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Case Report

# Conjunctival Squamous Cell Carcinoma Mimicking a Pinguecula: A Case Report and Review of the Literature

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**Abstract:** We present the case of a 65-year-old patient consulting for a temporal limbal lesion of the left eye evolving for 8 months, initially treated as a pinguecula [1]. Given the appearance and the unusual temporal location as well as the rapid growth of the lesion, surgical excision with safety margins was performed [3]. Histopathological examination concluded an invasive conjunctival squamous cell carcinoma. Adjuvant cryotherapy was applied to the surgical bed. The course was favorable, with no recurrence at 24 months.

**Keywords:** Conjunctival Squamous Cell Carcinoma, Pinguecula, Ocular Surface Squamous Neoplasia, Differential Diagnosis, Surgical Excision.

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## INTRODUCTION

Ocular surface squamous neoplasia (OSSN) encompasses a spectrum of lesions ranging from conjunctival intraepithelial neoplasia (CIN) to invasive squamous cell carcinoma, and represents the most frequent cause of conjunctival-limbal malignant tumors [1]. Conjunctival squamous cell carcinoma (SCC) is the invasive form of this entity, with an incidence estimated at approximately 0.5 cases per million inhabitants, with a male predominance and a peak frequency after age 60 [1]. The main identified risk factors are chronic ultraviolet radiation exposure, HIV infection, and human papillomavirus (HPV) [3]. The clinical polymorphism of these tumors is considerable, and they can easily mimic benign lesions such as pterygium or pinguecula, which constitutes a classic diagnostic trap [2]. The prevalence of squamous neoplasms discovered incidentally after excision of a presumed benign lesion is estimated between 0 and 9.8% depending on the series, with variability related to the sun exposure of the studied populations [8]. Definitive diagnosis relies on histopathological examination of the excision specimen, and only early diagnosis allows appropriate treatment to prevent the risk of recurrence and locoregional extension [6]. We report the case of an invasive conjunctival squamous cell carcinoma revealed after excision of a lesion mimicking a pinguecula, and discuss the diagnostic pitfalls as well as the principles of surgical management [1].

## CASE REPORT

A 65-year-old man, with no notable medical history, occupationally exposed to the sun for many years. He consulted for a temporal limbal lesion of the left eye, which had appeared 8 months earlier, progressively increasing in volume and becoming cosmetically and functionally bothersome. The patient reported that a diagnosis of pinguecula had been suggested in the community, and anti-inflammatory eye drops had been prescribed without improvement.

Ophthalmological examination found a temporal limbal conjunctival lesion, with a fleshy, irregular pinkish-whitish appearance, measuring approximately 7 mm in diameter. The lesion had a nodular surface with areas of hyperkeratosis and some telangiectasias. There was no frank ulceration, with conjunctival hyperemia around the lesion (Fig. 1). Visual acuity was preserved at 10/10 in the right eye, and the posterior segment examination was unremarkable. Examination of the fellow eye was normal.

An orbitocerebral MRI was requested and returned normal, with no orbital or locoregional abnormality (Fig. 2).

Given the clinical appearance suggestive of squamous neoplasia rather than a banal pinguecula, surgical excision was scheduled. The procedure was performed under local anesthesia. A wide excision was

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performed with 3.5 mm margins, removing the conjunctival lesion and the superficial corneal extension. The excision technique respected the "No Touch" principle to avoid any tumor dissemination. Cryotherapy was applied to the conjunctival edges and to the surgical bed, according to recommendations to reduce the risk of recurrence.

Histopathological examination of the excision specimen concluded an invasive conjunctival squamous cell carcinoma (Fig. 3), with clear peripheral and deep excision margins. The patient was reviewed at 1 month, 3 months, 6 months, 12 months, 18 months, and 24 months. No local recurrence was observed, and conjunctival healing was satisfactory.

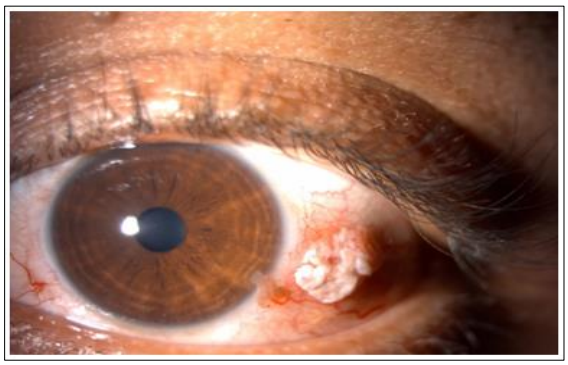


**Fig. 1: A fleshy, irregular, pinkish-white temporal limbal conjunctival lesion, measuring approximately 7 mm in diameter. The lesion exhibited a nodular surface with areas of hyperkeratosis and a few telangiectatic vessels**

