Original Article

Incidence of Basal Cell Carcinoma of the Ocular Adnexa in a Tertiary Hospital in Bangladesh

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Abstract:
Human eye which is situated in orbit and protected by eyelids externally. About 90% of ophthalmic tumors are arises in eyelids. Eyelid malignancies are of varied in different histological types and the western and Asian data have considerable variations in case distribution and presentation. The treatment procedure depends on the invasiveness of cancer and type of malignancy. The aim of the study was to evaluate the incidence of basal cell eyelid malignancies in a patient population treated in a tertiary care hospital. It was a Prospective observational study of 60 eyelid malignancy patients from January 2017 to July 2018. Non randomized purposive sampling technique was applied to collect the sample and information were collected by face to face interview and from checklist. Men and female were equally affected (p=0.169). The mean age of respondents was 62.62±13.04 years. The most common location of the tumor was upper eyelid (51.7%) among them basal cell carcinoma (BCC) was the most common malignancy (45%) followed by other ocular eyelid malignancy but lymph node involvement BCC 0(0.0),(p= 0.007). Nodular pattern lesion was in 9 (33.3%) cases of BCC. The eyelid margin was intact in 11(18.3%) cases and most of the patients 49 (81.7%) were presented with distorted eyelidmargin. Clinical diagnosis had high specificity compared to histological diagnosis. Positive predictive value for BCC was 86.2%, which indicates BCC is a common eyelid carcinoma in a tertiary care hospital in Bangladesh.

Keywords: Eyelid, Basal cell carcinoma, Tertiary care hospital

Introduction:

Numerous benign and malignant cutaneous neoplasms can develop in the periocular skin, they may arise from the epidermis, dermis or eyelid adnexal structures. Most lesions, whether benign or malignant develop from the epidermis, the rapidly growing superficial layer of the skin. Although many of these lesions may occur elsewhere on the body, their appearance and behavior in the eyelids may be unique owing to particular to the particular characteristics of eyelid skin and the specialized adnexal elements. The malignant lesions that most frequently affect the eyelid is basal cell carcinoma[1].Although the incidence of eyelid malignancies is increasing[2]. The global distribution of eyelid malignancies varies from Western hemisphere to Asian countries. Most lesions, whether benign or malignant, developed from the epidermis[3]. Basal cell carcinoma (BCC)are the commonest malignant tumor of the eyelids and occur most frequently in the lower lids in older patients. They are usually single and present as slow growing, firm pearly nodules or typical ulcers with rolled edges at or near the lid margin. BCC is the commonest eyelid cancer from the other cancer, related to the eye. In United States of America show that nearly 90% of eyelid malignancies are BCC [4].Itis the most common malignancy of the lid and represents more than 90 percent of all periocular malignant tumors in the west[5,6].It displays a diversity of appearances both clinically and microscopically. Over 60 percent occur on the lower lids and in descending order of frequency, the medial canthus ,upper lid and lateral

canthal areas may be involved[7].In one study ,the tumor distribution was as follow : Lower lid 53%,upper eyelid 12%.It is usually present in the adult or the elderly .The tumor is most often found in the sixth, seventh and eighth decades of life but 15% of patients in one study and close to 5% patient in another study were between the ages of 20 to 40 years[8].Exposure to actinic radiation appears to play an important in the development of BCC and thus is seen more often in the outdoor types of individual (e.g. cowboys, fishermen ,golfers, sailors).The malignant cell arise from the basal or germinal cells of epidermis .Tumor enlargement occurs from the change in the basal cells that increase in size, proliferate and reach into the dermis and form, in most cases, a nodular tumor. The margin enhances in substance as its center suffers a diminution of blood supply that then breaks down to produce a crusted, umbilicated center. The center crust may loosen and give rise to episodes of bleeding[7].BCC tend to grow slowly and many patients present with a history of having noticed a tumor several months to several years prior to seeking medical attention. The most dangerous are untreated BCC in the medial canthus since posterior extension can involve the orbit and sinuses. For all practical purposes, basal cell carcinoma is locally invasive but non-metastasizing .Surgical excision with microscopic evalution of the margins is the best method for eliminating basal cell carcinoma. In most cases reconstruction need to be done shortly after the tumor has been removed[8].

The history and clinical examination offer the important clues of eye lid malignancies. It is important to obtain pre and post-operative clinical photographs. If photographs cannot be obtain, drawing and measurement are recorded for future comparison. A biopsy is necessary to confirm the clinical diagnosis. The two types of biopsy are incision, in which only part of the lesion is removed and excision, in which the entire lesion is removed. Surgical excision of the entire tumor with preservation of as much as possible of normal tissue[4].

