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A Case Series on the Management of Basal Cell Carcinoma: From Excision to Reconstruction

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Abstract

Introduction:

Basal cell carcinoma is the most common malignant tumor of the eyelid. Metastatic spread is infrequent; however, lesions left untreated can cause local invasion and lead to severe destruction of the tissues around the eyes. Surgical excision followed by reconstruction is still the definitive treatment for this condition.

Methods:

This retrospective case series analyzes patients diagnosed histologically with eyelid and periocular basal cell carcinoma that has been treated surgically at a tertiary care center. All lesions were excised with clinically adequate margins, followed by histopathological examination. Reconstruction was done in an individualized manner according to the defect size, location, and lamellar involvement, incorporating the use of local flaps, lid-sharing techniques, and skin grafts whenever indicated.

Outcomes:

Complete tumor removal was achieved in all cases. The appropriate reconstructive methods maintained a stable anatomy of the eyelids, ensured preservation of ocular function, and provided a satisfactory cosmetic appearance. No major postoperative complications or early recurrences were noted during the follow-up period.

Conclusion: Meticulous surgical excision combined with suitable reconstructive approach is the main stay of management of eyelid basal cell carcinoma. An individualized approach ensures optimal functional and aesthetic outcomes while minimizing morbidity.

Introduction:

Basal cell carcinoma (BCC) is the most common malignant tumor of the eyelid, accounting for about 80-90% of all malignant eyelid tumors. This malignancy has been known to arise from the basal cells in the epidermis and has a strong association with ultraviolet radiation. Even though BCC has been known to be an indolent type with low metastatic rates, the tumor has been shown to invade aggressively when prompt treatment does not occur.

It was first described in 1827 by the Irish surgeon Arthur Jacob, who gave it the name of ulcus rodens, reflecting the slow but destructive process it entails.

Advances in the study of histopathology in the nineteenth century shed more light on its Cellular origin from the basal cells of the epidermis, resulting in its current name.

BCC most commonly occurs in those with fair skin and makes up a large percentage of cases of head and neck cancers. The incidence of BCC of the eyelids is about 10%, which most commonly affects the lower lid, then the medial canthus,

the upper lid, and the lateral canthus. These areas receive more UV radiation as well. Carcinomas of the skin often include BCCs.

Clinically, eyelid BCC may present in various forms, such as nodular, ulcerative, pigmented, and sclerosing. Common features include raised pearly margins, surface telangiectasia, central ulceration, and loss of eyelashes. Definitive diagnosis is made by histopathological examination after biopsy. In advanced cases, cross-sectional imaging using CT or MRI may be necessary to demonstrate deeper extension or orbital involvement.

Surgical excision with histologically confirmed tumor-free margins remains the treatment of choice. Reconstruction following excision is dictated by the extent and location of the defect. Established reconstructive techniques, including local flaps, lid-sharing procedures, and skin grafts, have enabled the restoration of the integrity of the eyelid in a functional and cosmetic manner.

This case series encompasses surgical management of basal cell carcinoma of the eyelid and adjoining periocular structures, bringing into light various reconstructive techniques applied singly or in combination to address post-excisional defects.

Materials and Methods

This was a retrospective observational study conducted in the Department of Ophthalmology at Tezpur Medical College and Hospital. Patients with clinically suspected and histopathologically proven cases of eyelid and periocular basal cell carcinoma undergoing surgery were included. The study was done after taking clearance from the Institutional Ethics Committee, and all procedures were in compliance with the Declaration of Helsinki. Written consent was taken from all patients.

All patients were thoroughly evaluated for their lesions with respect to the duration, size, location, and involvement of the eyelid margin and canthus. Ocular examination was done for the function of the eyelids and the status of the ocular surface. Lymph nodes in the region were checked routinely. Biopsy was done for confirmatory diagnosis before definitive treatment.

A wide local excision of the lesion was done. All excised tissues were sent for histopathological examination. Imaging studies were done selectively in cases where there was a suspected deep and/or Orbital component.

Reconstruction was undertaken depending on the size or depth of the defect, as well as involvement of the anterior or posterior lamellae. Reconstruction methods that were used include closure, local rotation flaps, lid-sharing methods, which include Cutler-Beard, Tenzel's semicircular flap, Mustardé's rotation flap for the cheek, as well as full-thickness graft.

