Invasive Squamous Cell Carcinoma of the Conjunctiva: Report of a Case Diagnosed by Imprint Cytology and Histopathology

Abstract

Conjunctival squamous cell carcinomas (SCCs) are rare neoplasms affecting commonly aged male patients. Sun injury, viral infections, and immunocompromised states are known etiological factors. A 49-year-old male presented with a rapidly growing exophytic mass in the left eye for 3 months. Imprint cytology from the mass was suggestive of invasive SCC, and subsequent histopathology confirmed the diagnosis. We are presenting this rare case for its usual (rapidly growing and exophytic) presentation.

Keywords: *Conjunctiva, imprint cytology, squamous cell carcinoma*

Sunita Bagdi, Jyoti Prakash Phukan, Anuradha Sinha, Tirthankar Chakraborty

Department of Pathology, Bankura Sammilani Medical College, Bankura, West Bengal, India

Introduction

Squamous cell carcinoma (SCC) of the conjunctiva is a rare tumor. The reported incidence varies from 0.02 to 3.5/100,000 population depending on geographic location.[1] Benign lesions such as actinic keratosis or pseudopapillomatous papilloma may affect stratified squamous epithelium of the conjunctiva or cornea, as also invasive or *in situ* malignancies and dysplasias of various grades.[2] Currently, these dysplastic squamous lesions conjunctival intraepithelial neoplasia (CIN-corneal or CIN) and both *in situ* (full thickness dysplasia) as well as malignancies are grouped under an umbrella diagnosis-ocular surface squamous neoplasia (OSSN).[1] Basal cell carcinoma or mucoepidermoid carcinoma are also reported from this location, though infrequently.[3]

Repeated intense sunlight exposure is the most important predisposing factor leading to higher incidence of OSSN in Australia.[1,2] Other potential risk factors include advancing age, male sex, outdoor occupation, smoking, blonde hair, light complexion, immunocompromised states including acquired immunodeficiency syndrome, history of cutaneous SCC of head and neck, xeroderma pigmentosum, and conjunctival infection by human papillomaviruses 16 and 18.[2] Invasive SCC of the conjunctiva may arise *de novo* or from a preexisting area of carcinoma *in situ* or, from a preexisting pterygium.[3]

Limbus is commonly affected by SCC. It also may occur in palpebral conjunctiva or on the cornea.[4] In general, these tumors are regarded as low-grade malignancies. Recurrence can occur with a rare incidence of metastasis.[1]

Case Report

A 49-year-old male presented with a rapidly growing left eye mass for 3 months. There was a history of excision of a pterygium in the same eye 9 months ago. On examination, a whitish exophytic lesion within the palpebral fissure was seen in Figure 1a.

Computed tomography scan of the orbits showed a large well-defined heterogeneously enhancing pedunculated soft tissue lesion adjacent to the outer canthus of the left orbit involving the anterolateral wall of left eyeball abutting the anterior end of lateral rectus muscle and lacrimal gland [Figure 1b].

A small excision biopsy was taken from the exophytic lesion. Imprint smear was also taken from the excised tissue. May–Grunwald–Giemsa stained smears show predominately anucleate squames with occasional dysplastic squamous cells [Figure 2a]. Papanicolaou (Pap)

How to cite this article: Bagdi S, Phukan JP, Sinha A, Chakraborty T. Invasive squamous cell carcinoma of the conjunctiva: Report of a case diagnosed by imprint cytology and histopathology. Clin Cancer Investig J 2018;7:162-4.

Address for correspondence:
Dr. Anuradha Sinha, Department of Pathology, Bankura Sammilani Medical College, P. O. Kenduadihi, Bankura - 722 102, West Bengal, India.
E-mail: doctor_anuradha@yahoo.co.in

Access this article online

Website: www.ccij-online.org

DOI: 10.4103/ccij.ccij_58_18

Quick Response Code:

stained smears showed atypical squamous cells arranged in dyscohesive clumps and dispersed singly in a background of necrosis and inflammatory cells. Individual cells have a moderate amount of cytoplasm, nucleomegaly, high nuclear-cytoplasmic ratio, irregular nuclear margin, and clumped chromatin. Few cells show intracellular keratin [Figure 2b]. Combining with clinical features a diagnosis of invasive SCC was given.

Small excision biopsy from the mass was diagnosed as SCC. Subsequently, enucleation of the left eye was done. Grossly, enucleated left eyeball revealed a large, white exophytic solid mass (4 cm × 3.5 cm) with areas of hemorrhage [Figure 3]. Histopathological study showed a tumor mass arising from the squamous epithelium of the conjunctiva. The full thickness of the epithelium was infiltrated by atypical squamous cells. Tumor cells infiltrated the basement membrane with sheets deep into the stroma surrounded by collagen fibers. Individual cell showed a high nucleocytoplasmic ratio, prominent nucleoli and chromatin clumping. Few keratin pearls were seen in Figure 4. A final diagnosis of invasive moderately differentiated SCC of the conjunctiva was given. However, no metastasis was detected after intense workup.

