Tarsoconjunctival flap in scleral necrosis: report of three cases

Retalho tarsoconjuntival em necrose escleral: relato de três casos

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ABSTRACT

To report a series of three cases (four eyes) of scleral necrosis after pterygium excision, in which the tarsoconjunctival flap technique was used as treatment. Three patients who progressed to scleral necrosis after surgical pterygium excision were selected. The first patient underwent excision using the bare sclera technique and developed scleral thinning in the immediate postoperative period. The second and third patients received beta irradiation and had late onset scleral necrosis. The tarsoconjunctival flap technique was performed by the same surgeon. Recovery was satisfactory from both anatomical and functional perspectives in all cases, and the technique was considered effective and safe. Although there are only few reports about this technique in the literature, it can be considered as a good alternative to treat scleral necrosis.

RESUMO

O objetivo deste estudo foi relatar uma série de três casos (quatro olhos) de necrose escleral pós-exérese de pterígio, em que se utilizou como tratamento a técnica de retalho tarsoconjuntival. Foram selecionados três pacientes que evoluíram para necrose escleral após tratamento cirúrgico de exérese de pterígio: o primeiro caso após técnica de esclera nua, com evolução para afinamento escleral no pós-operatório imediato; o segundo e o terceiro fizeram uso de betaterapia e apresentaram necrose escleral tardiamente. A técnica de recobrimento tarsoconjuntival foi executada pelo mesmo cirurgião. A recuperação foi satisfatória em todos os casos, do ponto de vista anatômico e funcional, sendo eficiente e segura. Apesar das escassas menções na literatura, essa técnica pode ser considerada uma boa alternativa para tratamento da necrose escleral.

INTRODUCTION

Scleral necrosis consists of ulceration of the sclera progressing to severe thinning with uveal exposure. Among the causes are beta irradiation after pterygium surgery, mitomycin use, necrotizing scleritis, and pterygium surgery with bare sclera, even in the absence of adjuvant therapy.[1]

Patients complain of eye irritation, pain, tearing, photophobia, and red eye. Superficial-to-deep scleral ulceration is observed upon examination. The scleral exposure should be treated due to the risk of corneoscleral infection, endophthalmitis, and increased risk of perforation.[1]

The aim of this study was to report a series of three cases (four eyes) of scleral necrosis after pterygium excision, which were treated using the tarsoconjunctival flap technique.[2] The use of beta irradiation was confirmed in two patients (three eyes). This was a retrospective study involving the analysis of medical records.

This study was evaluated and approved - CAAE 47323521.8.0000.5231.

CASE REPORTS

The tarsoconjunctival flap technique was performed on three patients (four eyes) by the same surgeon, under local anesthesia and microscopy. The following steps were involved in the procedure: calcified plaque removal; scraping of the edges with a 15 scalpel blade; measurement of the lesion with a compass; eversion of the upper eyelid, and marking of the circular area on the tarsal conjunctiva and pedicle, at the bottom of the conjunctival sac. Subsequently, the following processes were carried out: incision of the conjunctiva and tarsus through the entire thickness and dissection (detachment) of the latter with a 15 scalpel blade; incision and dissection of the conjunctiva from the bottom of the conjunctival sac with scissors to make the pedicle. Hemostasis was performed; the pedicle was twisted for the raw area of the tarsus to stay in contact with the receiving area; and the circular portion of the sclera was sutured with 8-0 silk thread. The initial stitches were made in the transition area, between the circular region and the pedicle, to immobilize the tarsal part of the flap and facilitate suture in the receiving bed; the suture was completed. In some eyes, tarsus thinning was performed for enhanced leveling and coaptation. Occlusive dressing was applied, and a combination of eye drops (tobramycin with dexamethasone) was prescribed four times a day for 7 days. The pedicle was resected approximately 3 weeks postoperatively.

CASE 1

A 40-year-old white, single female patient, smoker but with no comorbidities, presented with complaints of hyperemia in the right eye (RE), which was associated with pain and itching for 1 year. Visual acuity of 1.0 was noted in the RE and left eye (LE). The ophthalmological examination showed nasal pterygium in the RE. Pterygium excision with bare sclera and simple conjunctival closure in the RE were performed. No material was sent for histopathological study. She initiated a combination of eye drops (tobramycin with dexamethasone) every 3 hours. On the sixth postoperative day (Figure 1), she complained of local pain and foreign body sensation. Biomicroscopy revealed nasal perilimbal thinning. A conservative approach consisting of occlusive dressing, epithelializing cream application, and daily evaluation was adopted. After 3 days, there was a worsening of the thinning area, with progression to scleral necrosis. Tarsoconjunctival coverage was performed in the RE, and resection of the pedicle occurred after 24 days (Figures 2 and 3).

