A Case Report of Recurrent Conjunctival Squamous Cell Carcinoma

M Zhao[1], W Lin[2]*, Z Liu[2]

ABSTRACT

A case of recurrent squamous cell carcinoma of the conjunctiva is presented here. A 13-years-old male Tibetan patient known to have recurrent conjunctival squamous papilloma as well as dysplasia of the left eye for 2 years was eventually diagnosed with conjunctival squamous cell carcinoma. The malignant tumor did not relapse after 3 surgeries and 6 months of follow-up. Conjunctival squamous cell carcinoma is secondary to conjunctival squamous cell papilloma, which is a common disease in areas exposed to strong ultraviolet radiation (UV). This case demonstrates that chronic UV exposure is a major risk factor for conjunctival squamous cell carcinoma that any ocular surface lesion should be carefully evaluated and treated, and that close follow-up reduces the risk of recurrence.

Keywords: Conjunctival, recurrent tumor, squamous cell carcinoma, ultraviolet radiation

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From: [1]Department of Ophthalmology, the East Area of Sichuan Provincial People's Hospital, Chengdu 610110, China. [2]Department of Ophthalmology, Sichuan Provincial People's Hospital, Chengdu 610110, China.

Correspondence: Mr W Lin, Department of Ophthalmology, Sichuan Provincial People's Hospital, Chengdu 610110, China. E-mail: bamboo0564@163.com.

INTRODUCTION

Conjunctival squamous cell carcinoma (SCC) is the primary and most common ocular surface epithelial malignancy in the conjunctiva. It is usually observed in older patients who are from subtropical and strong ultraviolet radiation areas; HIV infection is usually associated with younger patients with this disease (1).This case reports on a young patient who lived in the plateau area and withou HIV infection; his course was characterized by recurrent conjunctival squamous papilloma and dysplasia, which eventually developed into invasive SCC.

CASE REPORT

A 13-year-old male who lived in the tableland of Tibet first noticed the tumor 2 years ago. It was a small red nodule in the four o'clock position near the corneal limbus of the left temporal bulbar conjunctiva characterized as having no pain, foreign body sensation, photophobia or excessive tearing, and the patient’s visual acuity was 20/20. The tumor was surgically excised and diagnosed as a squamous papilloma and cell dysplasia in the local hospital after histopathological examination a year ago.

Only 2 months after the surgical operation, the tumor recurred in the same region and affected the cornea with obvious foreign body sensation and a decreased visual acuity at 16/20 but still caused no pain. The tumor was excised surgically at the third people's Hospital

of Chengdu and was diagnosed as moderately differentiated squamous cell carcinoma with visible tumor cells of the margins. However, the patient decided against chemotherapy treatment and outpatient follow-up after the second operation.

The tumor recurred a second time 2 months after the second surgery and grew rapidly in the palpebral fissure. In our hospital, the ocular examination showed a visual acuity of 8/20, a fixed left eye, and a size of 30 mm × 15 mm × 12 mm on the ocular surface. The mass covered approximately 1/3 of the surface of the cornea, as well as the temporal and inferior bulbar conjunctiva. Detailed inspection showed that the mass was rough on the surface, bled easily with palpation, and appeared dark gray and crisp without activity. Conjunctival hyperemia was mixed, and the fundus was not cleared. There were no obvious abnormalities of the lens in the cornea, anterior chamber, and iris (Figure 1A). As shown in Figure 1B, MRI examination showed the occupying lesions in the left eye (the eye was located behind the masses; the eye ring was complete). Ultrasound examination showed enlarged lymph nodes in the left cervical and submandibular lymph chains. A lymph node biopsy showed hyperplastic lymph node reaction. The systemic examination was normal.

To prevent the shedding of tumor cells, we treated the surface of the mass with alcohol, the tumor was then excised with wide margins at the edge of 3 mm from the mass. We stripped the tumor from the corneal and scleral lamellae that were adherent to part of the external rectus and inferior rectus in the surgery; it was frozen in liquid nitrogen, and the

defect was repaired with fascia lata and lip mucosa (Figure 1C). Histopathologic results revealed irregularly arranged neoplastic squamous cells, cellular keratinization, and keratin pearl. Histopathologic features showed moderately differentiated squamous cell carcinoma of the conjunctiva with clear margins (Figure 1 D-E). After this surgery, the patient showed good recovery with a visual acuity of 12/20 and no recurrence of the tumor in 18 months of consecutive follow-up (Figure 2 A-D).

The tumor was fixed with alcohol to prevent the shedding of tumor cells and was excised within a wide margin (3 mm) of the mass, which we observed was stripped to the corneal and scleral lamellae and adherent to part of the external rectus and inferior rectus during the surgery. Again, the mass was frozen in liquid nitrogen, and the defect was repaired with fascia lata and lip mucosa (Figure 1C). Histopathologic examination of the ocular lesion revealed that the neoplastic squamous cells were arranged irregularly, that cellular keratinization occurred, and that keratin pearl was formed. The histopathologic feature was a moderately differentiated squamous cell carcinoma of the conjunctiva, and the margins were clear. (Figure 1D-E) The patient showed good recovery after surgery. The best visual acuity was 12/20, and he had no recurrence in regular follow-up for 18 months (Figure 2 A-D).