The patient was followed up for 1 year, and during this period, no recurrence was noted. After that, we lost the patient for follow-up.

Discussion

Conjunctival SCCs are growing surface neoplasms affecting mainly older males. The involvement of left or right eye is almost equal. Majority of the patients present with a nodular lesion in the limbus or other parts of the conjunctiva. Rarely, diffuse circumferential involvement surrounding limbus is seen.[1] The duration of symptoms usually varies from days to months with a medium of 3–4 months. Preoperative clinical diagnosis of conjunctival SCC was possible in <70% cases.[1] However, any conjunctival growth in an elderly subject should be managed aggressively to prevent the chance of further spread into lids or orbit.[4] Recurrence is a common complication and usually occurs on account of inadequate surgery.[5] Metastasis occurs rarely, and commonly

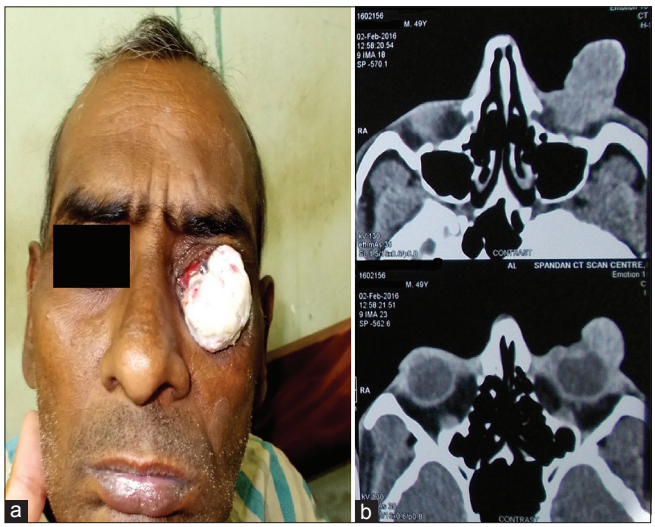

Figure 1: (a) Large exophytic mass over eye (b) computed tomography scan of the lesion shows a large well-defined heterogeneously enhancing pedunculated soft-tissue lesion adjacent to the outer canthus of left orbit involving the anterolateral wall of the left eyeball

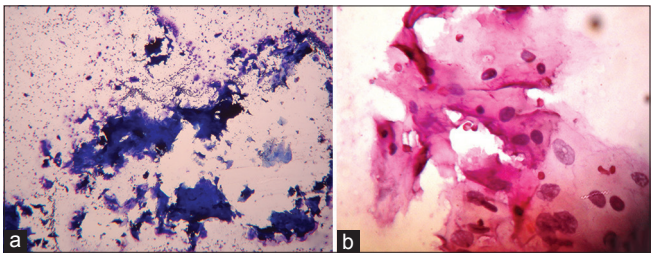

Figure 2: Imprint cytology of the mass showing (a) occasional dysplastic squamous cells and anucleate squames in a necrotic background (May–Grunwald–Giemsa, ×10), (b) atypical squamous cells in dyscohesive clumps with individual cell having moderate amount of cytoplasm, nucleomegaly, irregular nuclear margin, and clumped chromatin (Pap, ×40)

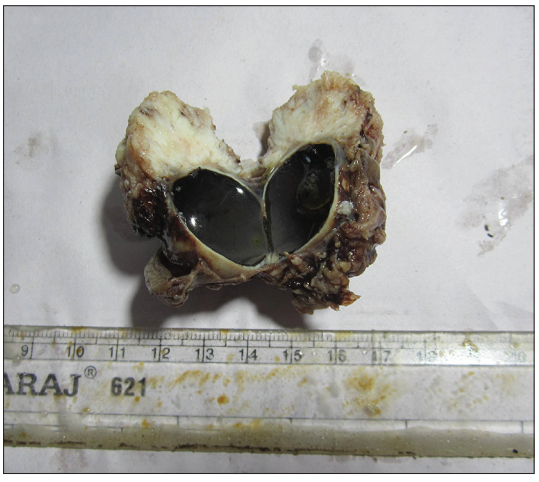

Figure 3: Enucleate specimen showing a large, white exophytic solid mass (4 cm × 3.5 cm) with areas of hemorrhage

