

## Role of topical Mitomycin c in the treatment of placoid variant of Ocular surface squamous neoplasia.-A Case report

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**Abstract:** Ocular surface squamous neoplasia encompasses a varied spectrum of dysplastic, pre invasive and malignant squamous lesions of the conjunctiva and cornea. In this case report a 40 year male patient presented with placoid variant of OSSN was treated with MITOMYCIN C precluding any invasive procedure.

**Keywords:** OSSN, Leukoplakia, Mitomycin C

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### I. Case Report

This study confirms to the principles outlined in the Declaration of Helsinki and was conducted after obtaining approval from the Institutional Ethics Committee on Human Research and informed written consent from the patient.

A 40-year-old gentleman presented to our outpatient department with complaints of foreign body sensation and redness of the right eye since 2months. He observed a whitish opacity in his right eye temporal to the cornea for which he was given steroids considering it as phlycten. Later placoid variant of OSSN was suspected in the same hospital due to non responsiveness to the treatment and advised excision biopsy. Patient visited our hospital for second opinion. Unaided visual acuity was 20/20 in both eyes, anterior segment examination of right eye revealed a whitish tongue shaped flat lesion extending from limbus on to the cornea measuring 6 x 4mm involving only the superficial layers of the cornea and continued as 10 x 9mm conjunctival elevation with congestion. Lesion is stained with Rose Bengal and fluorescence stain showing the granular nature of the lesion by delineating its extent. Intraocular pressure is 40mmHg. Rest of the anterior segment examination was normal. Anterior segment examination of the other eye was normal. Fundus evaluation of both eyes was normal.

Systemic examination was within normal limits. Baseline laboratory data including biochemical and hematological parameters were within normal limits. Serology testing for HIV and HBsAg was negative. We did not perform investigations to rule out HPV as the lesion is single layered and because of scanty material. We did not perform any immunohistochemical studies for the detection of HPV.

#### Diagnosis:

Clinical diagnosis of leucoplacoid variant of OSSN was made.

#### Treatment:

The patient has been started on topical Mitomycin C 0.02% eye drops 4days on and 3days off regimen along with artificial tear supplements. High intraocular pressure was probably due to steroid responsiveness hence steroids were stopped. Topical Brimolol 0.2% with Timolol 0.5% BD combination was also given. The lesion was clinically responding well to the above regimen and so was observed at frequent weekly follow ups. Gradually the lesion decreased in size with symptomatic improvement within 4weeks' time. Lesion is clinically absent after 2months of treatment. There were no signs of reactivity in 3months "NO treatment" follow up. He has been further advised and counseled regarding the premalignant nature of the disease and the possibility of recurrences, other ocular manifestations, and the need for yearly follow-up.

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## II. Discussion:

The incidence of OSSN varies geographically. <sup>(1)</sup> OSSN is underreported in an Indian scenario. CIS accounts for 39% of all premalignant and malignant lesions of the conjunctiva and incidence of invasive SCC varies from 0.02 to 3.5 per 1,00,000 population. <sup>(2)</sup> Ocular surface squamous neoplasia (OSSN) encompasses a wide and varied spectrum of disease involving abnormal growth of dysplastic squamous epithelial cells on the surface of the eye.

Conjunctival intraepithelial neoplasia is non-invasive; the basement membrane remains intact and the underlying substantia propria is spared. <sup>(3)</sup> It arises from a single mutated cell on the ocular surface. Corneal intraepithelial neoplasia refers to neoplastic lesions of the cornea in which the conjunctival involvement is minimal. Squamous cell carcinoma (SCC) describes a malignant lesion in which the dysplastic epithelial cells have penetrated the corneal basement membrane, the conjunctival lesion tends to be immobile and more raised in appearance.

Three major clinical variants of ocular carcinoma in situ are papilliform, gelatinous, or leukoplakic. Leukoplakia is defined as a white patch or plaque that cannot be characterized clinically or pathologically as any other disease (World Health Organization 1978) <sup>(4)</sup> and generally refer to an epidermal thickening or hyperkeratosis. OSSN is more likely to show leukoplakia than benign lesions, however 50% of benign lesions also have it. <sup>(5)</sup> Typically, patients present with a gelatinous or plaque-like interpalpebral conjunctival gray or white lesion. <sup>(6)</sup> Mostly CIN lesions occur at the limbus, as it resides in the most active mitotic cells. <sup>(2)</sup> The lesion may be flat or elevated and may be associated with feeder vessels. <sup>(2)</sup>

Corneal involvement is due to the spread of abnormal epithelium from the adjacent limbus. The abnormal squamous cells often have a translucent, grayish, frosted appearance. They take on a characteristic fimbriated or pseudopodia configuration. <sup>(3)</sup> There is often an adjacent pannus present to metabolically support these abnormal cells. Fluorescein, lissamine green, or Rose Bengal can often be used to highlight the lesion. <sup>(3)</sup> Abnormal epithelium has a diffuse and granular appearance, differentiating it from normal epithelium.

