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A CHALLENGING CASE REPORT- RECURRENT OCULAR SURFACE SQUAMOUS NEOPLASIA (OSSN)

Dr. Hendge Ramchandra Dattatray — Post Graduate resident, Room no-21, PG Hostel, Assam Medical College, Dibrugarh, Assam-786002

Dr.(Mrs) Bhanu Devi — Professor & Head, Department of Ophthalmology, Assam Medical College, Dibrugarh, Assam-786002.

ABSTRACT

Ocular surface squamous neoplasia (OSSN) describes a spectrum of benign, pre-malignant and malignant slowly progressive epithelial lesions of the conjunctiva and cornea
A 50-year-old male presented with brown coloured mass on right side of right eye since last 6months. It was painless and slowly growing. He had undergone surgery twice, for similar complains in past two years.
All routine investigations were normal. Previous histopathological records showed the mass to be squamous neoplasia. Based on these observations, the provisional diagnosis of recurrent OSSN was made and excisional biopsy with intra-operative mitomycin-C (0.2mg/ml for 3 min) was planned. The histopathology report showed the lesion to be OSSN.

KEYWORDS: Ocular surface disorder, Ocular surface neoplasia, Recurrent OSSN

INTRODUCTION

Ocular surface squamous neoplasia (OSSN) describes a spectrum of benign, pre-malignant and malignant epithelial lesions of the conjunctiva and cornea [1].

Ocular surface squamous neoplasia (OSSN) are important because they mimic many common indolent lesions like pterygium and have a potential for causing ocular and systemic morbidity and mortality.

Risk factors- UV light, white complexion, cyclosporine, smoking, HIV and HPV infection (type16, 18)[1]

The first case was described in 1860 by von Graefe and has been extensively studied after that, which lead to significant change in the management of these lesions.[2]

Case History:

A 50-year-old male presented with swelling on right side of right eye since last 6 months (Figure 1). It was painless and slowly growing. He had undergone surgery twice, for similar complains in past two years.

The mass was brown colored, elevated, measuring about 4x3 cm (Figure 1). It was situated 1cm from limbus in inter palpebral area on temporal side of right eye. It was not fixed to underlying sclera and was freely mobile. There were at least three prominent feeder vessels.

All routine investigations were normal. Previous histopathological records showed the mass to be squamous neoplasia.

Based on these observations, the provisional diagnosis of recurrent OSSN was made and excisional biopsy with intra-operative mitomycin-C (0.2mg/ml for 3 min) was planned (Figure 2). The freshly prepared solution of 0.02% Mitomycin -C was applied for 3 minutes followed by irrigation with copious amount of fluid. Post operatively patient was given systemic pain killer and topical antibiotic drops. He was followed after 1 week , 1 month and 6 months and no signs of recurrence were seen.

The histopathology report showed the lesion to be OSSN. (Figure 3).

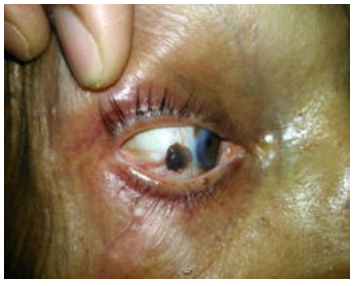

Fig 1:Gross appearance of lesion

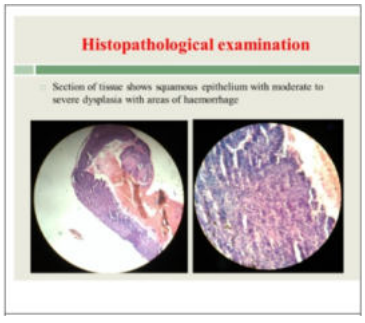

Fig 3: Histopathology report

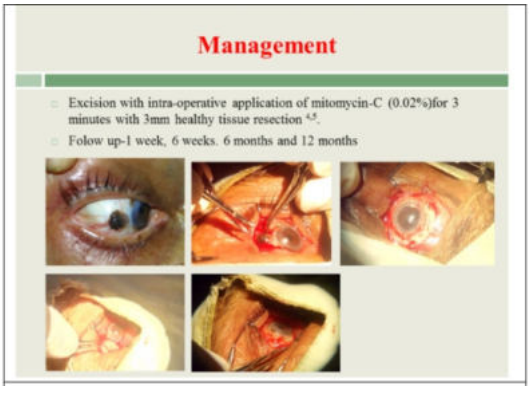

Fig 2: Surgical management

Discussion:
Corneal and conjunctival squamous lesions are uncommon but important because of their potential for causing ocular and even systemic morbidity and mortality. The clinical presentation of these lesions varies and can range from mild to severe dysplasia to full-thickness epithelial dysplasia (carcinoma in situ) and invasive squamous cell carcinoma. Squamous lesions can involve the conjunctiva or the cornea, but more commonly start in the conjunctiva and extend across the limbus to the adjacent cornea.[1]

