

Squamous cell carcinoma of Conjunctiva

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ABSTRACT

Conjunctival squamous cell carcinoma is a cancer on the surface of the eye. It usually arises at the limbus as papillary exophytic grey-white mass. Histologically, squamous carcinomas which arise in the conjunctival epithelium are well differentiated tumors. Squamous cell carcinoma is locally invasive but rarely spreads to distant sites. Squamous cell carcinomas of conjunctiva are rare tumours which occur in the sun damaged ocular surface, usually at the limbus. Metastasis of squamous cell carcinoma of conjunctiva is also rare. In this case sclera and corneal invasion was noted but ciliary body and other structures were not involved.

Keywords: Ocular surface squamous neoplasia, squamous cell carcinoma, conjunctiva, keratin pearls, invasion.

INTRODUCTION

Invasive squamous cell carcinoma of the conjunctiva is rare but is still more common than basal cell carcinoma at this site. It may arise de novo, from a pre-existing pterygium, or an area of carcinoma in situ. Such lesions, as well as the majority of early invasive carcinomas of the limbal area, can be adequately controlled by excisional therapy¹. If untreated, these tumors will invade the anterior chamber and other portions of the ocular globe. Previous intervention with scleral resection and inadequate clearance may lead to penetration of the globe². A high proportion of the deeply invasive conjunctival carcinomas have adenosquamous ('mucoepidermoid') features³. Radical surgery is necessary in these cases⁴. Squamous cell carcinoma of conjunctiva is a rare tumour which tends to occur in older people (average age 60yrs).

The incidence of the disease varies geographically with an average of 0.03-3.5 cases per 100,000 people per year¹. It usually arises at the limbus as a papillary, exophytic, grey-white mass. Histologically, squamous carcinomas which arise in the conjunctival epithelium are well differentiated tumors. Cellular atypia occurs throughout the epithelial thickness and neoplastic cells extend into the underlying stroma. Squamous

cell carcinoma is locally invasive but rarely spreads to distant sites. Intraocular invasion, corneoscleral invasion, and death due to metastasis are the other important findings. Recurrence of ocular surface squamous neoplasia (OSSN) is common, with significantly increased risk for older patients, large size, high proliferation index, and positive surgical margins (total recurrence being 27%).

CASE REPORT

A 60 year old female came with history of watering and a mass in the left eye, of 6 months duration. Examination revealed, an exophytic mass with gelatinous texture within the palpebral fissure (Figure 1). Enucleation of the left eye was done and it showed a fragile vascular cauliflower like growth (Figure 2). A diagnosis of well differentiated squamous cell carcinoma of the conjunctiva was made following histopathological examination.

Microscopy of the sections revealed a tumour arising from conjunctival epithelium showing focal severe dysplastic changes with micro and macro invasion. Hyperchromatic keratinized squamous cells arranged in sheets, strands and nests intercepted by collagen tissue along with keratin pearls were also identified. These cells have abundant cytoplasm and vesicular nucleus with prominent nucleoli (Figure 3&4). Superficial corneal and scleral invasion was also noted.

DISCUSSION

Ocular surface squamous neoplasia (OSSN) is an umbrella term that encompasses dysplastic lesions involving the squamous epithelium of the conjunctiva or cornea, which includes squamous papilloma, conjunctival-corneal intraepithelial neoplasia (CIN), carcinoma in situ (CIS) and invasive squamous cell carcinoma (SCC)⁵. The clinical presentation of OSSN varies across a wide spectrum and is classified by the degree of epithelial and stromal (substantia propria) infiltration. The epithelial infiltration can range from mild to severe dysplasia (i.e, mild, moderate, or severe CIN) to full thickness epithelial dysplasia (CIS) to invasive SCC, when tumour cells invade through the epithelial basement membrane⁶.

Fortunately, of these conditions, invasive SCC is the least common. The highest incidence of Ocular surface squamous neoplasia occurs in men between the ages of 50 and 75 years. Fair skin, pale irises, high propensity to sunburn and a past history of cancer have all proven to be risk factors. Other risk factors for OSSN include chronic infection by HPV (Human Papilloma Virus), HIV or Trachoma, Vitamin A deficiency, Xeroderma pigmentosum, chronic irritants and chronic epitheliopathies^{7,8,9}.

Immunosuppression, whether due to organ transplantation or secondary to AIDS is a major risk factor, especially in conjunction with one of the above risk factors; it is estimated that the risk of conjunctival malignancies increases 13 fold in patients with HIV. The disease also behaves in a much more aggressive manner in patients with AIDS or Xeroderma pigmentosa¹⁰.