Frucht-Pery and Rozenman identified that Mitomycin C (MMC) was effective in the control of CIN <sup>(7)</sup>. Mitomycin C is an antimetabolite. It disrupts the production of RNA by alkylating DNA. <sup>(8)</sup> Its efficacy range from 80% to 100%. <sup>(8)</sup> It is available as lyophilized powder and needs to be reconstituted to either 0.02% or 0.04% for topical use. 0.02% concentration is usually prescribed continuously for a month; whereas, 0.04% concentration may be used for a week followed by 2 to 3 weeks off treatment. It allows treatment of the entire ocular surface, including the conjunctival fornices, destroy subclinical disease and prevent new tumors arising elsewhere on the ocular surface. <sup>(9)</sup> It must be refrigerated <sup>(10)</sup>. The side effects of MMC are ocular pain, limbal stem cell loss, and other ocular surface toxicity. Risk of punctal stenosis is decreased by occluding the punctum. MMC can be used as treatment in primary OSSN cases, as an adjuvant following surgical excision and in localized recurrent disease.

Other available treatment modalities include topical 5-fluorouracil, topical and subconjunctival injection of interferon alfa2b <sup>(11)</sup>

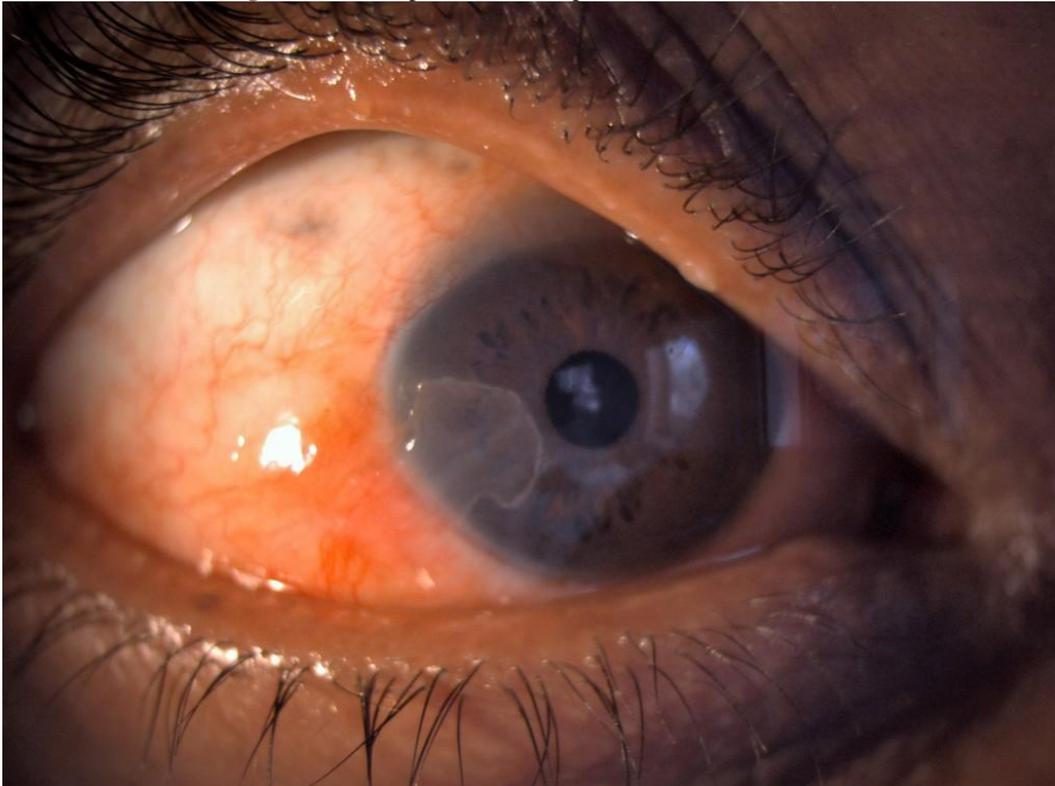
## III. Conclusion:

Placoid variant of OSSN is a clinical diagnosis and an early lesion like this may be overlooked in an Indian scenario where patients land up with a worse presentation and topical Mitomycin C at the earliest will treat the disease and an invasive approach as a biopsy may not be needed in all the cases.

