



OUTCOME OF EYELID TUMOUR EXCISION WITH 4MM MARGIN AND RECONSTRUCTION WITH OUT INTRA OPERATIVE FROZEN SECTION CONTROL

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ABSTRACT **AIM:** To assess the recurrence of eyelid tumours after surgical excision with 4mm margins beyond the tumour without intra operative frozen section control facilities. **METHODS:** A prospective study involving 21 patients with histological diagnosis of carcinoma including eyelid margins, treated with surgical excision with 4mm margin beyond the tumour with clinical control without IFS control at R.I.M.S, Kadapa between 2008 and 2022.patients with minimum clinical follow up of 3 yrs . **RESULTS:** 21 patients were available for the study with a histological diagnosis of carcinoma. surgical excision of the tumour with 4mm margin and reconstruction of lids done without IFS control showed no recurrence rates with good prognosis.

KEYWORDS : Eyelid tumour, frozen section, basal cell carcinoma, squamous cell carcinoma, sebaceous cell carcinoma

INTRODUCTION:

Eye lid malignancies are relatively common lesion of eye. Most lesions benign or malignant arise from superficial layer of skin. The malignant lesion most frequently affecting eyelids are Basal Cell Carcinoma, Squamous Cell Carcinoma, Sebaceous Gland Carcinoma and Melanoma. Only 15% to 20% periocular lesions are actually malignant.

Basal Cell Carcinoma (BCC) is the commonest periocular malignancy that arises from basal cells of the epidermis. It generally grows slowly, invades locally, destroys the orbit and adjacent tissues; but rarely metastasizes.[1-2] The most common risk factors for Basal Cell Carcinoma are fair skin, inability to tan and chronic exposure to sunlight.[3] Basal Cell Carcinomas are more commonly found on the lower eyelids followed by the medial canthus, upper lid and lateral canthus.[4] The localized nodular and nodulo ulcerative subtype is the "classic" lesion and accounts for approximately 75% of all Basal Cell Carcinomas[5]. Basal Cell Carcinomas typically occur in middle-aged or older patients.

Squamous Cell Carcinoma is more aggressive in nature and second most common malignancy of eyelid, occurring more frequently on the lower eyelid. It may arise spontaneously or from solar injury and actinic keratosis and they may potentiate by immunodeficiency. It often appear as painless nodular or plaque-like lesions with irregular rolled edges, chronic scaling with roughened patches, fissuring of the skin, pearly borders, telangiectasia and central ulceration.[6]. It can metastasize through route like direct extension, blood born or through lymphatic transmission. It occur in elderly individual with a fair complexion and with history of chronic sun exposure and skin damage.

Sebaceous Gland Carcinoma is highly malignant tumour arise from meibomian gland of tarsal plate, from gland of Zeis, in the skin of eyelid and sebaceous glands of caruncle. It is 1% of eyelid malignancy. It occur most frequently in elderly with predilection for female.[7]. Tumour most commonly occur in upper eyelid as there is meibomian gland is more numerous.

Primary malignant melanomas of the skin near the eye are rare, comprising 1% or less of all malignant eyelid tumours. The tumours typically are elevated above the skin and have a discrete border. Malignant melanomas often assume irregular growth patterns and have a high incidence of metastasis.

The various types of treatment modalities described in the literature include radiotherapy, cryotherapy, laser ablation, photodynamic therapy, chemotherapy and immunotherapy. These may be useful for inoperable or widespread disease. [8-9]

Compared with primary Basal Cell Carcinoma (PBCC), recurrent eyelid tumours exhibit more aggressive biological behaviour associated with a less favourable prognosis and poorer outcome. Therefore, an important aspect in the successful management of eyelid tumours is ensuring complete tumour excision at the point of resection of the primary lesion. As Basal Cell Carcinomas, and especially those with an infiltrative component, commonly have a degree of subclinical spread it can be difficult to clinically assess the margins of the lesion at the time of excision.