DISCUSSION

SCC is an ocular malignant tumor with a neoplastic process involving anaplastic cells

originating in the surface epithelium and invading deep to the basement membrane of conjunctival stroma (2). SCC may be secondary to malignant conjunctival squamous cell papillomas, actinic keratoses and other precancerous lesions. SCC often develops in older patients and is associated with long-term exposure to sunlight, a chronic inflammatory response, and HIV infection. The temporal limbus cornea is the most affected location in SCC (3). In this case, our results implied that long-term UV exposure plays an important role in the neoplastic transformation of conjunctival cells.

In short, SCC is generally divided into 3 types: (1) Papillomavirus type: export-oriented papillary tumor protruding from the surface of the cornea; (2) Sebaceous type: ring-shaped tumor growing along the limbus; (3) Diffuse type: high degree of malignancy, invasive, and large, almost involving the entire conjunctiva. The tumor rarely penetrates the sclera and extends by lymphatic vessel metastasis (4).

Alcohol keratectomy and wide excisional biopsy with cryotherapy is the most common treatment for SCC. Topical medications, such as mitomycin C (MMC) (5), 5-fluorouracil (6) and interferon alpha-2b (7) are effective for primary or secondary treatment of conjunctival SCC. In this case, the patient had tumor in the corneal and scleral lamellae, while part of the external rectus and inferior rectus were also invaded after secondary recurrence.

In this surgical process, we decided to perform an excised edge with more than 3 mm

to completely remove the tumor. Because the cornea and sclera were invaded, we dissected the cornea and sclera deeply and froze it with liquid nitrogen to reduce the risk of tumor recurrence (8). Finally, we repaired the large defect with autologous fascia lata and lip mucosa because it was a good choice for scleral mechanical support over alternative materials.

In this case, the patient had recurrence of the tumor twice; we concluded that it may have been due to long-term ultraviolet radiation and incomplete resection in its previous treatment. The patient lived in the tableland areas and had difficulty following up, which also increased the risk of tumor recurrence. This case showed that long-term UV exposure in the tableland area carries a high risk of SCC. It is important for us to establish a long-term relationship with local hospitals to ensure information exchange in real-time to understand the most recent status of the child and strive to achieve early diagnosis and treatment of SCC.

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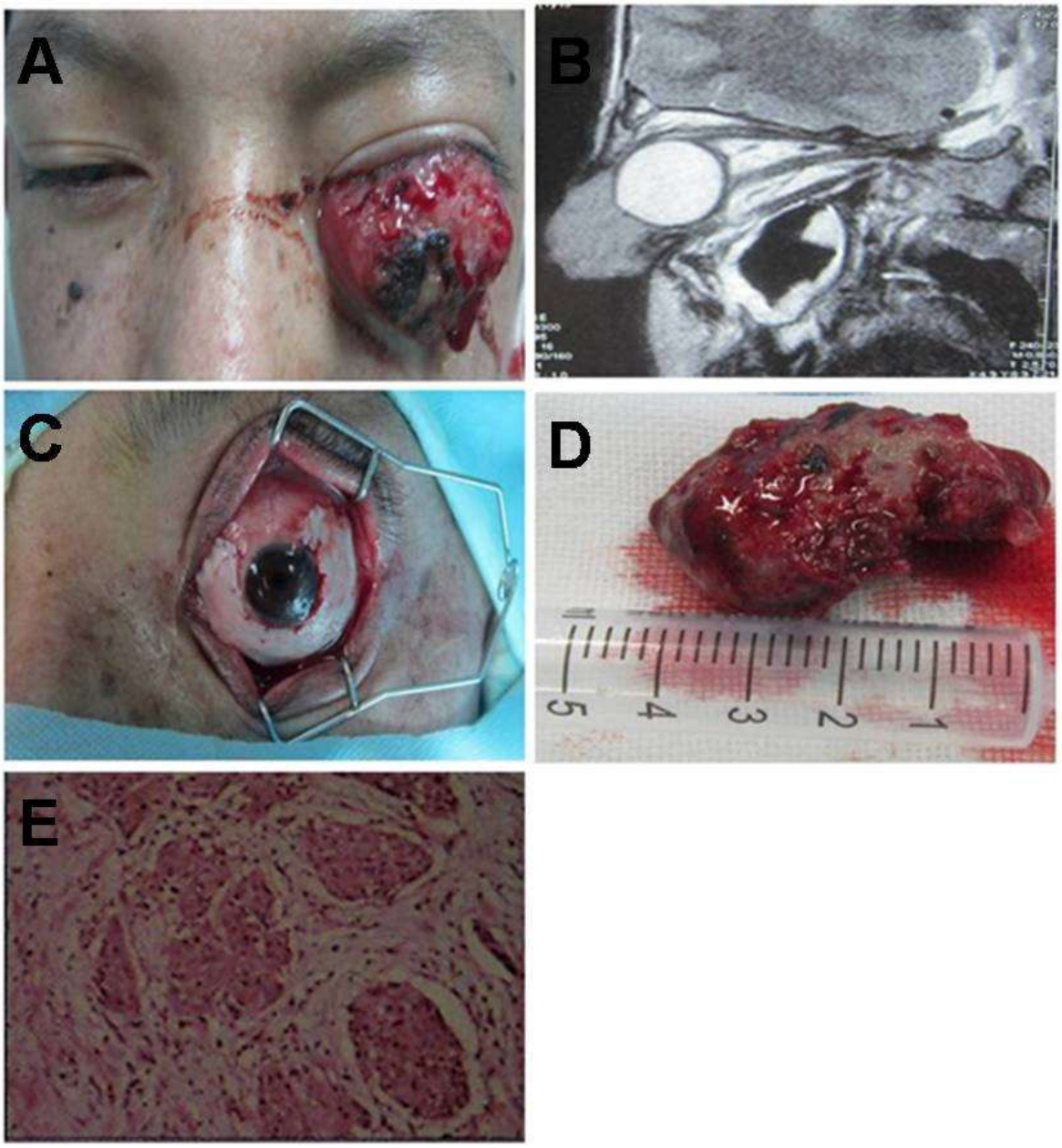

