

## ROLE OF TOPICAL POSTOPERATIVE MITOMYCIN-C IN OCULAR SURFACE SQUAMOUS NEOPLASIA: A CASE REPORT

R. Bindu Madhavi<sup>1</sup>, H. N. Soumya<sup>2</sup>, D. Ravi Prakash<sup>3</sup>

<sup>1</sup>Senior Resident, Department of Ophthalmology, Bangalore Medical College & Research Institute, Bangalore.

<sup>2</sup>Senior Resident, Department of Ophthalmology, Bangalore Medical College & Research Institute, Bangalore.

<sup>3</sup>Retired Professor, Department of Ophthalmology, Bangalore Medical College & Research Institute, Bangalore.

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### ABSTRACT

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#### PURPOSE

To report the efficacy of topical Mitomycin-C in preventing local recurrences after incomplete surgical excision of ocular surface squamous neoplasia.

#### METHODS

An interventional case report on a 70-year-old female patient with unilateral ocular surface squamous neoplasia (OSSN). Excision biopsy revealed invasive squamous cell carcinoma. All margins were positive for neoplastic cells. Patient was treated with topical Mitomycin-C 0.04% one drop, four times per day in alternate weeks for 4 weeks to prevent recurrences.

#### RESULT

The patient was free of clinically detectable tumour & on impression cytology after a followup period of 10 weeks. Side effects included photophobia, mild redness & punctate epithelial keratopathy.

#### CONCLUSION

Postoperative topical Mitomycin-C application may be a useful adjunct to prevent recurrences in patients with incompletely excised OSSN.

#### KEYWORDS

OSSN, Mitomycin-c, Adjunctive therapy, Recurrent OSSN.

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**INTRODUCTION:** Ocular surface squamous neoplasia (OSSN) is the commonest tumour affecting the ocular surface mainly involving conjunctiva and cornea. The main clinical characteristics include gelatinous raised papillary lesions with keratin plaques and a prominent feeder vessel. The abnormal epithelium usually arises from the limbus and can extend centrally over the cornea or posteriorly over the conjunctiva. Different risk factors for OSSN are exposure to UV rays, HPV, chronic inflammatory diseases of the ocular surface, HIV & xeroderma pigmentosa. The latter two conditions are associated with an early onset of presentation. In invasive squamous cell carcinoma, cells infiltrate through the basement membrane and invade the substantia propria. Small lesions if diagnosed early have a good prognosis. Long term neglected invasive lesions may spread into the globe or orbit. Incidence of the neoplasm is between 1 and 2.8 per 100,000 people per year. Even though surgical excision is considered traditional and gold

standard, it may alone not eradicate the subclinical lesion. But surgical excision also allows for an immediate histopathological diagnosis. The improvement of tumoral control requires additional treatments such as cryotherapy, topical chemotherapy.<sup>1</sup> Various chemotherapeutic drugs that have been used are topical 5-FU, Mitomycin-C for the treatment of OSSN.

**MATERIALS & METHODS:** This is an interventional case report of a 70-year-old female patient who presented to us with unilateral OSSN. Slit-lamp examination revealed a raised mass, pink in colour with typical papillary & gelatinous appearance extending 3 mm into the cornea & measuring 17 mm x 13 mm, involving 6 o' clock to 2 o' clock hours. (Fig. 1)

Anterior chamber was clear, fundus and extraocular movements were normal. There was no lymphadenopathy or any systemic abnormality on clinical examination.

The lesion was completely excised with a 4 mm margin on the conjunctival aspect & 2 mm margin on the corneal side. Cryotherapy was applied to the margins. Excision biopsy revealed invasive squamous cell carcinoma with all margins positive for malignant cells.

Patient was started on topical Mitomycin-C eye drops 0.04% one drop, four times per day in alternate weeks for 4 weeks to prevent recurrence. (Fig. 2, Fig. 3).

