

ORIGINAL ARTICLES

MANAGEMENT OF PERIORBITAL DEFECTS WITH LOCAL FLAPS AFTER RESECTION OF BASAL CELL CARCINOMA EYE LIDS

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ABSTRACT

Objective: Basal cell carcinoma (BCC) is the most common malignant tumour of eyelids. In this study management of periorbital defects of patients treated for BCC is described.

Design: A prospective study.

Place and Duration of Study: This study was done from June 2001 to October 2003 at CMH Quetta.

Patients and Methods: This study included all the patients suffering from BCC who were treated for periorbital defects resulting from resection of BCC.

Results: Fifteen patients with periorbital BCC were included in this study. Eight were males and seven were females. Ages varied from forty to seventy years. These patients were treated by cheek flap, muscular flap, Glabellar flap and Tenzel flap.

Conclusion: An early detection and timely management of eyelid BCC give excellent results and prevent disfigurement and morbidity.

Keywords: Eye lid, local flap, basal cell carcinoma.

INTRODUCTION

The most common form of skin cancer and the most common epithelial tumor is basal cell carcinoma (BCC) accounting for 80-90% of skin malignancies [1]. BCC is slow growing, locally invasive and rarely metastasizes [2]. If allowed to progress, it can result in significant morbidity and cosmetic disfigurement. The management of periorbital defects is a difficult problem. The possible reconstructive options of this region are full thickness skin grafting and local flaps. Skin grafts are not suitable for defects involving lid margins and for other periorbital defects, they often give a patchy look. Local flaps provide excellent tissue coverage in most of the defects. Other treatment modalities include curettage,

electrodessication, cryotherapy, radiation and microsurgery [3,4]. Ideally tumor should be excised with Moh's micrographic technique, which employs fresh frozen sections at the time of surgery until clear margins are reached [5-7]. This study was undertaken to evaluate the management of periorbital defects with local flaps after excision of basal cell carcinoma of the eyelids.

PATIENTS AND METHODS

This prospective study is based on fifteen patients with periorbital defects resulting from resection of basal cell carcinomas between June 2001 and October 2003. The diagnosis of basal cell carcinoma was confirmed with incision biopsy under local anesthesia.

After histopathological confirmation, the tumor was resected taking about 5-7 mm resection margins erring towards radical

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excision as frozen section facility is not available in CMH Quetta. Smaller tumors underwent resection under local anesthesia whereas for larger lesions and in uncooperative patients, general anaesthesia was used. Continuous 6/0 vicryl suturing with buried knots was used for eyelid lining whereas 6/0 prolene interrupted sutures were used for skin. The specimen was tagged with silk stitch and drawn on the specimen form diagrammatically and sent for histopathology. Superior, inferior, medial, lateral and deeper resection margins were evaluated for tumor invasion. The defect was reconstructed with local flap. The defects which were closed primarily and tumor involving orbital contents were not included in the study.

Post Operative Care:

A clinical examination was made at 1,2,12 weeks, 6 and 12 months after the initial surgery. Post operatively stitches were removed on sixth postoperative day. In thirteen patients, all the resection margins were free from tumor. In two patients, one of the resection margins was involved by tumor and was resected again

RESULTS

From June 2001 to October 2003, fifteen patients with periorbital BCC were operated. The patients included were eight males and seven females. Their ages ranged from forty to seventy years. The sites of the defects and the types of the flaps are shown in the table. The follow up period ranged from one month to two years. One patient had recurrence and underwent resection again. The cosmetic and functional results were excellent (fig. 1-4).

DISCUSSION

Basal cell carcinoma is the most common malignant tumor of the eyelids usually involving the lower lid and medial canthal area [8]. Exposure to sunlight is thought to be an important causative factor [9]. Typically these are painless, small nodular or noduloulcerative masses (rodent ulcer) with

an umbilicated center and pearly margins. The tumor enlarges gradually and has repeated bouts of surface ulceration and crusting. When there is involvement of lid margin then trichiasis, loss of lashes and tarsal distortion can occur [10]. Morphea type BCC involve a large area and extent may not be clinically apparent, so this type of BCC must be treated with wider surgical margins and evaluation of the frozen section margins at several levels [11]. The incidence of BCC increases with increasing age and tends to occur in the seventh decade of life. The median age at diagnosis is 67 ± 2.5 years, and the mean age is 64.4 ± 5.6 years (age range 20-90 y). Children are rarely affected unless they have tumor diathesis i.e. xeroderma pigmentosa or basal cell nevus syndrome [12].