The main concerns in the postoperative care of the patients were the healing of the wound, the position of the eyelids, the integrity of the ocular surface and its functionality.

Photos of various surgical techniques used for excision of basal cell carcinoma and reconstruction of defects

(A)Excision with lateral canthotomy and cantholysis:

When the tumour is less 1/3rd of the lid area it can be excised and the defect reconstructed with extra mobilisation of tissue by combining with lateral canthotomy and cantholysis.

(B) Cutler-Beard lid-sharing technique:

The Cutler–Beard procedure is a two-stage reconstructive surgery used to repair large full-thickness defects of the upper eyelid by temporarily borrowing tissue from the lower eyelid.

(C) Glabellar flap reconstruction:

A glabellar rotational flap is a local cutaneous flap can be used to reconstruct upper eyelid (lid), medial canthal defects and even extensive lower lid defects in tissue loss following excision.

(D) Mustardé cheek rotation flap with Tenzel's semicircular flap:

Mustardé's cheek rotational flap combined with Tenzel's flap is a versatile reconstructive approach when there is extensive tissue loss for large lower-eyelid and lateral canthal defects, following excision.

(E) Tenzel's semicircular flap with lateral canthotomy and cantholysis:

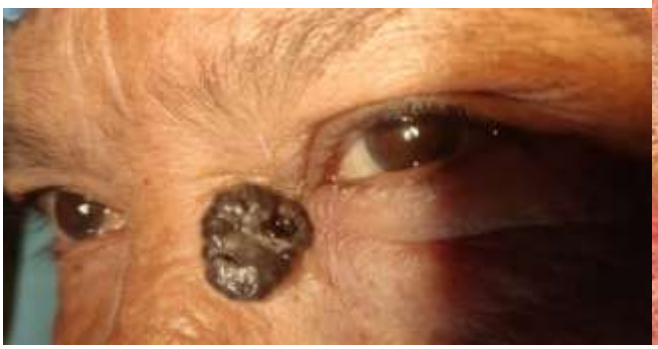
Tenzel's semicircular rotational flap combined with lateral canthotomy and cantholysis give extra rotational leverage for the flap to cover extensive area which would not have been possible with either a single procedure.




(F) Excision with full-thickness and split-thickness skin graft:

Presence of rich vascular supply in the facial region the chances of graft rejection whether full thickness or split skin is greatly diminished when the use of rotational flap would lead to bad cosmesis.

Retro auricularfullthickness skin graft




Supra clavicular full thickness skin graft

Discussion

Basal cell carcinoma in the eyelid region has its own challenges in management due to its potential impact on functional and cosmetic preservation of facial structures. Though its metastatic risk is very low, its propency to grow and erode the surrounding tissues forces earlier initiatives toward definitive management to avoid massive tissue loss.

Surgical excision is still the mainstay in treatment. Although Mohs micrographic surgery gives better margin control, conventional surgical excision with histopathological validation remains effective. Moreover, in our series, we find that all cases had good margin clearance by conventional methods of excision.

Reconstruction after tumor excision should address functionality as well as aesthetic concerns. Various reconstructive modalities depend on tumor size, site, and lamellar defect. Tenzel flap, Mustardé rotation flap for the cheek, Cutler Beard flap, and skin grafting are time-tested methods, which give satisfactory outcomes. The satisfactory outcomes obtained in the present series are in accordance with the available literature.

Long-term follow-up is advised because of the risk of recurrence, especially in medial canthal or aggressive histological types. Preventive practices, such as patient education regarding protection from the sun, have an important role in long-term control of the disease.

Conclusion

Basal cell carcinoma of the eyelid requires an orderly surgical procedure because of its propensity to invade locally and the paramount importance of the structures of the eyelid. Definitive treatment has been the complete surgical excision with oncologically safe margins. Personalized surgical reconstruction methods, depending on the defect, can lead to the restoration of the functions of the eyelid with tolerable cosmetic results.

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CONSENT AND DECLARATION

Written informed consent was obtained from all patients, including consent for clinical photography and publication of images.

DECLARATION OF PATIENT CONSENT

The authors certify that they have obtained all appropriate patient consent forms. In these forms, patients have given their consent for images and clinical information to be reported in the journal. Patients understand that their names and initials will not be published and that efforts will be made to conceal their identity; however, anonymity cannot be guaranteed.

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Nil.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.