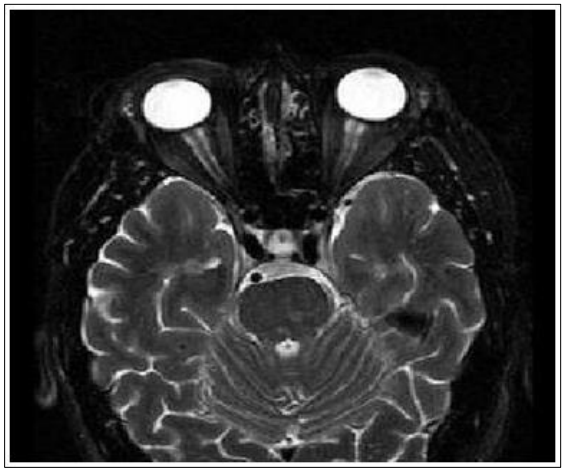


**Fig. 2: Normal brain and orbital MRI**

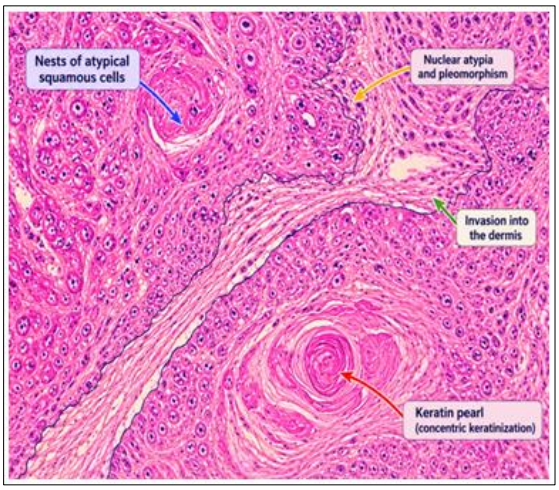



**Fig. 3: Histological examination shows an infiltrative proliferation of atypical squamous cells arranged in nests and islands, with marked nuclear pleomorphism. Concentric keratinization forming keratin pearls is evident within the tumor nests, associated with invasion of the underlying dermis. Well-differentiated invasive keratinizing squamous cell carcinoma**

## DISCUSSION

Conjunctival squamous cell carcinoma is the invasive form of ocular surface squamous neoplasia, and its diagnosis is often delayed because of its resemblance to common benign lesions such as pterygium and pinguecula [1]. In our observation, the lesion was initially taken for a pinguecula, which led to a delay in management of several months [2]. This diagnostic trap is well documented in the literature: a study of OSSN cases showed that pterygium and pinguecula were among the most frequent erroneous preoperative clinical diagnoses [10]. Several clinical elements should raise suspicion of malignancy before a presumed pterygium or pinguecula: an unusual location, rapid growth, a fleshy and irregular appearance, hyperkeratosis, abnormal telangiectasias, ulceration, loss of cilia, or resistance to medical treatment [3]. In our case, the temporal location, the nodular and hyperkeratotic appearance, as well as the rapid growth, led to questioning the initial diagnosis [1].

Magnetic resonance imaging (MRI) occupies a complementary place in the extension workup of conjunctival squamous cell carcinoma, particularly in locally advanced forms. It allows evaluation of the anatomical relationships of the tumor and detection of extension to deep structures, notably the sclera, extraocular muscles, orbital fat, and intraocular structures [11, 12].

MRI with gadolinium injection is particularly useful when scleral, intraocular, or orbital invasion is suspected. It thus helps to clarify tumor extension and to guide the therapeutic strategy [12, 13].

However, its performance remains limited for small superficial lesions and for the detection of microscopic extension. It does not allow certain determination of the histological nature of the lesion nor distinction between epithelial involvement and early stromal invasion. Histopathological examination therefore remains indispensable to confirm the diagnosis [13,14].

Anterior segment imaging techniques are of complementary interest. High-resolution OCT allows visualization of hyperreflective epithelial thickening and the abrupt transition between normal and pathological epithelium. UBM allows evaluation of the depth of the lesion and detection of scleral or intraocular extension [13-15].

Histopathological examination of every pterygium and pinguecula excision specimen is recommended, because the prevalence of incidentally discovered squamous neoplasms varies from 0 to 9.8% depending on the series [8]. In a recent study of 114 conjunctival masses, 13% of lesions removed for pterygium proved to be OSSN on histology, while 12% of lesions suspected of OSSN were benign [10]. These data underscore the importance of systematic histological examination, even for benign-appearing lesions [8].

In vivo confocal microscopy has been proposed as an aid to early differential diagnosis between benign conjunctival tumor and squamous neoplasia, by highlighting cellular and architectural abnormalities suggestive of malignancy before biopsy [2]. In our case, this examination was not available, but it could have oriented earlier toward a malignant lesion [2].

The reference treatment for localized conjunctival squamous cell carcinoma is surgical excision with clear margins, associated with adjuvant cryotherapy on the edges [6]. The use of adjuvant cryotherapy reduced the recurrence rate from 28.5% to 7.7% in a study including cases with positive margins [9]. The “No Touch” excision technique is recommended to minimize the risk of intraoperative tumor dissemination [5]. In our observation, an excision with 4 mm margins and double-cycle cryotherapy were performed, and no recurrence was observed at 12 months [7].

For large lesions or cases with positive margins, topical adjuvant treatments may be proposed, notably interferon alpha-2b or mitomycin C, with encouraging results for local control [4]. Radiotherapy and systemic chemotherapy are reserved for very advanced forms or intraocular extension [4]. Our patient had no indication for these adjuvant treatments because of clear margins and complete excision [7].

## CONCLUSION

Conjunctival squamous cell carcinoma can mimic a pterygium or pinguecula, and any atypical, recurrent, or treatment-resistant pterygium or pinguecula should undergo excision with histopathological examination [1]. Surgical excision with safety margins combined with adjuvant cryotherapy allows good local control and prevention of recurrence [6]. Systematic search for clinical warning signs and, when available, the contribution of in vivo confocal microscopy improve the early diagnosis [2].

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