Ocular Surface Squamous Neoplasia (OSSN) was a term given by Lee and Hirst.[3]

The initial cases of squamous neoplasms described in the literature were cases of squamous cell carcinoma.[4] Subsequently, it has been recognized that both invasive and non-invasive subtypes of squamous neoplasms occur.[5] Following recognition of non-invasive forms of squamous neoplasms, various terms have been used to describe these, including epithelial plaque, Bowenoid epithelioma, and precancerous epithelioma.

OSSN is uncommon and it primarily occurs in older males (78.5%). The incidence ranges between 0.13 to 1.9/100000. It is predominantly seen in dark skinned Caucasians, the age of onset being significantly higher in areas closer to the equator. The average age of occurrence has been noted to be 60 years, ranging from 20 to 88 years.[6]

Histology shows the following spectrum; the first two are sometimes termed conjunctival–corneal intraepithelial neoplasia (CCIN)[1]:
1. Conjunctival epithelial dysplasia - Dysplastic cells are confined to the basal epithelial layers.
2. Carcinoma in situ - Dysplastic cells involve the full thickness of the epithelium.
3. Squamous cell carcinoma - Invasion of the underlying stroma

The differential diagnosis of OSSN:
- Pannus
- Vitamin A deficiency
- Benign intraepithelial dyskeratosis
- Pinguecula
- Pterygium
- Pyogenic granuloma
- Keratoacanthoma
- Malignant melanoma and nevi

Diagnostic Tests:
Exfoliative And Impression Cytology :
Exfoliative cytology using a cytobrush is particularly suited as malignant cells have poor cell to cell adherence and tend to desquamate when located on the mucosal surface. Impression cytology using cellulose acetate paper (CAP) is as simple and inexpensive as exfoliative cytology with the added advantage of maintained cell-to-cell relationship.[7]

Histopathology:
The specimens may be obtained from excision biopsies in small lesions, which can be removed in toto or incisional biopsies in cases of large infiltrating lesions. This is the best modality of diagnosing OSSN.

Treatment
Surgery:
Surgery has been the treatment of choice, as a tissue diagnosis is considered essential before initiation of adjunctive therapy. Superficial excision (excision or incision biopsy) remains the important initial step in management, as it is impossible to exclude invasive disease on clinical grounds or with impression cytology.

Bunns modification of Moh's technique of tumor margin surveillance may also be used. In this the free conjunctival edges are excised by 2 mm if residual tumor is evident even after excision of a 2 mm surgical margin. In all cases, a no touch technique is used.[8]

Chemotherapy:
Topical chemotherapy is inexpensive, simple and reduces the risk of limbal stem cell deficiency, and obviates the need for clear tumour margins by treating the entire ocular surface, including the potentially dysplastic cells.[9]

1. **Mitomycin C:** An anti-tumour antibiotic preferentially inhibits DNA synthesis in the G1 and S phases. As the hypoxia required for the intracellular reduction of MMC is greater in tumour tissue, it exhibits a certain degree of selectivity. MMC appears to produce cell death in OSSN by apoptosis and necrosis. MMC related changes might persist in ocular surface epithelium for at least 8 months following MMC therapy. It is used in the concentration of 0.02-0.04% four times a day with one week on and one week off in alternating cycles for a maximum of 8 weeks.[10]

2. **5 Flourouracil:** An antimetabolite acts specifically during the S phase of the cell cycle. It is converted to 5-F DUMP, which inhibits thymydilate kinase thus preventing DNA and RNA synthesis.

Other modalities of treatment are Cryotherapy, Radiotherapy & Immunotherapy etc.

Recurrence:
Recurrence rates of OSSN ranges from 15-52 %, average reported being 30%. Recurrences are higher in case of inadequate excision margins, and occur usually within two years of surgery. The main predictors for recurrence include age, histological grade of the lesion, adequacy of margins at initial excision, corneal location, larger size (>2 mm), and a high proliferation index.[11]

Present case had recurrence twice and for third time we did excision with MMC application. After following up for 6 months, there were no signs of recurrence.

CONCLUSIONS
Recurrence after surgical excision of OSSN is of common occurrence.

Intraoperative Mitomycin-C (0.02%) application is easily available and effective modality to prevent the recurrence after surgical excision of OSSN.

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