The gold standard for treatment of tumour is surgical excision with 3-4 mm safety margin combined with primary repair.[12]Excision with 4mm margin may result in removal of significant amount of normal tissue which will require sophisticated reconstructive surgery. Therefore to achieve the best functional and cosmetic result, it is important to minimize the normal tissue loss.

The aim of the present study is to determine the efficacy of resection and recurrence rate following excision of primary eyelid tumours with 4mm margins and immediate plastic reconstruction using clinical control with operating bio-microscope alone without intraoperative frozen section control.

PATIENTS AND METHODS:

21 patients with histological diagnosis of primary BCC in 10 patients, SCC in 4 and SGC in 07 patients treated surgically at R.I.M.S, KADAPA between 2008 and 2022 were included in the study. All lesions either involved or were situated close to within 5 mm of the lid margin (frank extramarginal lesions which could be resected without a full thickness lid excision involving the lid margin were not included in the study). They were treated surgically with tumour excision and immediate reconstruction using clinical control with the operating biomicroscope alone without IFS control. All surgical specimens were processed for postoperative paraffin sections.

The following clinicopathological variables were extracted from the medical records for each patient in the study groups: age, gender, race, laterality ,anatomical localisation of the tumour, maximal tumour diameter determined clinically at the slit lamp (mm), histopathological classification , recurrence after primary excision (recurrence was defined as the reappearance of a histologically confirmed tumour at the site of previous excision), time between primary surgery and diagnosis of tumour recurrence (years), and the period of follow up (years).

The surgical procedure were carried out as follows. The tumour treated surgically with tumour excision with 4 mm margin of the normal tissue

and immediate reconstruction with flaps or skin grafts is done. All surgical specimens were processed for postoperative paraffin sections.

Skin sutures were removed after 1 week and lid margin sutures were removed after two weeks. At the four week postoperative visit, the wound was healthy, no clinically evident residual tumour and a circumscribed growth pattern were observed at 6 monthly intervals for a period of 3 years.

RESULTS:

In this study 21 patients with clinical diagnosis of carcinoma of the eyelid were included. All tumours were biopsied and sent for histopathological examination. The diagnosis was confirmed after meticulous histopathological examination with correlation of clinical finding.

Among 21 patients 10 were diagnosed as BCC, 04 as SCC and 07 as SGC.

Table-1 : DISTRIBUTION OF TUMOUR ACCORDING TO TYPE

TYPE	NUMBER OF PATIENTS	PERCENTAGE(%)
BCC	10	47.61%
SCC	04	19.04%
SGC	07	33.33%
TOTAL	21	100%

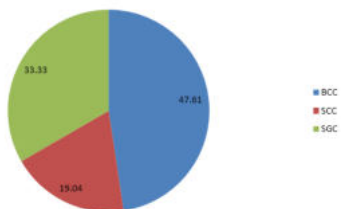


Table-2 : DISTRIBUTION ACCORDING TO LATERALITY

TYPE	RIGHT	LEFT	TOTAL
BCC	6(60%)	4(40%)	10
SCC	2(50%)	2(50%)	4
SGC	4(57.1%)	3(42.85%)	07
TOTAL	12(60%)	09(40%)	21

Among 21 patients 07 were male and 14 were female.13 patients (60%) with tumour diameter of 5 to 9 mm,5 patients (26.6%) with diameter from 9 to 14 mm and 3 patients (13.33%) with diameter of >or =15mm.