Material and methods

The ethical review committee of National Institute of Ophthalmology approved this prospective observational study, done on the department of Oculoplasty, National Institute of Ophthalmology & Hospital (NIO & H) from1st January, 2017 to 31st July 2018. The patients were selected with the inclusion criteria, having malignant eyelid lesions through purposive random sampling. The total number of patients was 60 in which 27 had basal cell carcinoma, where 11 male and 16 female were included and age limitation was in 50 to 75 years old. A well informed, voluntarily signed written consent was taken in a understandable local language All patients were under went through relevant ocular examinations such asocular examinations includes BCVA (Snellen's chart), Pupillary light reaction, Color vision , Visual field ,Ocular motility ,Slit lamp examination of anterior segment and face to face interview. The methods of specimen collection were incisional biopsy, excision biopsy and frozen section control procedure. Patients were scheduled for follow up examinations on 1st POD to see any post-operative complications, on 7th POD to see and documented the histopathology reports.

Statistical analyses: Data was collected and analysed by using the Statistical Package for Social Sciences version 23.0 for Windows (SPSS Inc., Chicago, Illinois, USA). A descriptive analysis was performed for all data. The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages. Chi-square test and fisher's exact test used to compare categorical data. Paired t-test was used in different variables. A "p" value <0.05 was considered as significant.

Results:

Table-I: Distribution of eyelid malignancies according to types of study (n=60)

Type	Number	Percentage
BCC	27	45.0
Other type	33	55.0
Total	60	100

BCC = Basal cell carcinoma

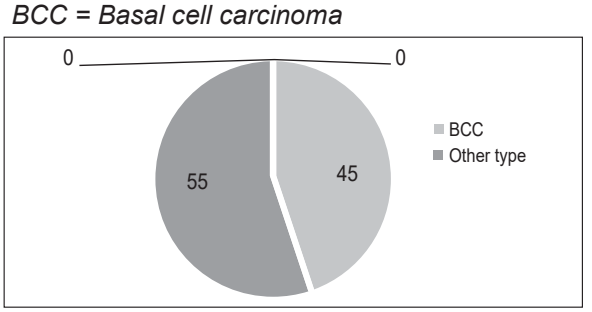

Figure-1: Pie chart shows the distribution of BCC eyelid malignancies according to types

Table II: Distribution of the study patients according to age (n=60)

Age groups (number)	Basal cell carcinoma (27)n(%)	Other type (33) n(%)
<50 yrs (14)	5 (18.5)	9(27.27)
50- 75yrs (36)	14(51.9)	22(66.67)
>75yrs (10)	8(29.6)	2(6.06)
Mean ±SD	65.85±14.499	

Table-III: Gender distribution of the eyelid malignancies among all respondents (n=60)

Gender (n)	BCC n(%)	Other Types n(%)
Male (30)	11(40.7)	19
Female (30)	16(59.3)	14
Total (60)	27(100)	33(100)

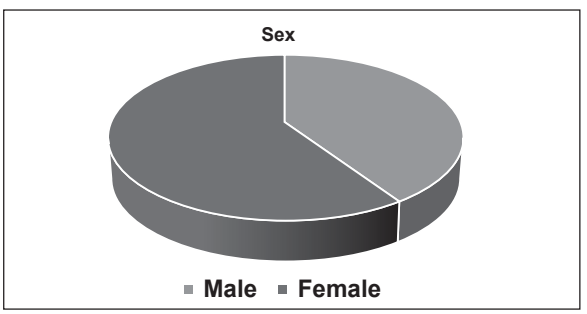

Figure II : Bar diagram shows gender distribution of the BCC eyelid malignancy.

