A CLINICAL CORRELATION OF OCULAR ADNEXAL TUMOURS IN RELATION TO FNAC AND HISTOPATHOLOGY

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ABSTRACT

AIMS AND OBJECTIVES

To study ocular adnexal tumours and compare the diagnostic accuracy of FNAC and HPE.

METHODS AND MATERIALS

Twenty eight cases of different age groups having benign and malignant ocular adnexal tumours were studied. A thorough systemic and ocular examination, laboratory investigations of body fluids, X-rays, USG and CT-scan were done. FNAC and biopsies were performed for confirmation.

RESULTS AND OBSERVATIONS

Out of the 28 cases, 18 were benign (64.28%) and 10 were malignant (35.71%). Mean age of patients with benign tumour was 34 yrs. and malignant was 60 yrs. The prevalence of benign tumours was more in males (M:F = 2.6:1) while in malignant cases females predominated (M:F = 1:2.3). Upper lid was more commonly involved (53.57%). Accuracy rate of diagnosing the tumours through HPE was 88% and FNAC was 72.72%.

CONCLUSION

FNAC has a good accuracy rate in diagnosing tumours and can be used as an early, cheap and prompt diagnostic tool for ocular adnexal tumours.

KEYWORDS

Ocular Adnexal Tumours, FNAC, HPE.

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INTRODUCTION

The ocular adnexa or the ocular appendages are composed of the eyelids, eyebrows, the conjunctiva and the lacrimal apparatus.¹ Adnexal tumours are an important part in the practice of ophthalmology, because they are very common.

For hundreds of years, the discipline of anatomical pathology has centered on histopathological diagnosis and this in turn, upon surgical biopsy. Besides the time honoured, thoroughly evaluated and indispensable histopathological technique, Fine Needle Aspiration Cytology (FNAC) has also taken a premier place as one of the most useful tool in the diagnosis of tumours.

First reports of FNAC as a technique for obtaining diagnostic material dates back to the 19th century in Europe but it was not until the 1980s that it became widely used.

The advantages of FNAC are that it is safe, gives a rapid report, is sensitive and specific for the diagnosis of malignancy, requires little equipment, causes minimal discomfort to the patient, is an outpatient procedure, reduces bed occupancy, allows pre-operative diagnosis, avoids the use of frozen

sections, reduces the incidence of exploratory procedures, allows a definitive diagnosis on inoperable patients, does not result in fibrosis (Which may interfere with future investigations), does not require wound healing and is readily repeatable and cost effective².

The disadvantages of FNAC are that the aspiration technique requires practice and skill, a certain percentage of the aspirates are unsatisfactory, interpretation requires experience and diagnostic material is limited³. Performed on an outpatient basis or at patient's bedside, FNAC has the best safety record of any method of obtaining material for a morphological diagnosis³. FNAC biopsy is regarded as a minimally invasive, cost-effective technique with diagnostic accuracy in the range of 90–99%.³

However, FNAC is not a substitute for conventional surgical histopathology. Instead it should be regarded as being complementary to it, part of the diagnostic process in combination with clinical, radiological and other laboratory data.³

METHODS AND MATERIALS

A prospective study was carried out on 28 cases of ocular adnexal tumours admitted in the Dept. of Ophthalmology in Silchar Medical College and Hospital for a time period of 1 year (2014-2015). The study protocol was approved by the Ethical Committee of Silchar Medical College and Hospital, Silchar, Assam.

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- To observe the incidence and pattern of presentation of ocular adnexal tumours.
- To establish the clinicopathological correlation and find the accuracy rate of FNAC in ocular adnexal tumours.

Tumours of the ocular adnexa, including the lacrimal system were included. Tumours originating primarily from the orbit, tumours solely affecting the conjunctiva, ocular infections and clinically suspected inflammatory lesions were excluded from our study. A thorough ocular and systemic history, including that of any surgery and dermatological diseases was taken.

Complete systemic examination was performed for any associated disease or lymphadenopathy.

The ocular lesions were examined under torchlight and slit lamp for ascertaining the size, shape, surface, colour and vascularity. They were also palpated and auscultated for assessing any bruit or vascular sounds inside them.

Patients were also subjected to routine blood, stool and urine tests, X-ray, USG-B scan and CT scan wherever required.

