



UTILITY OF FNAC IN DIAGNOSIS OF ORBITAL AND PERIORBITAL LESION

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**ABSTRACT**

**INTRODUCTION-** The orbital and periorbital lesion represent a diagnostic challenge to the clinicians. The diversity and rarity of the orbital and periorbital lesion compounded by the difficulty in obtaining direct surgical biopsies make FNAC a useful tool in diagnosis of these lesion. **AIMS AND OBJECTIVES-** To study the cytomorphological features of orbital and periorbital lesions, to categorise the lesion in inflammatory, benign and malignant conditions, to study the diagnostic yield of FNAC. **MATERIALS AND METHODS-** Patients of different age group presenting with orbital and periorbital lesion were studied over a period of 2 years. Sixty five cases were evaluated by FNAC. FNAC was done using 22 gauge needle without anaesthesia and smears stained with Field. **RESULTS:** We have made an attempt to analyze 65 cases of orbital and periorbital lesion in to the category of cystic and infectious lesions, inflammatory lesions & neoplastic lesions. 2 cases were malignant and 63 cases were benign. The patient belonged to the age group of 1.5 year to 80 year with majority in age group of 20-40 year. Among these patients 43 were males and 22 were females. Male: female ratio was 2:1. **CONCLUSION:** FNAC is a rapid, efficient, cost effective, relatively painless procedure and produces a speedy result with high diagnostic yield in orbital and periorbital pathology.

**KEYWORDS :** FNAC (fine needle aspiration cytology), orbital, periorbital, lesion.

**INTRODUCTION**

The orbital and periorbital region are common location for various disease processes presenting as mass lesion such as inflammatory and infectious diseases, cysts, various primary and secondary neoplasm.(1)

Fine needle aspiration cytology (FNAC) is considered as a reliable and relatively safe preliminary diagnostic tool before attempting any invasive procedure. Schy berg first used fine needle aspiration biopsy for diagnosis of orbital tumors in 1975.(2)

With the modern day imaging techniques at hand, in the majority of the case, the clinicians are aware of the extent as well as nature of lesion. Yet sometimes there is still a diagnostic dilemma regarding the nature of the mass.in such situations, it is advisable to have an adjunct investigate tool, for which FNAC serves the optimal purpose.

Ultrasound-guided fine needle aspiration (FNA) has also made the technique safe especially in cases where mass is posterior to the equator and in close relation to vital structure such as optic nerve and central retinal artery(3)

The presence of cytopathologist during the procedure, use of imaging technique in localizing orbital lesion and repeated attempts if required, reduce the false negative results although inadequate aspiration rates are high with very fibrotic lesion or posteriorly located lesion, low cost benefit ratio of FNAC offsets it.(4)

Preoperative aspiration cytology provides a great advantage to ophthalmic surgeons who routinely operate in area of the body requiring great attention to cosmesis.(5)

Extra material obtained by FNA can be used for immunocytochemistry and any molecular studies adjunct immunocytochemistry is documented to increase specificities and is essential for diagnosis and management in about 10% of case.(6)

The present study is aimed to evaluate the role of FNAC as a diagnostic tool in cases of orbital and periorbital lesion.

**MATERIAL AND METHODS**

The present study is a cross-sectional study, conducted on 65

patients who presented with orbital and periorbital masses in cytopathological section, central laboratory, Ravindranath Tagore Medical College, Udaipur spanning over a period of 2 years(between January 2017 and January 2019).

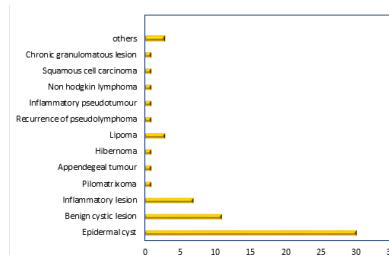
These patients underwent FNA as a diagnosis work up and a written consent was obtained from each patient explaining the procedure, its safety and potential complications.

Patients having proptosis without obvious anterior orbital mass lesion, proptosis due to dysthyroid ophthalmopathy, patients with clinical evidence of orbital varices and arteriovenous fistula, children and adults with clinically obvious hamartomas and choristomas were excluded from the study.

The needle was 22G, 1.5 inch needle with attached 10 ml syringe. the aspirated material was expressed on to a clean labelled glass slide immediately and thin smears prepared. The smears were fixed immediately in 95% alcohol. Dry fixed smears were stained by field stain. No serious complications was noted following FNAC except for mild discomfort.

**RESULTS**

Sixty five cases of orbital and periorbital tumours analysed by FNAC over a period of two years. Patients belonged to the age group of 1 years to 80 years with majority in age group of 21-40 years. among these patients 43(66.15%) were males and 22(33.84%) were females. Male: female ratio was 2:1. Cellularity was insufficient in three aspirates. Two cases were malignant and 60 cases were benign. The nature of these lesions is shown in bar chart.