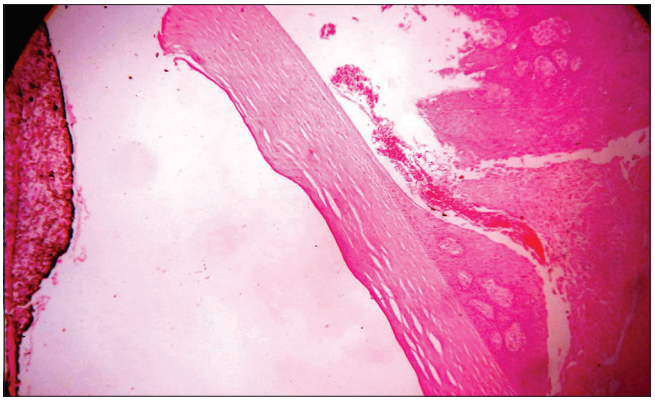

Figure 4: Section showing a tumor mass arising from the squamous epithelium of the conjunctiva composed of atypical squamous cells with tumor cells infiltrated the basement membrane (H and E, ×40)

parotid or submandibular glands are involved. Even with metastasis, the chance of survival is good.[1,4,6]

Imprint cytology is quite effective for the diagnosis of dysplastic OSSN (CIN) with more than 80% accuracy. However, the method is not so effective in the differentiation of *in situ* carcinoma from invasive malignancy.[1] The presence of a dirty necrotic background is considered to be diagnostic of invasive SCC. Unfortunately, this feature may be absent in fair number of cases.[1,7] In our case, typical clinical presentation along with background tumor diathesis helped in accurate diagnosis on imprint cytology.

The treatment of conjunctival SCC is wide excision. Enucleation is advised when cornea or sclera has been invaded, and exenteration is recommended in cases of invasion of anterior orbit.[2]

Microscopically, the majority of the lesions appear as thickened keratotic plaques. Endophytic lesion is seen in about one-third cases. However, exophytic papillomatous lesions are rare.[1] Large exophytic solid tumor, as we saw in our case, is a rare presentation.

Histologically, conjunctival SCCs are usually well or moderately differentiated. Two rare variants of SCC-spindle cell variant (pseudosarcomatous) and mucoepidermoid carcinoma are reported with aggressive growth patterns.[4]

In our case, the patient had a history of pterygium excision without proper histopathological examination. A lot of workers report that clinically diagnosed pterygium cases may coexist with different grades of OSSN. Rarely, a conjunctival SCC can be misdiagnosed as inflamed pterygium during the inspection. Some workers believe that pterygium may have a role in the development of OSSN, although not well documented.[8-10] Our study should emphasize thorough histopathological examination of excised tissue after pterygium operation.

Conclusion

Invasive malignancy of cornea or conjunctiva is a rare neoplasm. However, it should be suspected in all aged patients with a conjunctival lesion, particularly with the rapid rate of growth. The histopathological study must be done in all cases of pterygium after excision to exclude associated OSSN. We are presenting this rare case report to promote awareness about this uncommon malignancy which will help in accurate management in future.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. McKelvie PA, Daniell M, McNab A, Loughnan M, Santamaria JD. Squamous cell carcinoma of the conjunctiva: A series of 26 cases. Br J Ophthalmol 2002;86:168-73.
2. Seikh K, Shastri M. Pigmented squamous cell carcinoma of conjunctiva – A rare case. NHL J Med Sci 2014;3:82-4.
3. Padmaja BV, Anandam G, Sharadrutha, Mahesh U Kr., Srikanth S, Raman Kumar CH. Squamous cell carcinoma of conjunctiva. Perspective Med Res 2015;3:27-9.
4. Sharma AK, Bharadwaj S. Squamous cell carcinoma of the conjunctiva. JK Sci 2002;4:39-40.
5. Yang J, Foster CS. Squamous cell carcinoma of the conjunctiva. Int Ophthalmol Clin 1997;37:73-85.
6. McDonnell JM, McDonnell PJ, Sun YY. Human papillomavirus DNA in tissues and ocular surface swabs of patients with conjunctival epithelial neoplasia. Invest Ophthalmol Vis Sci 1992;33:184-9.
7. Midena E, Angeli CD, Valenti M, de Belvis V, Boccato P. Treatment of conjunctival squamous cell carcinoma with topical 5-fluorouracil. Br J Ophthalmol 2000;84:268-72.
8. Mirza E, Gumus K, Evereklioglu C, Arda H, Oner A, Canoz O, *et al.* Invasive squamous cell carcinoma of the conjunctiva first misdiagnosed as a pterygium: A clinicopathologic case report. Eye Contact Lens 2008;34:188-90.
9. Threlfall TJ, English DR. Sun exposure and pterygium of the eye: A dose-response curve. Am J Ophthalmol 1999;128:280-7.
10. Olasode BJ, Bankole OO, Adeoye AO. Invasive squamous cell carcinoma of the limbus: Case report. East Afr Med J 1996;73:627-8.