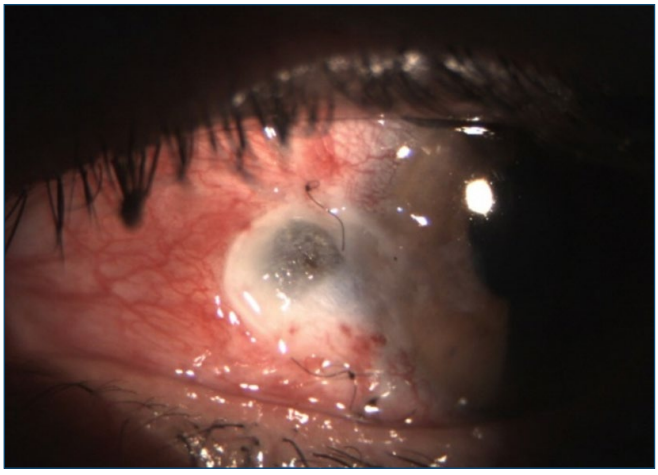

Figure 1. Sixth postoperative day of pterygium excision.

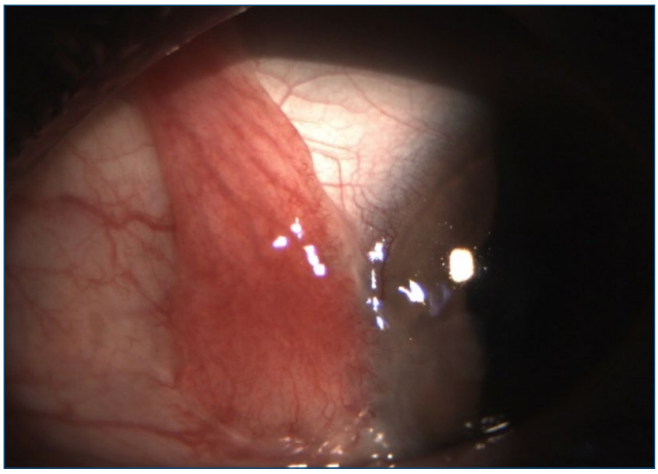

Figure 2. Twenty-fourth day after tarsoconjunctival coverage.

Figure 3. Four months after tarsoconjunctival coverage.

CASE 2

A 65-year-old patient presented with hyperemia, severe pain, ocular secretion, and low visual acuity in the LE for 1 month. The use of antibiotic eye drops had not resulted in any improvement. The patient had rheumatoid arthritis and had undergone nasal pterygium excision in the LE combined with ten sessions of beta irradiation 18 years earlier. Visual acuity was 0.8 in the RE and 0.1 in the LE. Besides, biomicroscopy showed scleral thinning in the nasal region of the LE. Three abscess areas with purulent discharge in the nasal conjunctiva of the LE, and a reactive large anterior chamber with flare, were observed. To treat the conjunctival abscess, fortified eye drops of ceftazidime and vancomycin were prescribed after secretion drainage and collection for culture. After 1 week of hospitalization, owing to the persistence of the inflammatory condition and history of rheumatoid arthritis, a presumptive diagnosis of necrotizing scleritis was made. Oral prednisone was initiated, resulting in an improvement of scleral inflammation and eye pain after 4 days. However, the scleral thinning persisted (Figure 4). Tarsoconjunctival coverage was performed in the LE. The patient progressed with good integration in the receiving bed; the pedicle was resected on the 40th postoperative day (Figure 5).

CASE 3

A 65-year-old female patient submitted to pterygium excision with beta irradiation in both eyes, 14 years earlier, complained of discomfort and a bluish spot in the RE (uncertain date of onset). Best-corrected visual acuity of 0.6 in the RE and 0.8 in the LE was observed. Biomicroscopy of RE showed a bluish nasal area consisting of a whitish central area covered with thin conjunctiva. Tarsoconjunctival flap surgery was performed, and the pedicle was resected 20 days postoperatively.

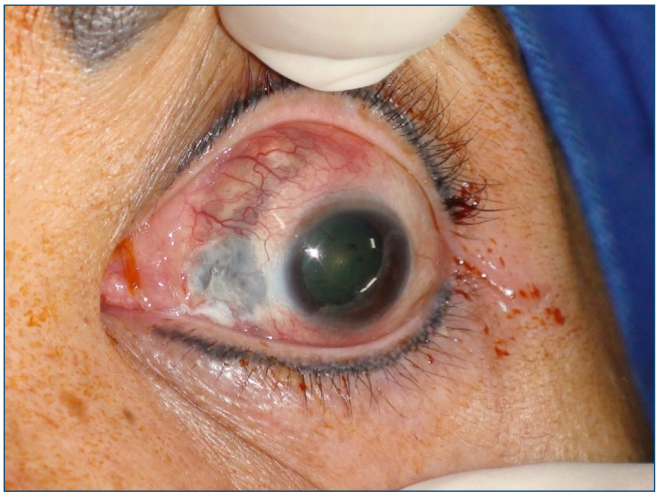

Figure 4. Immediate preoperative.

