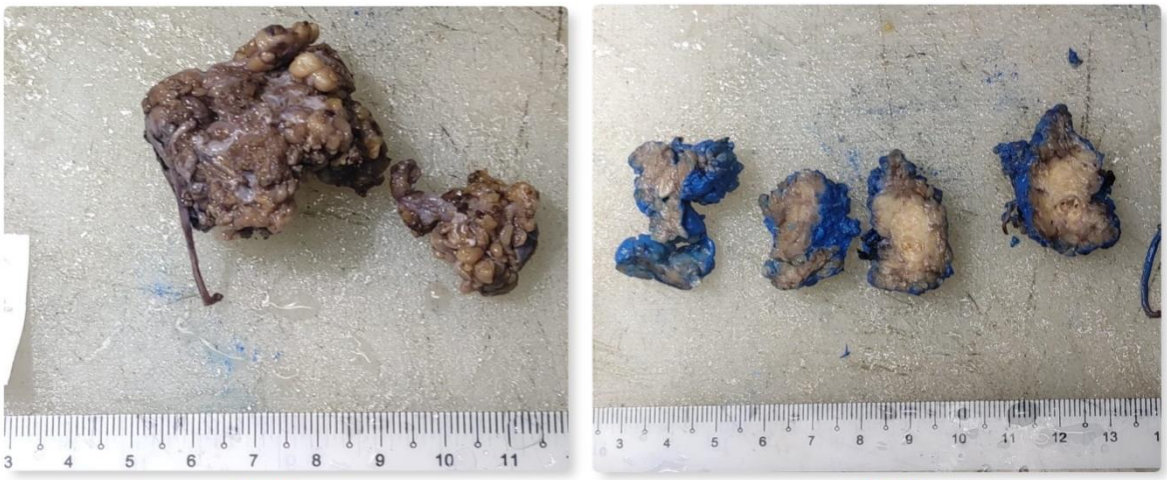

Fig-2A: Gross image showing lobulated surface; **Fig-2B**: Cut section showing solid-cystic areas

