Limbal Squamous Cell Carcinoma in a Young Non-Human Immunodeficiency Virus Patient and its Surgical Outcome: A Rare Case Report

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INTRODUCTION

Ocular surface squamous neoplasia (OSSN) is a broad term encompassing conjunctival intraepithelial neoplastic lesions and invasive squamous cell carcinoma (SCC) of conjunctiva and cornea.¹ OSSN presents as a spectrum from simple dysplasia to carcinoma in situ to invasive SCC involving the conjunctiva as well as the cornea. When various intraepithelial lesions of squamous epithelium of conjunctiva were identified, numerous confusing terminologies such as epithelial plaque, intraepithelial epithelioma, dyskeratosis, dysplasia, precancerous epithelium, Bowen's disease of the conjunctiva, and “bowenoid epithelioma” were used to describe this lesion.²

Important factors that play a role in the development of OSSN includes advanced age, male gender, exposure to solar ultraviolet radiation, infection with human papillomavirus, immunosuppression and infection with human immunodeficiency virus (HIV).³ Limbal SCC is uncommon worldwide. In its early presentation, it may look like pterygium.⁴ SCCs are commonly seen in eye at the transitional zone of epithelium of the limbus and eyelid margin.⁵ Limbal lesion spreads over the ocular surface and enters the fornices but rarely penetrates the globe. Wide total excision serves both therapeutic and diagnostic purpose. We report a rare case of 32 years old, non-HIV male patient who presented with complaints of painless, progressive mass in the right eye with mild visual blurring since 2 months. Slit lamp examination suggested the clinical diagnosis of limbal carcinoma for which a total excisional biopsy with fibrin glued conjunctival autograft was performed. Postoperatively with the confirmed diagnosis of SCC from histopathology, mitomycin - C 0.02% eye drops were prescribed for 4 weeks along with steroid- antibiotic combination in a tapering dose. Postoperatively no recurrence was seen, and good cosmetic improvement was noted.

Keywords: Conjunctival autograft, Mitomycin-C, Ocular surface squamous neoplasia

CASE REPORT

History

A 32-year-old male patient, presented in the Ophthalmology Department of Pravara Institute of Medical Sciences, Loni, Maharashtra, India, with painless, progressive, reddish, thick irregular mass in the right eye with mild blurring of vision of 2 months duration. The complaint started in the right eye with a small irregular vascularized mass at the limbus at 4 o’lock position. The mass started increasing in size encroaching over cornea acquiring the present size of 4 mm × 6 mm in 2 months’ time. There was no history of trauma and no relevant past or family history.
General Examination
A general physical and systemic examination revealed no abnormality. Routine Investigations like blood pressure, urine, ESR, blood count, BSL, HbSAg did not reveal any abnormal findings. The patient was seronegative for HIV.

Local Examination
Right eye: Best corrected visual acuity in right eye was 6/9. On slit lamp examination it showed reddish irregular, firm mass with a cauliflower like surface and a clear but somewhat irregular edge of about 4 mm × 6 mm encroaching 4 mm over cornea (Figure 1). There was no ulceration. Rest anterior segment was within normal limits. Fundus examination was normal.

Left eye: Left eye was normal with best corrected visual acuity 6/6.

With a clinical diagnosis of limbal carcinoma the patient underwent meticulous total excisional biopsy of mass under peribulbar anesthesia (Figure 2) and conjunctival autograft was placed on bare sclera using fibrin glue (Figure 3). Histopathological examination of the mass confirmed the diagnosis of SCC and showed stratified squamous epithelium with the disordered proliferation of the cells having large pleomorphic, hyperchromatic nucleus, prominent nucleoli, irregular membrane, and scant cytoplasm with high N: C ratio (Figure 4). Mitomycin-C 0.02% eye drops were prescribed postoperatively along with steroid-antibiotic combination for 4 weeks in tapering dose (Figure 5). The patient was followed postoperatively for 6 months with no reoccurrence.

DISCUSSION
SCC of the conjunctiva usually arises at the limbus and spread to the cornea and adjacent bulbar conjunctiva. The limbal carcinoma may invade the sclera and rarely cornea. The average annual incidence of SCC of the conjunctiva across all

Figure 1: (a and b) Young male patient presenting with irregular vascularized cauliflower like growth at limbus in right eye

Figure 2: Excision of mass

Figure 3: Graft placed over bare sclera using fibrin glue

Figure 4: (a and b) Low and high magnification histopathological confirmation of squamous cell carcinoma

Figure 5: Post-operative conjunctival autograft in situ (day 1)
age groups has been estimated to be 17-20 cases per million persons per year. Chronic irritation to the conjunctiva in a non-HIV patient has been considered to be a predisposing factor, which leads to the usual presentation in old age. An early presentation is generally associated with HIV infection.

As carcinoma tends to arise at sites of epithelial transition, it is consistent for the limbus to be the place of predilection. Histological picture of carcinoma in situ shows dysplastic changes throughout the epithelium and SCC shows downward proliferation of irregular, dysplastic squamous epithelium with infiltration of subepithelial tissue. Invasive SCC is characterized by a mass composed of malignant-appearing cells invading through the basement membrane and invades the substantia propria of the conjunctiva or cornea.

Treatment of SCC ranges from simple topical 0.02% mitomycin C eye drops or total wide total surgical excision to exenteration based on the size of the lesion, deeper invasion and general health of the patient. To prevent recurrence after only excision, conjunctival autograft is a good option. However, postexcision recurrence rate is high for which intraoperative application of 0.02% mitomycin-C on bare sclera before conjunctival graft has been tried and if still recurrence is suspected, topical 0.02% mitomycin-C can be used as QID for 2 weeks. In our non-HIV case, the age at presentation was 32 years which is atypical, and we performed wide total excision of the mass with fibrin glued conjunctival autograft and postoperatively topical 0.02% mitomycin-C was used in tapering dose, which rewarded good post-operative cosmetic result without recurrence.

**CONCLUSION**

 Conjunctival SCC can present in non-HIV young patients and can be successfully treated with total wide surgical excision with conjunctival autograft. To reduce the chances of recurrence, post-operative short-term topical Mitomycin-C 0.02% can be considered.

**REFERENCES**


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