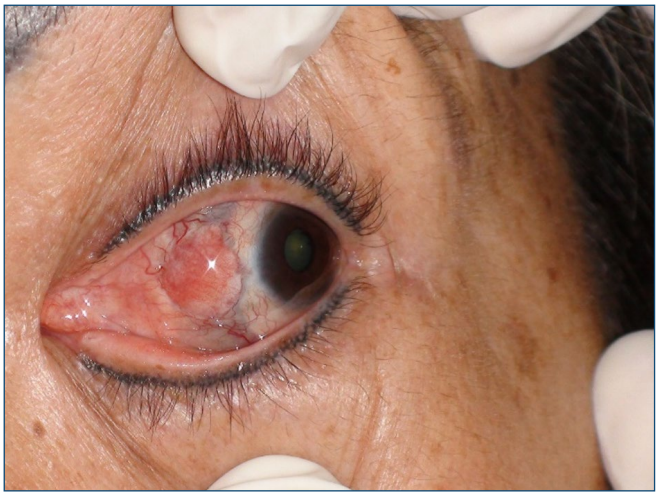

Figure 5. 60 days after surgery.

Twelve years after the tarsoconjuntival flap surgery in the RE, the patient presented a burning sensation in the LE (non-operated eye). On biomicroscopy, scleral necrosis covered with bulbar conjunctiva, elevated upper margin, and discreet bleeding in the bottom of the conjunctival sac were observed. Tarsoconjunctival flap surgery was performed. On postoperative day 8, spontaneous rupture of the pedicle occurred. A small upper denuded area was present, in which conjunctivalization occurred within 2 months, without any intervention.

All three patients underwent tests for rheumatological diseases, but the second patient reported had diagnosis confirmed.

DISCUSSION

Numerous techniques are available for pterygium surgery.[2-4] The literature shows complications rates ranging between zero and 26%.[5,6] Scleral dellen and scleral necrosis are rare complications that may arise

during treatment of pterygium with or without adjuvant therapies.[5,7,8]

In case 1, the pterygium excision technique consisted of resection with simple conjunctival closure in a patient who had no comorbidities but was a smoker. There are reports of complications in this technique related to improper eye handling by the patient after surgery, resulting in wound dehiscence and consequent edema of conjunctival edges, exposure of sclera, discontinuity of tear film, and scleral dellen.[9,10] In the general surgery, it is known that tobacco cessation for more than four weeks contributed to better outcomes than in patients who continued smoking.[11] In cases 2 and 3, use of beta irradiation and late onset of scleral necrosis were described.

Beta irradiation was initiated to reduce recurrence of pterygium. This approach is used to reduce local revascularization and, consequently, relapse.[12-15]

There are published cases of scleromalacia (10%) and severe scleral thinning (4.5%) ten years after the use of beta irradiation,[11,12] showing this procedure is not devoid of complications.[12,14,15]

Scleral necrosis can also be caused by excessive cauterization of the sclera or use of mitomycin in pterygium surgery. When scleral thinning occurs not employing these methods, autoimmune systemic disease should be suspected. In addition, adequate tenon dissection and a slight conjunctival graft manipulation minimize the risks of postoperative complications.[12]

In the reported cases, beta irradiation was the probable cause in three of the four eyes; in one case, the patient had rheumatoid arthritis.

The tarsoconjunctival flap technique was initially used for keratoplasty and in scleral implant exposure.[2] The process may be indicated in scleral necrosis, especially for symptomatic patients, progressive scleral thinning with visible uvea, calcified plaque on the necrotic area, and fluorescein retention at the base of the defect (demonstrating loss of epithelium). The approach may also be used to prevent infection.[12,16]

In the cases reported, in the first few days after pedicle resection, the tarsoconjunctival flap was hyperemic and elevated, but this had no effect on the external ocular surface. There was spontaneous decrease in elevation and a gradual remission of the initial signs.

No case presented dehiscence, eyelid retraction, ptosis, infection, or flap necrosis.

The tarsoconjunctival flap technique was shown to be safe and effective, both anatomically and functionally, to treat patients with scleral necrosis after pterygium excision. Despite the scarcity of reports describing the results of this technique in the literature, this method can be considered as a good alternative to treat scleral necrosis.

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