Original Article

Basal Cell Carcinoma Presentation, Histopathological Features and Correlation with Clinical Behaviour

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Purpose: This study was performed to determine the clinical presentation and histopathological types of basal cell carcinoma of eyelids and correlation with clinical behaviour.

Material and Methods: The prospective study was carried out at the Department of Ophthalmology, Postgraduate Medical Institute, Hayatabad Medical Complex, Peshawar from September 2001 to August 2002.

Thirty patients (30) with suspected basal cell carcinoma were enrolled from the outpatient department. They were admitted to ward and worked out as detailed history, examination, Lab and radiological examination. In each case biopsy (incisional / excisional) were taken to study its histopathology. Using EPI info 2000 version SPSS program data was entered and analyzed.

Results: Mean age of presentation was 55 years with Male: Female (57:43). Clinically the nodular ulcerative type was commonest presentation (36.7%) followed by the nodular type (33.3%) and the third commonest presentation was nodular pigmented (30%). The lower lid was the most frequently affected site (63.3%) followed by the medial canthus (23.33%). The upper lid and lateral canthus were the least involved (6.67%) each.

On histological examination the commonest was solid or nodular (56.67%), the second commonest was keratotic (basosquamous) type (13.33%) followed by multifocal (10%), pigmented and adenoid (6.67%) each. Morphoea and the cystic type were the least common (3.33%) each. The margins were well defined in 80% of the solid tumour.

Conclusion: Basal cell carcinoma commonly occurs in lower eyelid. Nodular ulcerative is the commonest clinical presentation and the commonest histological presentation was also nodular with peripheral palisading.

Basal cell carcinoma (BCC) is the most common malignant tumour of the eyelid[1,2]. Usually the lower lid is involved and exposure to sunlight is an important risk factor[3,4]. Clinically several variants may be seen, nodular (Fig. 1), noduloulcerative (Fig. 2), cystic and plaque-like (morpheaform). Histologically they are classified as nodular, adenoid, cystic, keratotic (basisquamous), morphea, multifocal and pigmented. The nodular and noduloulcerative types are composed of anastamosing nests and cords of proliferating epidermal basilar cells that originate from the basal cell layer of the epidermis. A palisade of nuclei (Fig. 3) at the edge of the invasive tumour nest may be distinctive[5]. The cystic type is similar histologically to the nodular type, with the exception of central necrosis. Cystic basal cell carcinomas frequently appear as blue eyelid cyst. In the morpheaform type, the tumour tends to penetrate into the dermis diffusely as branching cords of cells. In adenoid variety glands like formation is seen but there is no true secretory activity. In so called keratotic type there are keratotic whorls and horn cysts as a result of

squamous differentiation of basal cells. It may be very difficult to clinically estimate the margins of a morpheaform basal cell carcinoma because of the diffuse infiltration of the skin. A superficial form (multifocal) and fibroepithiliomatous carcinoma of Pinkus are the other variants of basal cell carcinoma. The other rare variants are the clear cell and mixed type (a noduloulcerative variety with an infiltrative component). Histological examination and sub typing is recommended as some tumours such as the nodular sub type can be potentially invasive and aggressive[6].

Basal cell carcinoma may masquerade as a number of different clinically benign conditions such as blephritis[7], actinic keratosis[8], keratoacanthoma, red eye[9], hordeola, chalazia cutaneous horns[10] and mucoepidermoid carcinoma of eye[11]. When tumours lack characteristic epidermal change, histopathological examination may be necessary to confirm the diagnosis.

The rate of recurrence of basal cell carcinoma in the periorbital region is higher than in other areas. The lacrimal system is often invaded by basal cell carcinoma that originates in the periorbital as well as extensive destruction of the eyeball by basal cell carcinoma has been reported[12,13]. The risk of recurrence varies according to the adequacy of the surgical margins.

Successful management of basal cell carcinomas of the eyelid requires complete resection and the ophthalmic surgeon should design a plan to have the margins of resection checked by pathologist, either as a frozen section control of margins or by careful examination of the surgical margins by permanent sections or by Moh's micrographic surgery.

Various surgical techniques are used to reconstruct the eyelids.

MATERIAL AND METHODS

A one year prospective study was carried out at the Department of Ophthalmology, Postgraduate Medical Institute, Hayatabad Medical Complex, Peshawar from September 2001 to August 2002. This study was conducted to understand the diseased pattern of Basal Cell Carcinoma regarding its presentation, histo-pathological features and its correlation with clinical behaviour.