BCC is slightly more common in males than in females with a male-to-female ratio of 3:2 In a recent article, it is reported that incidence of BCC to be equal for both sexes [12]. BCC is slow growing, locally invasive and destructive, and rarely metastasizes (0.0028-0.1%) However, Patel et al reported a case of BCC metastasizing to the lung [13]. Death from BCC is extremely rare, but if BCC is allowed to progress, it can result in significant morbidity and cosmetic disfigurement. BCC arising in the medial canthus tends to be deep and invasive and may result perineural extension and loss of nerve function. Pieh et al reported a recurrence rate of 5.36% after the first excision of the tumor, the rate increased to 14.7% after the second operation, and the rate reaches 50.0% after the third and fourth operation [14]. The highest recurrence, approximately 60.0%, was seen with lesions arising from the medial canthus, since these lesions tend to be more invasive and difficult to manage [14]. Most basal carcinomas are solitary lesions. One must keep in mind squamous cell carcinoma and sebaceous gland carcinoma while evaluating BCC. There are many treatment modalities used for BCC ie radiation, chemotherapy, photodynamic therapy, electrodesiccation, cryosurgery, systemic retinoids, CO2 laser, surgical excision and

Moh's micro graphic surgery [3-6,15,16]. Surgical excisions followed by various reconstructive techniques have been our method of choice as we have done in our study. There are different methods of tumor removal and reconstruction. When there is involvement of tarsus, full thickness lid resection is done, involving at least one mm healthy margins and examination of the tissue with frozen section [17,18]. Removal of tumor involving up to 25% of upper or lower lid and tumors up to eight mm in length and involving the tarsus can be removed and defect closed primarily. Excision of lesions involving 25-40% of upper or lower lid are excised with pentagonal full thickness incision and coverage of the defect with a semicircular myocutaneous flap, described by Tenzel and Stewart. [9]. Lid defects greater than 40% of the lid and those involving more than 10 mm of the temporal part of the lid are best treated using a lid sharing procedure. Reconstruction of defects involving more than 40% of the lower lid is best done by a tarsal conjunctival advancement flap from the upper lid. Rado described a procedure that spared the lid margin by dividing the tarsus 3- 4 mm from the margin and advancing the superior part of the tarsus and conjunctiva into the inferior defect. Reconstruction following removal of large tumors of the upper lid can be done with tarsus from the lower lid by splitting technique [19]. Cutler-Beard procedure is a popular method for repair of large upper lid defects i.e. a narrow piece of tarsus can be advanced to the upper lid. Wesley and Mc-Cord have modified it by which bank sclera or autologous ear cartilage is placed between the lamellae of the split advancement flap from the lower lid. Fox and Beard have recommended allowing granulation and healing by second intention to fill medial canthal defects [19-21].

Although Moh's micrographic surgery has the highest cure rate of all surgical treatments, surgical technique is complicated and requires special training. This method allows the tumor to be microscopically delineated until it is removed completely

Table: Site of the defect, number and types of flap.

Site of the defect	No.	Types of flap
Infraorbital margin	5	Cheek advancement flap
Lower lid	4	Mustarde flap
Medial canthus	3	Glabellar flap
Medial canthus	1	Mediallybased myocutaneous flap
Upper lid	2	Tenzel flap



Fig-1 (a)BCC Morpheu type (b)Post excision defect



(c) 12-weeks post op –Eyes open

(d) Eyes close



Fig-2(a)BCC. Noduloulcerative

(b) Post excision defect-cheek advancement flap marked



(c) Immediate post operative

(d) Six weeks post operative

[5,11]. The 5-year recurrence rate for treated BCC after Mohs micrographic surgery was 1.0%, 7.5% after cryosurgery, 7.7% after desiccation and curettage, 8.7% after radiotherapy, and 10.1% after surgical excision. Prospective studies have shown that 36% of the patients who develop BCC, will develop a second primary BCC within next five years [14,18]. Early detection, diagnosis and treatment of recurrence or another primary BCC is desirable since the treatment of disease in the earliest stages leads to cosmetically pleasing results and less morbidity.



Fig-3(a)Planned resection and glabellar flap (b) Post excision defect



(c) Two weeks post operative



Fig-4(a)BCC upper lid

(b) Immediate post operative



(c) 2- weeks post op- Eyes open

(d) Eyes close

Postoperatively, patients should be encouraged to apply sun screens, avoid sun exposure and if unavoidable to wear sun glasses, long sleeve shirts and broad-trimmed hats.