Table-IV: Occupational distribution of BCC affected patients (n=27

Typesof occupation (n)	BCC n(%)
Business (7)	3(11.1)
Day labor (9)	2(7.4)
Farmer (12)	5(18.5)
House Wife (30)	16(59.3)
Retired (1)	0(0.0)
Service (1)	1(3.7)
Total	27(100)

Table-V: Clinical Characteristic of BCC eyelid malignancies among the respondents

Clinical haracteristics (n)	Basal cell carcinoma n(%)
Nodular	9(33.3)
Noduloulcerative	7(25.9)
Sclerosing	4(14.8)
Ulcerative	7(25.9)
Total	27(100)

Table-VI: Distribution of Behavioral characteristics of study subjects

Risk factors (n)	BCC n(%)
Smoking	2(7.4)
Beetle –leaf / nut chewing	17(63.0)
Smoking plus beetle –leaf/nut chewing	1(3.7)
None	7(25.9)
Total	27(100)

Table-VII: Eye involvement of lesions

Site (n)	BCC n(%)
Site (n)	BCC n(%)
Left	10 (37.0)
Right	17 (63.0)
Total	27 (100)

Table-VIII: Distribution of eyelid involvement among respondents

Site (n)	BCC n(%)
Upper	5 (18.5)
Lower	19 (70.4)
Upper plus Lower	3 (11.1)
Total	27 (100)

Table-IX: Lid margin architecture and color of BCC

Intact	Color
6 (22.2)	Pigmented (23)
21 (77.8)	Non-pigmented (4)
27 (100)	Total (27)

Discussion:

Eyelid tumors are commonly encountered in plastic surgery practice. Different types and frequencies of malignant eyelid tumors have been reported in different parts of the world. The rates of basal cell carcinoma (BCC) is almost equal to the other eye lid carcinoma in Asian populations.

We conducted a prospective observational study toevaluated the distribution of the types of malignant tumors of the eye, which time period was between 1st January, 2017 to 30 th July 2018 During study period sixty cases attended in Department of Oculoplasty of National Institute of Ophthalmology and Hospital , Dhaka . Among the sixty patients 27 (45%) accounts for basal cell carcinoma(BCC) .In Chinese studies incidence rate of BCC was 7 -24%[9,10]. However

in most of the western countries, Taiwan, Singaporeand Iran 80 -90% of all malignant cases of the eyelids were BCC[11].

This study evaluated the distribution of age of the study patients. The age of the patients in this study ranged from 33 to 89 years. The age range of BCC was 49 to 82. It was found that 60% of the patients were in the age range of 50 – 75 years. In this age group, BCC was 23.3%.Among the cases of basal cell carcinoma 18.5% was in below 50 years of age group ,51.9% was in 50-75 years of age group and 29.6% was in above 75 years of age . The malignant tumors of eyelid were most frequently present in fifth to ninth decades of life and rarely occurs in children. BCC is most often found in the sixth, seventh and eighth decades of life but 15% of the patients in one study and close to 5% of patients in another study were between the ages of 20 -40 years[8].

This study evaluated the sex distribution of study subjects among them 27 had BCC in which female patients were affected more. There was no statistically different sex predilection for eyelid malignancies.

The study also reflected the distribution of occupational status among the study patients. Out of 27 patients, house wife and farmer were 16 and 5 in number respectively.

This study evaluated the average duration (years, mean ±SD) of symptoms was 2.97 ±1.45 in BCC. In our study, there is mild predilection for the side of eyelid involvement. Out of 27, BCC right eyelid was involved in 63.0% patients and left eyelid was in 37.0%. In study the tumor distribution was as follows: right side 58.85% and left side 46.15%. Lower eyelid was more affected by BCC (50-60%)[12]. In one study, the tumor distribution was as follows: lower lid 53%, medial canthus 27%, upper eyelid 12%, and lateral canthus 8%[8]. BCC is often located on lower eyelid near the medial canthus (25-30%), upper eyelid 15% and lateralcanthus 5%[4]. In BCC with a ratio of lower eyelid involvement to upper eyelid involvement ranging from 3:1 to 5:1[13.] A study was done by [12], in which lower lid was involved in 83.33% cases of BCC and this study it was almost coincide with this which was 85.2% (5:1). Pigmented lesion was present in BCC- 23 which was similar with[6]. The current study describes the distribution of the cases of the types of eyelid malignancies , the distribution of age and sex , involvement of the part of the eyelid, risk factors associated with the eyelid malignancies, metastases to lymph nodes. The study revealed that the rates of sebaceous gland carcinoma (SGC) is nearer to basal cell carcinoma (BCC) and squamous cell carcinoma (SCC). Early detection and proper management of the patient to reduce morbidity and mortality of the patient.

Conclusion:

Analytical result of this study found that isbasal cell carcinoma as common as other lid carcinoma. This present study points the need to realize different rates, the age and sex distribution and rate of the growth of the different forms of eyelid malignancies. As BCC is locally invasive but SCC may metastasis to distant organs. So, the attended search for early detection and prompt management of eyelid malignancies required to save patients's life, to restore the vision and as well as cosmetic purpose.

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