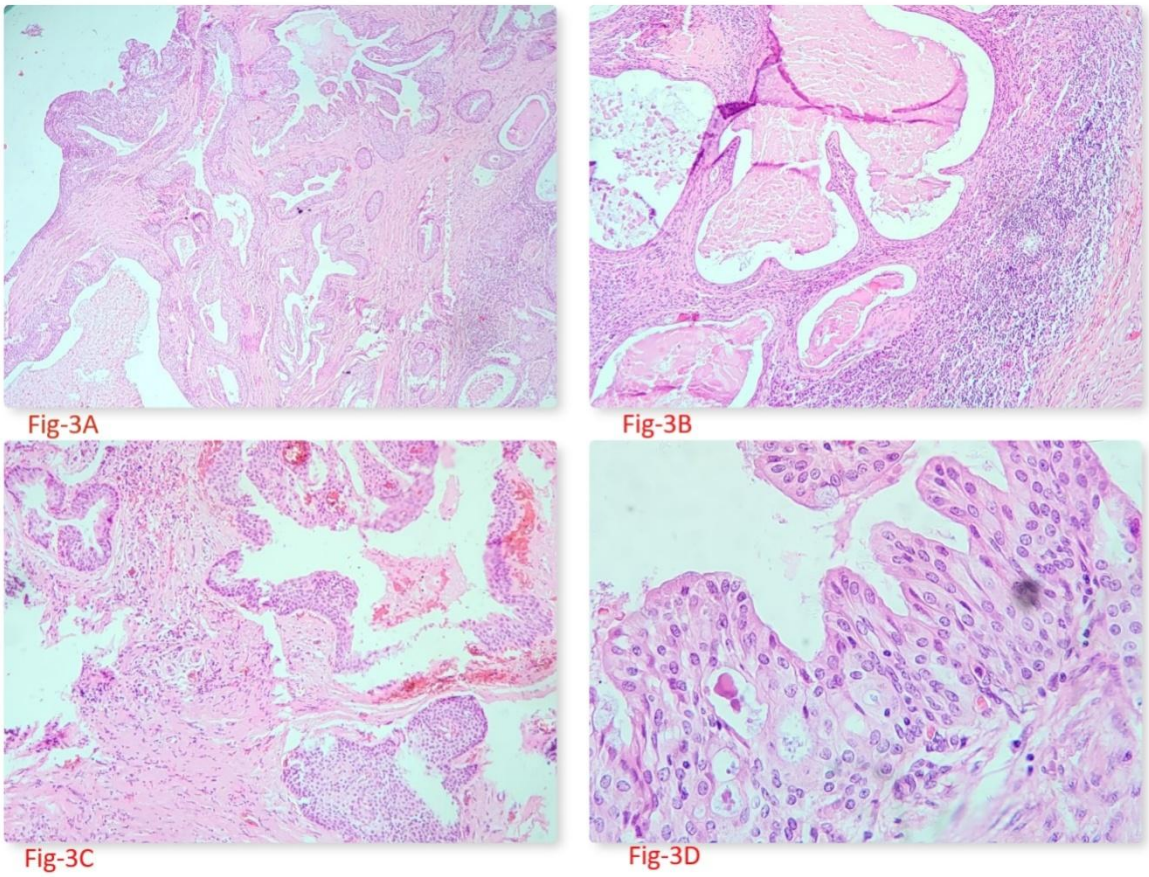

Fig-3A-B: Multiple cysts showing papillary folds lined by oncocytic epithelium along with lymphocytic infiltrate in the stroma (H&E; X40); **Fig-3C**: Similar features of Fig-3A with cellular debris: (H&E; X100); **Fig-3D**: Bilayered oncocytic epithelium thrown into papillary folds with foci of squamous metaplasia (H&E; X400)

DISCUSSION

The salivary glands are a system of tubulo-acinar exocrine organs comprising of three major glands namely Parotid, Submandibular and Sublingual and around 1000 minor salivary glands which are located in the lateral margins of tongue, lips, buccal mucosa, palate and glossopharyngeal area. The Parotid gland is almost purely serous, Sublingual is

predominantly mucous and Submandibular is mixed serous and mucous although serous component predominates in this gland [5].

Salivary gland neoplasms are rare and account for approximately 6% of all head and neck tumors and 0.3% of all malignant neoplasms [6]. 80% of all the salivary gland tumors arise in the parotid and Warthin tumor is the second most common benign tumor after Pleomorphic adenoma. FNAC, as a diagnostic method is very efficient, the results are not only interpreted within hours but is also a highly specific (97%) method for diagnosing salivary gland lesions [7].

Warthin tumor was first described comprehensively by the American pathologist 'Aldred Scott Warthin' in 1929. The tumor has been known in the history by multiple names including adenolymphoma, cystadenoma lymphomatosum etc., but Warthin remains the widely used name.

The mean age at the diagnosis is in 6^{th}-7^{th} decade and it is rarely seen in the first three decades of life. In the past there was a definite male predominance in these tumors with ratios reaching up to 26:1 [2]. But in the recent times there is a striking change and the ratio is declining with more females being diagnosed with Warthin tumor. This change correlates with increase in the incidence of smoking in women and decrease in the incidence of smoking in men. But our patient who was young female did not have any history of tobacco smoking. Warthin tumor almost exclusively occurs in Parotid and periparotidlymphnodes, with most of them involving the superficial lobe as in our patient and only 10% occurring in the deep lobe. It can occur bilaterally in 10% of cases and can sometimes also be multifocal [5].

There has been a strong etiological link with cigarette smoking with smokers having 8 times higher predilection for developing tumor. The increasing incidence of smoking in women parallels the rise of incidence of these cases in them. It is also known to be associated with radiation exposure and EBV infection and certain autoimmune diseases like IDDM and Hashimoto's thyroiditis have also been linked to its occurrence. Cigarette smoke which irritates the ductal cells results in initiation of tumorigenesis. Although there has been extensive research on pathogenesis of Warthin tumor but still many areas need to be explored further.

Clinically it usually presents as painless mass in the infra-auricular region, just near the angle of mandible. The size is usually less than 8cm with fluctuation seen in the size while chewing food. The mean duration of symptoms is around 21 months with very rare occurrence of facial symptoms. On palpation it is soft and feels doughy or cystic [2]. On USG it has distinctive appearance showing a well-defined round or ovoid hypoechoic mass containing microcystic anechoic areas. Radionucleotide imaging shows increased uptake of Tc-99m, which does not wash out following sialogue administration [5].

On **Cytopathology**, the aspiration may yield thick tan brown fluid. Microscopically, oncocytes are arranged in sheets, clusters as well as dispersed singly. The cells exhibit abundant granular cytoplasm with uniform, round, eccentric nuclei and prominent nucleoli. Background usually appears dirty with cellular debris along with lymphocytes in varying stages of reactivity [8].