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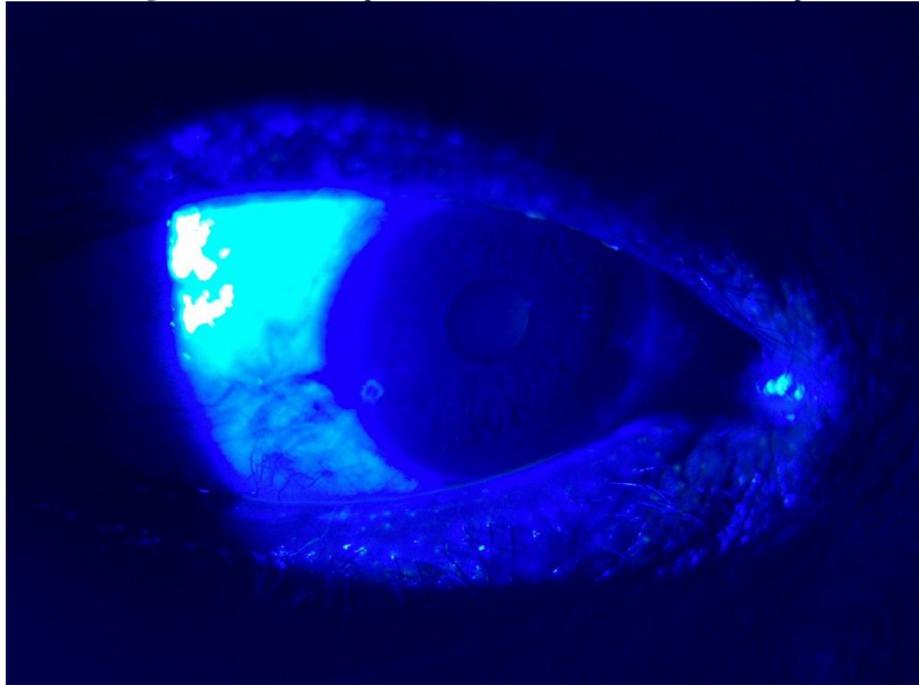
**Figure1:** Patient presented with placoid variant of OSSN



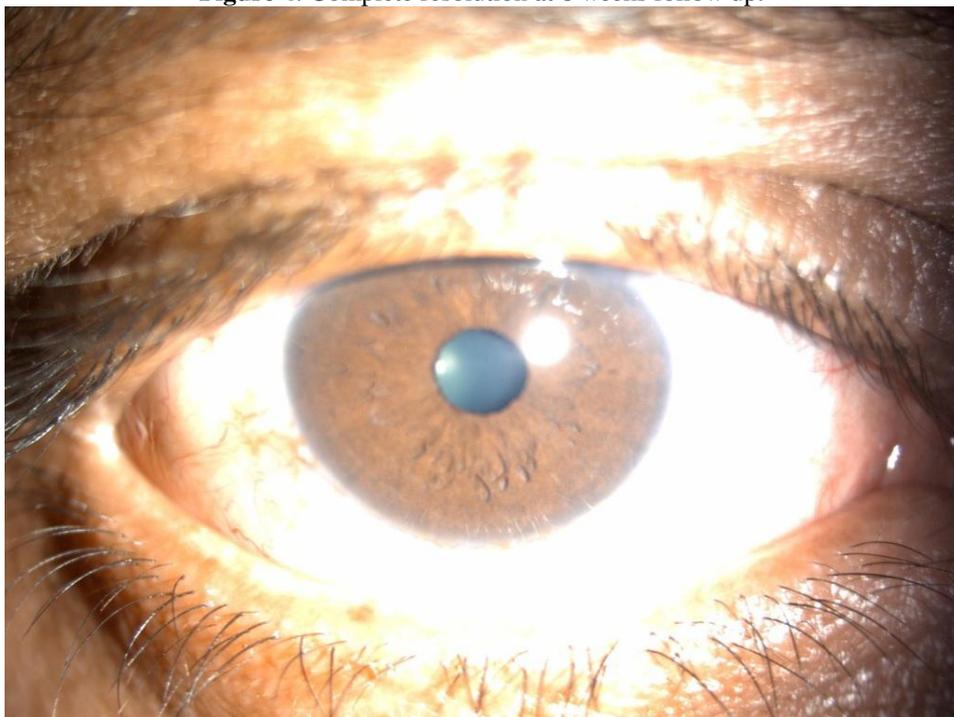
**Figure2:** After 4 weeks treatment with MMC



**Figure 3:** Flourescein picture of the lesion at 4 weeks follow up



**Figure 4:** Complete resolution at 6 weeks follow up.



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