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Corresponding Author:

Dr. R. Bindu Madhavi,

Minto Eye Hospital,

Bangalore Medical College & Research Institute,

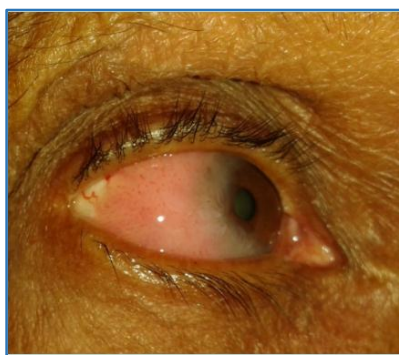
Chamrajpet, Bangalore-560018.

E-mail: bindunayana09@gmail.com

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**RESULT:** Patient was called for followup weekly during the course of MMC therapy. Patient adhered to the treatment schedule correctly and had no intolerance to the allergic symptoms. At the end of treatment cycle, impression cytology was done and it revealed no malignant cells & patient was free of clinically detectable tumour after a followup period of 10 weeks. Side effects included photophobia, mild redness & punctate epithelial keratopathy which decreased after MMC was stopped. No serious side complications were seen. Patient was advised for a followup every 3 months for at least one year.



**Fig. 1: Preop. picture of OSSN showing gelatinous**



**Fig. 2: Immediate postop following excision and papillary appearance**



**Fig. 3: Post-op. picture, 10 weeks after topical MMC therapy**

**DISCUSSION:** The treatment of squamous cell carcinoma traditionally involved wide excision of the tumour along with

application of cryotherapy of the surgical margins, along with pathological examination of excised margins.<sup>2</sup>

Recently, the trend has shifted towards topical therapy, such as chemotherapy and immune modulator drops. These drugs have an advantage over surgical excision in that they deliver treatment not only to the affected site but also to remote sites, potentially eliminating subclinical disease. Primary excision has been the mainstay of treatment for OSSN.<sup>3</sup> Surgical excision remains the important initial step in management as it is difficult to exclude invasive disease on clinical grounds or with impression cytology.

Excision allows an immediate histopathological diagnosis, surgical debulking, and excludes life threatening invasive carcinoma. The disadvantage of primary excision alone has a high recurrence rate which ranges from 15% to 52%. Therefore, numerous adjunctive treatments have been described in an attempt to decrease the rate of recurrence and the efficacy of various adjunctive therapies have been studied.<sup>4</sup>

Since 1994, several groups have reported the use of MMC in the treatment of both primary and recurrent OSSN.

We think that it is unwise to use MMC without excision biopsy for localised OSSN (especially large lesions), as invasive disease may be undiagnosed and MMC is not likely to penetrate to the required level to reach the invasive cells. Complications of MMC are common but are largely confined to ocular surface toxicity.

**CONCLUSION:** Simple surgical excisions have a high recurrence rate because the tumour edges and deep margins are difficult to determine especially if lesions are large. The risk of recurrence mainly depends on size, type of tumour and mode of initial treatment. Long term recurrences of invasive squamous cell carcinoma are rare when topical MMC is used as an adjunctive therapy. Side effects with MMC are common but they are transient. And hence combined use of MMC with surgical excision is an effective treatment in incompletely excised tumours.

Our study demonstrates postoperative topical Mitomycin-C application may be a useful adjunct to prevent recurrences in patients with incompletely excised OSSN.

#### REFERENCES:

1. Akpek EK, Ertoy D, Kalayci D, et al. Postoperative topical Mitomycin-C in conjunctival squamous cell neoplasia. *Cornea* 1999;18(1):59-62.
2. Khokhar S, Soni A, SinghSethi H, et al. Combined surgery, cryotherapy, and Mitomycin-C for recurrent ocular surface squamous neoplasia. *Cornea* 2002;21(2):189-91.
3. Chen C, Louis D, Dodd T, et al. Mitomycin-C as an adjunct in the treatment of localised ocular surface squamous neoplasia. *Br J Ophthalmol* 2004;88(1):17-18.
4. Poothullil AM, Colby KA. Topical medical therapies for ocular surface tumours. *Semin Ophthalmol* 2006;21(3):161-169.