The patients included in this study were admitted from the eye outpatient department of the hospital. Some patients were referred from the plastic surgery and Dermatology Department. A prevalidated proforma was developed. The selected patients were admitted to the eye ward, were worked up according to the proforma. Follow up was arranged at one week, one month, and six months.

A detailed history, examination and laboratory, radiological investigations were carried out. A preoperative photograph was taken. After that surgery (incisional / excisional biopsy) was planned.

Data entry and analysis

A questionnaire file was created in computer using Epi Info 2000 version (SPSS program) where the data was entered, carefully cleaned and analyzed. Using same software the results were interpreted to see the relationship of different variables. It is a descriptive analysis.

RESULTS

A total of 30 patients were recruited in the study out of which 17 (57%) were male and 13 (43%) were female. The mean age of the sample patients was 55 years. The mean age amongst male and female was almost the same.

Clinically the nodular ulcerative type was commonest presentation (36.7%) followed by the nodular type (33.3%) and the third commonest presentation was nodular pigmented (30%) (Table 1). The lower lid was the most frequently affected side (63.3%) followed by the medial canthus (23.33%). The upper lid and lateral canthus were the least involved (6.67%) each area. The margins were well defined in 80% of the solid tumour. All keratotic type tumours i.e., 100% had poorly defined margins. The basal cell carcinoma was fixed to underlying periorbita, eyeball or both in 27% of cases while 73% had no fixation to the deeper structures.

On histological examination the commonest type was solid or nodular with peripheral palisading (56.67%), the second commonest was keratotic (basosquamous) type (13.33%) followed by multifocal (10%), pigmented and adenoid (6.67%) each. Morphoea and the cystic type were the least common (3.33%) each (Table 2).

The correlation of clinical appearance of basal cell carcinoma with histological findings shows that more than half of each clinical type of BCC is of solid (nodular) variety on histopathology. In other words "solid" histopathological picture is the most common type of all BCCs. Other types are rare. The detail is shown in (Table 3).

Table 1: Presenting Clinical types of BCC

Types of Lesions	No. Patients n (%)
Nodular Ulcerative	11 (36.67)
Nodular	10 (33.33)
Pigmented	9 (30)
Total	30 (100)

Table 2: Histological presentation

	No. Patients n (%)
Solid (Nodular)	17 (56.67)
Keratotic (Basisquamous)	4 (13.33)
Multifocal	3 (10)
Adenoid	2)
Pigmented	2 (6.67)
Cystic	1 (3.33)
Morphea	1 (3.33)
Total	30 (100)

DISCUSSION

Periocular basal cell carcinoma is the most common malignancy in humans in our region which more commonly involves the older male population[4,13]. It has a very likely association with increased exposure to sun, dry, dusty hot weather and fair complexion[15]. People with agricultural background seem to be increased risk. Lower lid involvement is the highest followed by the medial canthal region and the upper lid[16]. Simple excisional biopsy with a 3-5 mm clinically tumour free margin, followed by reconstruction and meticulous follow up is a good and safe method to manage these cases.

The biological behavior of basal cell carcinoma (BCC) is usually benign and cure is almost always achieved by excision, electro desiccation and curettage, cryosurgery, or irradiation. Rarely, the clinical course may be aggressive and regional or distant metastases can develop especially in patients who have had multiple local recurrences, necessitating exentration for local metastases. Once distant metastases[13,17] develop cure is no longer possible. Early diagnosis is likely to make surgery easy with promising post operative results.

Basal cell carcinoma can also arise from the caruncle which contains sebaceous glands, hair follicles and lacrimal and sweat glands elements, however primary basal cell carcinoma of the caruncle is unusual and only four cases have been described in the literature[18]. Another unusual presentation of basal cell carcinoma is that mimicking blepharitis[7]. Other conditions to be considered in differential diagnosis include pre -malignant lesions such as actinic keratosis[8], keratoacanthoma and inflammation and infectious diseases such as red eye[9], hordeola, chalazia and cutaneous horns[10] of the eyelid in elderly patients. Among the malignant lesion mucoepidermoid[11] carcinoma of the eye is rare and has a high degree of malignancy. It should be differentiated from other neoplasms such as basal cell carcinoma and squamous cell carcinoma.