Subsequent FNAC (Pre-operative) and Incisional/Excisional biopsy of the mass was done.

Wide excision of the tumour and reconstruction was done as per requirement, depending upon the defect, under local anaesthesia. Cases were followed up at 15 days, 1 month, 3 months and 6 months.

RESULTS AND OBSERVATIONS

1. Out of the 28 cases, 18 cases (64.28%) turned out to be benign and 10 cases (35.71%) were malignant (Table-01) (Pic- 01, 02, 03, 04).
2. Mean age for benign lesions was found to be 34 years, while for malignant tumours it was 60 years. (Graph-01).
3. The incidence of adnexal tumours was higher in males than females. Male comprised of 16 (57.14%) and female comprised of 12 cases (42.85%), giving M: F ratio of 1.33:1. In Benign cases, 13 cases were Males and 5 cases were females, M: F ratio is 2.6:1. In Malignant cases, Females predominated with 7 cases (70%) and Males with 3 cases (30%). (Table- 02).
4. Out of 28 cases, the LEFT EYE (53.57%) was more often involved than the right eye (42.88%), while malignant tumours preferred the RIGHT EYE (60%) more than the Left eye (40%). (Table-03).
5. Tumours were more common on the UPPER LID (15 cases=53.57%), for both benign and malignant tumours. (Table-04).
6. Clinical diagnosis was correct in 22 cases (88%) out of the 25 cases submitted for Histopathological examination. A case of suspected malignancy, Adenoid cystic carcinoma turned out to be benign pleomorphic adenoma on HPE. Another case of suspected Basal cell carcinoma turned out to be Squamous cell carcinoma and a clinically diagnosed eye lid mass came out to be inconclusive granulomatous lesion. (Table-05) (Pic – 05, 06, 07, 08, 09, 10).
7. It was observed that out of 22 histopathologically diagnosed cases, 16 were concordant with cytological finding showing accuracy rate in diagnosing by FNAC is 72.72%. One case showed inconclusive granulomatous lesion in both FNAC and HPE. (Table- 06).

DISCUSSION

The mean age for a benign lesion was 34 yrs. and a malignant lesion was 60 years. Abdi et al.⁴ found benign tumours of the eyelid to be commonest in the first 2 decades of life. Aurora et al.⁵ and Sean Paul et al.⁶ reported the peak age of malignant tumours to be the 6th decade.

Male: Female ratio for any adnexal tumour was found out to be 1.33:1. Benign growth showed M: F ratio of 2.6:1 and in malignant growth the ratio was 1:2.3. Abdi et al.⁴ found a preponderance in males, (M: F = 1.3:1), in adnexal tumours. Sean Paul et al.⁶ found the incidence of eye lid malignancies higher in females, (M: F = 1:1.3).

Out of 28 cases, the LEFT EYE (53.57%) was more often involved than the right eye (42.88%), while malignant tumours preferred the RIGHT EYE (60%) more than the Left eye (40%). Rajendra Kumar et al.⁷ studied 37 cases of malignant eyelid tumour and found 18 cases in the right eye and 14 cases in the left eye.

In the present series, 15 cases (53.28%) showed upper eyelid involvement, 11 cases (39.28%) involved the lower lid and in 2 cases (7.14%) both upper and lower eyelids were involved. Rajendra Kumar et al.⁷ also found upper eyelid to be most commonly involved.

Benign tumours constituted of 18 cases (64.28%), and malignant tumours of 10 cases (35.71%). Aurora et al.⁵ also noted a higher incidence of benign tumours (76%) in his study.

The most common types of benign lesions detected in the present study were Dermoid cyst (27.77%), intradermal naevus (16.66%) and capillary hemangioma (16.66%). Abdi et al.⁴ found that the commonest benign tumours were vascular tumours (21.3%), neural tumours (18%), dermoid cysts (16.4%), squamous papilloma (13.1%) and naevi (12.3%). These results were quite similar to that of our study.

In our case series, malignancies found were sebaceous gland carcinoma (50%), basal cell carcinoma (30%) and squamous cell carcinoma (20%).

Clinical diagnosis was correct in 22 cases (88%) out of the 25 cases submitted for Histopathological examination. Margo C et al.⁸ found that his clinical diagnosis was correct in 72 cases (84%) out of 86 cases he submitted for HPE examination.