Grossly the tumor appears well circumscribed, round to oval with lobulated surface. On cut section, solid-cystic areas are seen and brown exudate may be expressed from cysts. **Histopathological examination** reveals both epithelial and lymphoid component. The epithelial component lining the cystic structures is thrown into papillary projections. The epithelium is a double layer,inner layer of tall columnar cells and outer layer of cuboidal cells with oncocytic change in cells revealing abundant eosinophilic granular cytoplasm. The lumina of cysts contains thick secretions along with cellular debris. The stroma consists of lymphoid cells along with other inflammatory cells including plasma cells, histiocytes, mast cells and occasional multinucleated giant cells. Squamous metaplasia and focal necrosis may also be seen associated with secondary inflammation [2,5].

Immunohisto chemistry reveals all epithelial cells to be pan CK positive and inner epithelial cells are CK 7, CK 8 and CK18 and EMA positive. p63 shows heterogenous nuclear staining of the basal myoepithelial cells. S100, calponin, GFAP and act in are negative. Lymphoid cells are reactive for B-cell (CD 20) and T-cell (CD 3) [2,5,8].

Warthin tumor can be sub typed based on the relative proportion of epithelial component and stromal component. **Seifert and colleagues** recognized this Classification [2]: -

Type	Name	Epithelial component %	Prevalence
Subtype 1	Classical	50 %	77 % of all WT

Subtype 2	Stroma poor	70% - 80%	14% of all WT
Subtype 3	Stroma rich	20% - 30%	2% of all WT
Subtype 4	Squamous metaplasia	Extensive Squamous metaplasia seen	-

Rarely the epithelial or lymphoid component may undergo malignant transformation in about 0.3% cases. Most commonly developing epithelial malignancies comprise of SCC, oncocytic carcinoma, adenocarcinoma, undifferentiated carcinoma, mucoepidermoid carcinoma and Merkel cell carcinoma. Lymphoid malignancies usually have a monomorphic infiltrate with distortion of architecture [2]. Although our patient did not have any features of malignant transformation Surgery, either superficial or limited parotidectomy is usually curative. Sometimes enucleation of tumor may also be helpful.

CONCLUSION

Warthin tumor presenting in a young female without any prior history of substance abuse is a rare entity. Although sufficient research has been carried out regarding the etiopathogenesis of Warthin tumor but rare cases like these persuade us to carry out structured reporting of such cases. Extensive research work regarding the pathophysiology and pathogenesis of this tumor is need of the hour. Histopathology is considered the gold standard for diagnosing Warthin tumor, however FNAC has been proved to be very effective and has a very high sensitivity of around 97% in diagnosing Salivary Gland Neoplasms. The recent changing trends in mean age and decrease in gender predilection for men needs careful and comprehensive evaluation of the patients by the clinicians.

SOURCE OF FUNDING: None
CONFLICT OF INTERESTS: None

REFERENCE

1. Monk JS Jr, Church JS(1992). Warthin's tumor. A high incidence and no sex predominance in central Pennsylvania. Arch Otolaryngol Head Neck Surg. 118(5):477-8. doi: 10.1001/archotol.1992.01880050023004. PMID: 1571114.
2. Fletcher Christopher D.M.(2013).Diagnostic Histopathology of Tumors, 4th Edition, Volume 1, Philadelphia: Elsevier, p. 300-306.
3. Maiorano, E., Muzio, L. L., Favia, G., &Piattelli, A. (2002). Warthin's tumour: a study of 78 cases with emphasis on bilaterality, multifocality and association with other malignancies. Oral oncology, 38(1), 35-40.
4. Therkildsen, M. H., Christensen, N., Andersen, L. J., Larsen, S., &Katholm, M. (1992). Malignant Warthin's tumour: a case study. Histopathology, 21(2), 167-171.
5. Barnes Leon(2019).Surgical Pathology of Head and Neck, 3rd Edition, New York, Informa Healthcare, p. 523-528.
6. Ashraf A, Shaikh AS, Kamal F, Sarfraz R, Bukhari MH(2010). Diagnostic reliability of FNAC for salivary gland swellings: a comparative study. DiagnCytopathol;38(7):499–504
7. Griffith CC, Pai RK, Schneider F, Duvvuri U, Ferris RL, Johnson JT, SeethalaRR(2015). Salivary gland tumor fine-needle aspiration cytology: a proposal for a risk stratification classification. Am J Clin Pathol;143(6):839-53
8. Koss, L. G., & Melamed, M. R. (Eds.). (2006). Koss' diagnostic cytology and its histopathologic bases (Vol. 1). Lippincott Williams & Wilkins.