Table-3: DISTRIBUTION ACCORDING TO LOCATION OF TUMOUR

LOCATION	BCC	SCC	SGC	TOTAL
UPPERLID	03	02	05	10
LOWERLID	06	02	02	10
MEDIALCANTHUS	01	0	0	01

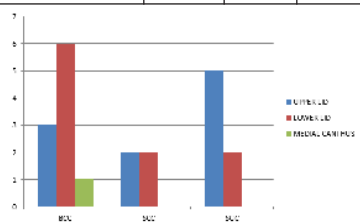


Table-4: DISTRIBUTION BASED ON RECONSTRUCTION

RECONSTRUCTION	NO OF CASES
HUGHES PROCEDURE	05
PRIMARY REPAIR	02
MYOCUTANEOUS ADVANCEMENT FLAP	05
TENZEL'S FLAP	04
CUTLER BEARD FLAP	04
CHEEK ROTATION FLAP	01

After a minimum follow up of 3 years, we evaluated the recurrence rate of tumour of this study showed no recurrences with good prognosis.

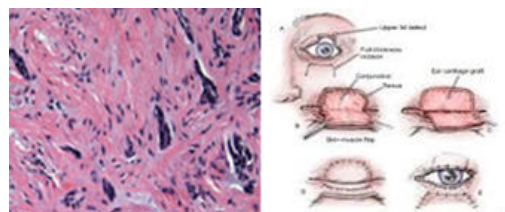
RECONSTRUCTION BY HUGHES PROCEDURE



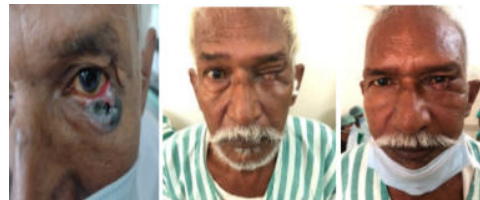
RECONSTRUCTION BY TRANSPOSITION FLAP



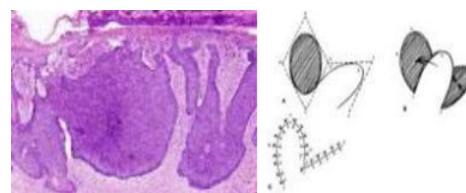
RECONSTRUCTION BY CUTLER BEARD PROCEDURE



RECONSTRUCTION BY HUGHES PROCEDURE



RECONSTRUCTION BY CHEEK TRANSPOSITION FLAP



RECONSTRUCTION BY TRANSPOSITION FLAP



RECONSTRUCTION BY TENZEL'S FLAP



RECONSTRUCTION BY TRANSPOSITION FLAP



DISCUSSION:

The malignant lesion most frequently affecting eyelids are Basal Cell Carcinoma, Squamous Cell Carcinoma, Sebaceous Gland Carcinoma and Melanoma. Only 15% to 20% periocular lesions are actually malignant. The most common is Basal Cell Carcinoma accounting for 80 - 90% of lid malignancies.[12]. Biopsy is recommended for all suspicious lesions.

Surgical excision with reconstruction of lids remains the gold standard for treatment, and excellent results are obtained if the tumour is completely removed. The following reconstruction procedures are as follows. The surgeon will need to use transfer of adjacent tissues (flaps) or transfer of skin from other parts of the eyelid, face or body (skin grafts) to complete the reconstruction. The exact technique to be used, depends on the defect size, location and the elasticity of the surrounding tissues, which in turn depends on the patient's age. A graded approach consisting of direct approximation, horizontally oriented advancement flaps, rotation flaps and free skin grafts, in that order, depending on the defect, should give good results in all cases.[13]

1. Rotation flap: These flaps are commonly used in the periocular area, where the directly adjacent skin is lifted and rotated on itself to fill the defect. [14]

2. Limberg rhomboid flap: This is one of the most useful flaps and can be used in any area of skin [15] including the periorbital area. The basic concept consists of creating a rhomboid defect and using a triangular flap drawn in a rhomboid shape, which can be rotated into the adjacent defect. This flap is not useful for excessively longitudinal defects or for those that involve a major portion of the eyelids or the lid margin. [16]

3. Transposition flap: In these flaps, the skin not directly adjacent, but close to the defect, is lifted over the intervening skin and fitted into the defect. The angle of rotation in these flaps should not be too large, as a large degree of rotation at the flap base may compromise blood supply to the tip. [14]

4. Island flap: This flap consists of a free island of skin and muscle, where the flap is freed from all sides, but remains attached to a central subcutaneous pedicle; the flap can now be considerably advanced in any direction to fill in the defect and the flap site can be repaired by direct closure.