In our study the lower lid was the most frequently affected site (63.3%), followed by medial canthus (23.33%). The upper lid and lateral canthus were least involved (6.67% each). This mimics most of the international studies. In a study from Australia[16] on 819 patient 54% involved lower lid, 41% medial canthus and 5% upper lid.

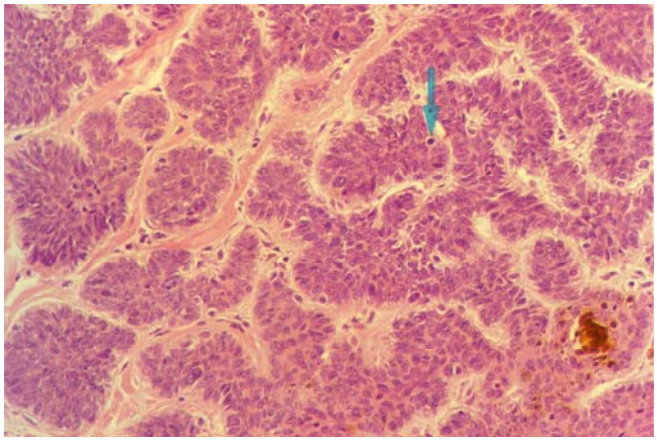
Table 3: Correlation of Clinical Appearance of B.C.C with Histological Findings

Clinical Appearance	Solid (Nodular) (17) n (%)	Adenoid (2) n (%)	Cystic (1) n (%)	Keratotic (4) n (%)	Morphea (1) n (%)	Multifocal (3) n (%)	Pigmented (2) n (%)
Noduloul-cerative (11)	6 (45.5)	0	1 (9.1)	2 (18.2)	1 (9.1)	1 (9.1)	0
Nodular (10)	6 (60)	2 (20)	0	0	0	2 (20)	0
Pigmented (9)	5 (55.6)	0	0	2 (22.2)	0	0	2 (2.22)

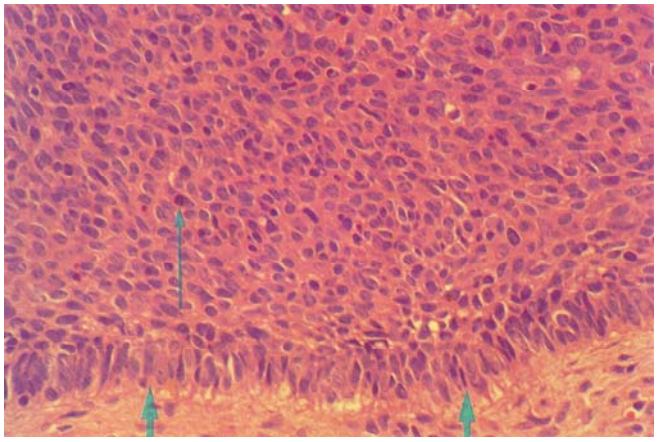
Pigmented Noduloulcerative basal cell carcinoma involving the entire right lower lid

Basal cell carcinoma involved the medial canthus of right lid. (Pigmented nodular type)

In our study nodularulcerative type was commonest clinically type i.e., 36.7% followed by the nodular type (33.3%) and the third commonest presentation was nodular pigmented (30%). Review of literature also shows noduloulcerative to be the commonest clinical presentation with nodular being the second commonest and the morphea is the least common. A study by Niazi et al[5] shows noduloulcerative as commonly occurring (65.22%) followed by nodular (21.74%) and morphea is the least common (13%)[5].



Pigmented nodular basal cell carcinoma



Basal cell carcinoma with peripheral palisading

In our study on histological examination the commonest was solid or nodular type (56.67%), the second commonest was keratotic (basosquamous) type (13.33%) followed by multifocal (10%), pigmented and adenoid (6.67%) each. Morphoea and the cystic type were the least common (3.33%) each. A study by Paavilainen[7] shows that nodular is the commonest type (84.5%), sclerosing as second commonest (5.8%), micronodular (4.9%), keratotic (2.9%) and superficial

(1.9%). In Australian study[16], most common histological subtypes were nodulocystic (43%) and infiltrating (30%). Comparison with these studies show that like in other parts of the world the nodular BCC is the commonest and morphea type is the least common histological type in our region as well.

CONCLUSION

In this study the noduloulcerative was the commonest clinical appearance of basal cell carcinoma of the eyelids and histologically the nodular type was the commonest presentation. Another study with a larger sample size and longer follow up period may validate these results.

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