CONCLUSION

An early detection and timely management of eyelid BCC give excellent cosmetic results, and prevent disfigurement and morbidity.

REFERENCES

1. Yasmeen N, Saeed S, Kanjee A, Sadiq S. A Study of 75 cases of malignant skin tumors. *J Pak Assoc Dermatol* 2002; 12(3): 130-4.
2. Safai B, Good RA. Basal cell carcinoma with metastasis. *Arch Pathol Lab Med* 1997; 101: 327-30.
3. Bandieramonte G, Lepera P, Moglia D, Bono A, De Vecchi C, Milani F. Laser microsurgery for superficial T1-T2 basal cell carcinoma of the eyelid margins. *Ophthalmology* 1997; 104(7): 1179-84.
4. Biro L, Price E. Cryosurgical management of basal cell carcinoma of the eyelid: a 10-year experience. *J Am Acad Dermatol* 1990; 23(2 Pt 1): 316-7.
5. Irvine C, Walker NP, Ramnarain ND, Downes RN, Collin JR. Micrographically controlled excision (Mohs' surgery) of basal cell carcinoma around the eye. Combined dermatological surgical clearance and oculoplastic surgical repair. *Aust N Z J Ophthalmol* 1992; 20(1): 5-10.
6. Kumar B, Roden D, Vinciullo C, Elliott T. A review of 24 cases of Mohs surgery and ophthalmic plastic reconstruction. *Aust N Z J Ophthalmol* 1997; 25(4): 289-93.
7. Leib ML, Johnson DA, Eliezri YD. Mohs histographic surgery and ophthalmic plastic reconstruction. *Ophthal Plast Reconstr Surg* 1992; 8(4): 262-70.
8. Margo CE, Mulla ZD. Malignant tumors of the eyelid: a population-based study of non-basal cell and non-squamous cell malignant neoplasms. *Arch Ophthalmol* 1998; 116(2): 195-8.
9. Lindgren G, Diffey BL, Larko O. Basal cell carcinoma of the eyelids and solar ultraviolet radiation exposure. *Br J Ophthalmol* 1998; 82(12): 1412-5.
10. Kanski JJ. *Clinical Ophthalmology: a systematic approach*. 5th ed. Edinburgh: Butter worth-Heinemann; 2003. p. 20-1.
11. McGregor JC. Mohs surgery for basal cell carcinoma. *Br J Plast Surg* 1994; 47(3): 206.
12. Lee SB, Saw SM, Au Eong KG, Chan TK, Lee HP. Incidence of eyelid cancers in Singapore from 1968 to 1995. *Br J Ophthalmol* 1999; 83(5): 595-7.
13. Patel MS, Thigpen JT, Vance RB, Elkins SL, Guo M. Basal cell carcinoma with lung metastasis diagnosed by fine-needle aspiration biopsy. *South Med J* 1999; 92(3): 321-4.
14. Pieh S, Kuchar A, Novak P, Kunstfeld R, Nagel G, Steinkogler FJ. Long-term results after surgical basal cell carcinoma excision

- in the eyelid region. *Br J Ophthalmol* 1999; 83(1): 85-8.
15. Leshin B, Yeatts P, Anscher M, Montano G, Dutton JJ. Management of periocular basal cell carcinoma: Mohs' micrographic surgery versus radiotherapy. *Surv Ophthalmol* 1993; 38(2): 193-212.
 16. Korn EL. Use of the carbon dioxide laser for removal of lesions adjacent to the punctum. *Ann Ophthalmol* 1990; 22(6): 230-4.
 17. Frank HJ. Frozen section control of excision of eyelid basal cell carcinomas: 8 1/2 years' experience. *Br J Ophthalmol* 1989; 73(5): 328-32.
 18. Sigurdsson H, Agnarsson BA. Basal cell carcinoma of the eyelid. Risk of recurrence according to adequacy of surgical margins. *Acta Ophthalmol Scand* 1998; 76(4): 477-80.
 19. Rado D. Microsurgery for eyelid margin tumors. *Ophthalmology* 1998; 105(6): 945-6.
 20. Steinkogler FJ, Scholda CD. The necessity of long-term follows up after surgery for basal cell carcinomas of the eyelid. *Ophthalmic Surg* 1993; 24(11): 755-8.
 21. Mullner K, Langmann G. Chondroplast: a new material for eyelid reconstruction. *Ophthalmologica* 1999; 213(3): 189-93.