Squamous cell carcinomas of conjunctiva are rare tumours which occur in the sun damaged ocular surface, usually at the limbus in the elderly but may occur earlier in patients of xeroderma pigmentosa and AIDS. The appearance of dysplasia has also been found to result from human papillomavirus type 16.^{11,12} The tumour grows slowly in an exophytic, sometimes papillary configuration. The tumour has a gelatinous appearance on clinical examination. In most cases, tumour remains superficial to the sclera. Intraocular invasion is rarely reported.^{13,14} Intraocular involvement occurs through the emissary vessels near the area of limbus.

Cervantes et al. reviewed 287 cases of SCC of the conjunctiva, and only two cases had regional metastasis (0.7%)¹⁵. Grossniklaus et al. reviewed 2,455 cases of conjunctival lesions and only one case had a metastasized mass (0.04%)². Thus, it is rare that a conjunctival SCC is associated with metastasis. Metastasis of squamous cell carcinoma of conjunctiva is also rare¹⁶. In our case sclera and corneal invasion was noted but ciliary body and other structures were not involved.

Figure 1



Figure 1: Clinical photograph showing a large exophytic mass in the left eye covering most of the sclera and cornea

Figure 2

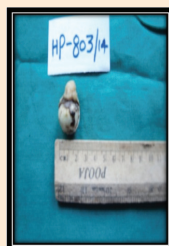


Figure 2: Photograph showing enucleated left eye along with tumour measuring 1X0.5 cm which appears to be arising from the conjunctiva.

Figure 3

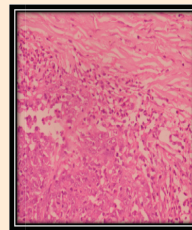


Figure 3: Section showing sclera invasion of the tumour tissue (H & E 10X)

Figure 4

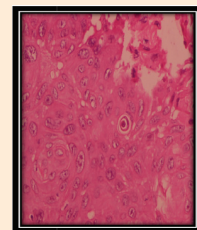


Figure 4: Section showing keratin pearls and atypical squamous cells (H & E 40X)

REFERENCES

1. Lee GA, Hirst LW. Incidence of ocular surface dysplasia in metropolitan Brisbane. *Arch Ophthalmol* 1992;110:525–527.
2. H. E. Grossniklaus, W. R. Green, M. Luckenbach, and C. C. Chan, "Conjunctival lesions in adults. A clinical and histopathologic review," *Cornea*, 1987;6(2): pp. 78–116.
3. Gamel JW, Eiferman RA, Guibor P. Mucoepidermoid carcinoma of the conjunctiva. *Arch Ophthalmol* 1984; 102: 730-1
4. Peksayar G, Altan-Yaycioglu R, Onal S. Excision and cryosurgery in the treatment of conjunctival malignant epithelial tumours. *Eye*. 2003 Mar;17(2):228-32.
5. Lee GA, Williams G, Hirst LW, et al. Risk factors in the development of ocular surface epithelial dysplasia. *Ophthalmology*. 1994; 101:360–364.
6. Goldberg SH, Riedy DK, Lanzillo JH. Invasive squamous cell carcinoma of the palpebral conjunctiva. *Graefes Arch Clin Exp Ophthalmol*. 1993; 231:246–248
7. 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;86:168–75
8. Sen S, Sharma A, Panda A. Immunohistochemical localization of human papilloma virus in conjunctival neoplasias: a retrospective study. 1. *Indian J Ophthalmol*. 2007;55:361–3.
9. Lauer SA, Malter JS, Meier R. Human papillomavirus type-18 in conjunctival intraepithelial neoplasia. *Am J Ophthalmol*. 1990;110:23–27
10. 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;33:184–189.

10. Margo CE, Mack W, Guffey JM. Squamous cell carcinoma of the conjunctiva and human immunodeficiency virus infection. *Arch Ophthalmol*.1996;114:349
11. Saegusa M, Takano Y, Hashimura M, et al. HPV type-16 in conjunctival and junctional papilloma, dysplasia, and squamous cell carcinoma. *Pathol J Clin*.1995;48:1106–1110
13. Glasson WJ, Hirst LW, Axelsen RA, et al. Invasive squamous cell carcinoma of the conjunctiva. *Arch Ophthalmol*.1994;112:1342–1345.
14. Iliff WJ, Marback R, Green R. Invasive squamous cell carcinoma of the conjunctiva. *Arch Ophthalmol*.1975;93:119–112.
15. G. Cervantes, A. A. Rodríguez Jr, and A. G. Leal, "Squamous cell carcinoma of the conjunctiva: clinicopathological features in 287 cases," *Canadian Journal of Ophthalmology*.2002; 37(1):14–20.
16. Cha SB, Shields JA, Shields CL, et al. Squamous cell carcinoma of the conjunctiva. *Int J Ophthalmol Clin*.1993;33:19–24

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