5. Cutler beard technique: It is used for large defects of the upper eyelid such as sebaceous carcinoma of the upper lid, which is considerably more common than other lid tumours in India. [17] It uses a full thickness (cutaneo-myo-conjunctival) flap of the lower eyelid.

6. Tenzel's flap: Tenzel flap is a semicircular skin-muscle flap, a type of

advancement-rotation flap which is fashioned from the skin beyond the lateral canthus and can be used for both the upper and lower eyelids. Extension into the temporal area with Z-plasty is known as McGregor flap and is useful for both the upper and the lower eyelid. [18]

7. Hughes flap: The procedure itself is a two-stage, eyelid-sharing technique for the reconstruction of full-thickness defects, which comprise at least 50 % (and up to 100 %) of the horizontal lower eyelid margin. The first stage involves (a) the advancement of a tarsoconjunctival flap, the "Hughes" flap, from the upper to the lower eyelid to reconstruct the posterior lamella, consisting of tarsus and conjunctiva, and (b) the reconstruction of the anterior musculocutaneous lamella either using a free full-thickness skin graft, or a local skin, or skin-muscle advancement flap. [19]

Mohs micrographic surgery, a method of tumour excision with complete frozen section margin control offers the lowest recurrence rate for eyelid tumours and is the standard against which other treatments are compared. [20]. It is associated with low recurrence rate; it is costly, time consuming and not available at all centres. The margins were evaluated by the surgeon in the operating room with the assistance of a pathology technician trained in frozen section technique. The technical quality of the morphological details should be high, to facilitate accurate judgement of the margins. Finally there needs to be close communication between the surgeon and IFS team, to allow continuous feedback and timely progression of the operating schedule.

Sarma et al suggested that tumour cells at the operative site may be devitalised by surgery, thus accounting for the lower than expected recurrence rate. [23] An alternative, more likely explanation is that the margins are so narrow that the specimen distortion through fixing and tissue processing and sampling makes it difficult for the pathologist to confidently confirm clearance. All tumours underwent primary excisional biopsy with 2 to 4 mm healthy margins depending on tumour size. Seventy per cent of lid defects were treated by primary direct closure. The remainder, following confirmed histological clearance, underwent direct closure (2%), full thickness skin or tarsal grafts with skin flap (13%), local skin and muscle flaps (11%). (24) These included direct closure with or without lateral cantholysis, advancement flaps, rotation flaps (4), free skin grafts [12], free tarsal grafts [2], Hughes tarsoconjunctival flap [9], and left alone. [4] There were no recurrences of the tumour in any patient. An island flap consists of skin and subcutaneous tissue, with a pedicle made up of only the nutrient vessels. Yang et al reconstructed full-thickness lower eyelid defect using superficial temporal artery island flap combined with auricular cartilage graft in 6 cases and reported the advantages namely rich vascularity, wide pedicle rotational arc, which could be transferred throughout the face region, good eyelid contour with colour and texture match, limited donor-site scar, and minimal postoperative morbidity. [25]

In this study with surgical excision of 4mm margin without IFS a three year follow up of the patient had good functional as well as cosmetic outcome with good prognosis.

Abbreviations

- BCC: basal cell carcinoma
- SCC :squamous cell carcinoma
- SGC: sebaceous gland carcinoma
- IFS: intraoperative frozen section control
- PBCC: primary basal cell carcinoma

CONCLUSION:

Basal cell carcinoma, squamous cell carcinoma and sebaceous gland carcinoma are common malignancies of the eyelid. Surgery is the treatment of choice which can be done either by simple excision or frozen section guided excision. At hospitals where frozen section facilities are not available simple excision 4mm margin of the tumour followed by reconstruction showed no recurrence rates with good prognosis.

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