Fig. 1 : (A) General photograph of the conjunctival tumor. (B) Conjunctival tumor observed by MRI. (C) Fascia lata transplantation. (D) The excised conjunctival tumor. (E) Histopathologic result showed abnormal keratinization in the tumor (HE 400×).

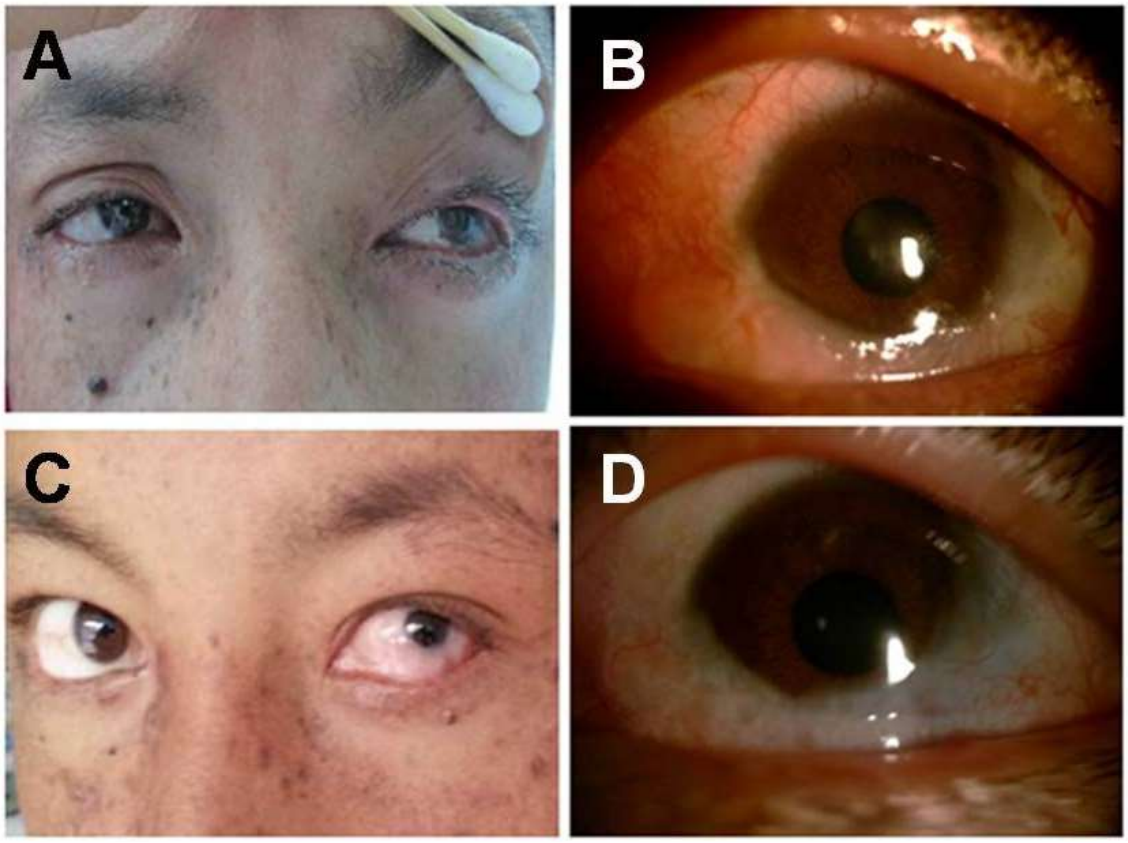

Fig. 2 : (A) General photograph of eyes at 2 weeks after tumor excision. (B) The ocular surface in slit lamp after tumor excision. (C) Eyes followed-up for 6 months. (D) The ocular surface in slit lamp after 18 months.