Out of the 22 histopathologically confirmed cases, 16 cases were concordant with cytological finding showing accuracy rate in diagnosis by FNAC to be 72.72%; 4 cases were false negative, 1 case was true negative and 2 cases were false positive. Sensitivity and specificity of FNAC came out to be 78.95% and 33.33% respectively. Santosh Kumar Mondal et al.⁹ studied 80 cases of eye lid tumour and found out that with HPE correlation, the accuracy of FNAC in making diagnosis was 83.87%.

CONCLUSION

Tumours of the ocular adnexa, whether benign or malignant are not uncommon. Prompt and correct diagnosis with the help of cytology and histopathology can avoid metastatic spread and extensive local destruction in case of malignancies. Though histopathology remains the gold standard, FNAC also gives a good accuracy rate in diagnosing tumours and can be used as a cost effective, prompt and minimally invasive primary diagnostic tool for ocular adnexal tumours.

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BENIGN TUMOURS	No. of Cases	%
Dermoid cyst	05	27.77%
Intradermal naevus	03	16.66%
Capillary hemangioma	03	16.66%
Pseudotumour	02	11.11%
Keratoacanthoma	01	5.55%
Squamous papilloma	01	5.55%
Pleomorphic adenoma	01	5.55%
Sebaceous hyperplasia	01	5.55%
Granulomatous lid tumour	01	5.55%
Total	18	100%
MALIGNANT TUMOURS		
Sebaceous gland carcinoma	05	50%
Basal cell carcinoma	03	30%
Squamous cell carcinoma	02	20%
Total	10	100%

Table 1: Different Types of lid Tumours

TYPES OF TUMOUR	SEX		TOTAL	RATIO
	MALE	FEMALE		
ALL TUMOURS	16	12	28	1.33 : 1
BENIGN	13	05	18	2.6 : 1
MALIGNANT	03	07	10	1 : 2.3

Table 2: Sex Distribution

EYE INVOLVED	NO. OF CASES	%	MALIGNANT CASES	
			NO. OF CASES	%
RIGHT EYE	12	42.85%	06	60%
LEFT EYE	15	53.57%	04	40%
BOTH EYES	01	3.57%	00	00
TOTAL	28	100%	10	100%

Table 3: Eye Affected

LID INVOLVED	NO. OF CASES	%	MALIGNANT CASES	
			NO. OF CASES	%
UPPER EYELID	15	53.57%	05	50%
LOWER EYELID	11	39.57%	04	40%
BOTH EYELIDS	02	7.14%	01	10%
TOTAL	28	100%	10	100%

Table 4: Eyelid Affected

No. of clinically diagnosed case	No. of cases submitted for HPE	No. of HPE proved cases	Accuracy rate of clinical diagnosis
28	25	22	88%

Table 5: Clinical Accuracy of HPE

False Negative Cases		False Positive Cases	
HPE	FNAC	HPE	FNAC
Sebaceous cell carcinoma	Sebaceous Adenoma	Keratoacanthoma	Squamous cell carcinoma
Squamous cell carcinoma(2)	Squamous papilloma(2)	Sebaceous hyperplasia	Basal cell carcinoma
Basal cell carcinoma	Benign adnexal tumour		

Table 6: Accuracy of FNAC

STATISTIC	VALUE	95% CI
Sensitivity	78.95%	54.43-93.95%
Specificity	33.33%	0.84-90.57%
Positive likelihood ratio	1.18	0.51-2.72
Negative likelihood ratio	0.63	0.10-3.91
Accuracy	72.72%	
Disease prevalence	86.36%	65.09-97.09%
Positive predictive value	88.24%	63.56-98.54%
Negative predictive value	20.00%	0.51-71.64%

Table 7: Sensitivity and Specificity of FNAC

Line graph of benign tumour vs. malignant tumour

Fig. 1: Dermoid Cyst

Fig. 2: Hemangioma

Fig. 3: Pseudo tumour

Fig. 4: Basal Cell Carcinoma 2

Fig. 5: Sebaceous Carcinoma 2

Fig. 6: Sebacious Carcinoma 1

Fig. 9: Basal Cell Carcinoma

Fig. 7: Squamous Cell Carcinoma 1

Fig. 10: Basal Cell Carcinoma 1

Fig. 8: Squamous Cell Carcinoma 2