In non-Hodgkin lymphoma cytology smears showed sheets of lymphoreticular cells with prominent nucleoli. At places

atypical and moderate to severe pleomorphism of nucleus, nuclear membrane irregularity was seen.

The smears of squamous cell carcinoma showed sheets, clusters of many singly scattered malignant epithelial cells. Individual cell has medium cytoplasm with enlarged hyperchromatic nuclei and prominent nucleoli. In background many pyknotic squamous nuclei and polymorphonuclear leukocytes also noted.

The smears of inflammatory pseudotumour showed predominantly mature lymphocytes with round nuclei, scattered histiocytes, benign spindle cells and plasma cells. In pilomatixoma the smears were cellular and showed sheets of anucleated squamous (ghost) along with polymorphonuclear leukocytes, histiocytes, necrosis and debris and few clusters of basaloid cells.

The smears of chronic granulomatous lymphadenitis (tubercular) showed well defined granulomas comprising of epithelioid cell and small lymphocytes against the background of reactive lymphoid cells. Caseous necrosis not seen as patient is defaulter of tuberculosis.

The benign spindle cell lesion (schwannoma) smears showed cells in clusters as well as singly scattered. The cells are ovoid to long spindle shaped showing bland nuclear features. Nuclear palisading is evident. The background has eosinophilic ground substance and RBCs. In hibernoma smears showed clumps of brown fat cells. Nuclei were slightly pleomorphic.

Smears from epithelial cyst revealed anucleated squamous with few mature squamous cells against the background of debris.

Smears from benign cysts showed few macrophages in the eosinophilic background.

## DISCUSSION

As per the present study FNAC is an accurate diagnostic technique in the evolution of orbital and periorbital lesions without complication. It should be emphasized that case selection is very important in regard to FNAC.

It is not a procedure of choice for lesion under five mm in size, especially if they have a fibrous nature. The diagnostic accuracy of the technique varies from 80% to 100% in the literature.(7)

The accuracy depends on the combination of expertise of physician and competent cytopathologist. So FNAC is a cost effective, reliable and accurate method of diagnosing orbital and periorbital lesion. It is needed to distinguish between inflammatory and neoplastic lesions, between benign and malignant lesions, and epithelial and mesenchymal lesions.

It is also useful in diagnosing an unresectable malignant neoplasm, thus eliminating the need for further surgical interventions. However non diagnostic aspirates may sometimes be obtained and a negative FNAC should not always be ignored.

## CONCLUSION

FNAC of orbital and periorbital lesion is a suitable accurate diagnostic technique with close co-operation between the ophthalmologist and experienced pathologist, In combination with history, clinical diagnosis, smears examination and

observation by the gross appearance of the lesion.

No radical procedure should be planned on the basis of FNAC, but it allows the diagnosis of a new primary lesion or the recurrence or metastasis of a tumour and can be done to identifying lesions that require either specific medical therapy, as in non resectable, inflammatory, and lymphoid tumours, or limited surgery for benign resectable neoplasm.(8)

## REFERENCES

1. Solo S, Siddaraju N, Srinivasan R. Use of fine needle cytology in the diagnosis of orbital and eyelid mass lesion. *Acta cytol.* 2009; 53:41-52.
2. Schyberg E. Fine needle biopsy of orbital tumour [proceedings]. *Acta Ophthalmol Suppl* 1975; 125:11-12.
3. Zajdela A, Vielh P, Schlienger P, Haye C. Fine-needle cytology of 292 palpable orbital and eyelid tumour. *Am J Clin Pathol.* 1990;93:100-104.
4. Khan L, Malakani K, Malaiya S, Yeshwante P, Isharat S, Nandedkar S. Role of fine needle aspiration cytology as a diagnostic tool in orbital and adnexal lesion. *J Ophthalmic.* 2016; 11:287-295
5. Spoor TC, Kennerdell JS, Dekker A. Orbital fine needle aspiration biopsy with B-scan guidance. *Am J Ophthalmol.* 1980; 89:274-277.
6. Zeppa P, Tranfat, Errico ME, Troncone G, Fulciniti F, Vetrani A, et al. Fine needle aspiration(FNA) biopsy of orbital masses: A critical review of 51 cases. *Cyto-pathology.* 1997; 8:366-372.
7. Nair L.K. and Sankar S. Role of fine needle aspiration cytology in the diagnosis of orbital masses: A study of 41 cases. *J Cytol.* 2014; 31:87-90.
8. Kennerdell JS, Slamovits TL, Dekker A, Johnson BL. Orbital fine needle aspiration biopsy. *Am J Ophthalmol.* 1985; 99:547-51.