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Continuous subpalpebral antimicrobial lavage for pseudomonas scleritis secondary to pterygium excision

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Case report

Infectious scleritis is an uncommon but potentially blinding complication of pterygium surgery. The use of ß-irradiation at the time of surgery is a strong risk factor for this complication.[1] Up to 81% of cases are caused by Pseudomonas aeruginosa.[2]

Treatment remains the main challenge in this condition. Despite the delivery of appropriate antibiotics and the use of surgical debridement, outcomes remain variable and unpredictable with a significant number of cases resulting in enucleation or eye salvage with visual acuity worse than 20/200.[3]

Subpalpebral antimicrobial lavage has been reported for the management of infectious scleritis with encouraging results. A series of six cases of infectious scleritis, including two cases of pseudomonas scleritis following pterygium excision, showed significant visual improvement following this treatment. However, despite this, the technique is not widely used. We report here a case of pseudomonas scleritis that was treated successfully with subpalpebral antimicrobial lavage in an attempt to increase awareness of this management option.

In June 2008, a 74 year-old female presented for further management of a right progressive infectious necrotizing scleritis (Fig. 1a). She had undergone right medial pterygium excision with β-irradiation in 1985. A swab of the involved sclera was culture positive for pseudomonas aeruginosa (ciprofloxacin-sensitive). At the time of presentation, her BCVA was OD 6/24 OS 6/6 with scleritis progressing despite topical q1h ciprofloxacin 0.3%, a subconjunctival bolus of gentamicin 0.9% and oral

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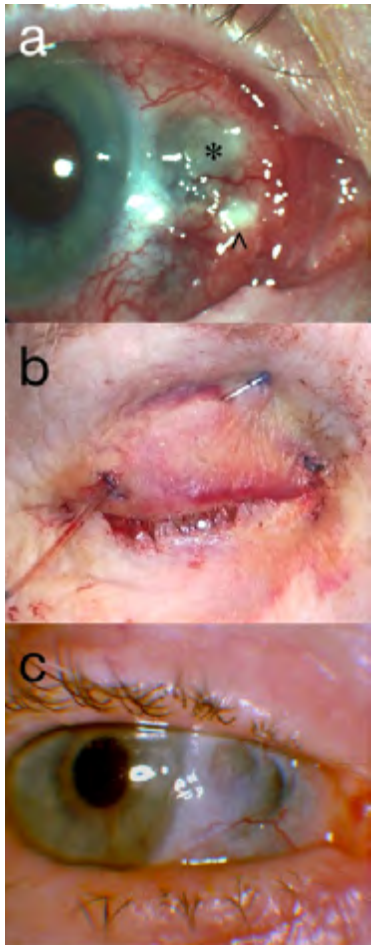

Figure 1. a) patients right eye at presentation demonstrating medial scleral necrosis (*) with inferior abscess (^), b) sub-palpebral lavage catheter in situ for continuous antimicrobial lavage, c) the same eye 26 months after presentation.

ciprofloxacin 500 mg BD over the preceding four weeks. The patient was admitted to hospital and commenced on ticarcillin 3.1gm QID ivi and continued on topical q1h ciprofloxacin 0.3%. Forty-eight hours after admission, the patient was taken to theatre where a 360-degree conjunctival peritomy was performed. Scleral abscesses were identified inferomedially and inferolaterally. Repeat swabbing at this time was culture negative. Gentle debridement followed by subconjunctival washout with gentamicin 0.9% was performed. A fenestrated gortex epidural catheter was positioned in the superior fornix via the upper lid using a trochar and secured with 2 6.0 prolene skin sutures (Fig. 2). An infusion of ciprofloxacin 200 mg/100 ml was connected to the catheter and commenced at 15 ml/hr using a volumetric infusion pump. Continuous infusion was maintained for the first 24 hours then restricted to 0600-2200 for the following five days. By day 3 of lavage treatment, the entire ocular surface was covered in ciprofloxacin precipitates. Therefore, from day 3 to the end of lavage treatment, daily manual debridement of the deposits was performed followed by the application of a 15-mm bandage contact lens. On day 9 (Fig. 1b), the patient was discharged home on g. ofloxacin QID OD, g. bion tears q1h OD, g. prednefrin forte QID OD and oral ciprofloxacin 500 mg BD.

Despite complete scleritis resolution, unaided VA remained 6/60 due to increased axial length (from 23.26 mm to 23.82 mm) and increased mean keratometry (from 44.76 D to 47.06 D) resulting in a refraction of -5.25/+2.00 x 25 degrees (6/9). This was treated by insertion of a Rayner Sulcoflex Toric IOL (-6.5/+2.00 x 25 degrees). At the last postoperative visit, refraction was plano/+0.50 x 180 degrees (6/6).

In patients with infectious scleritis, organisms may remain sequestered within the deep scleral layers, not induce an adequate inflammatory response, respond poorly to antimicrobial treatment or recur following seemingly adequate treatment. Subpalpebral lavage partly addresses these problems by supplying topical antibiotics at levels much higher (ciprofloxacin 2000 times MIC90 for pseudomonas

aeruginosa)[4] than can be achieved with manual instillation. The continuous nature of the treatment may also wash necrotic debris from the ocular surface and physically reduce the bacterial load. Any issues with compliance or timing are obviously also addressed with this technique.

In our case, the development of ciprofloxacin deposits caused ocular discomfort and led to a significant epithelial defect. Both tobramycin and levofloxacin lavage have been used successfully for subpalpebral lavage of pseudomonas scleritis without ocular surface toxicity[5] and may be alternatives if toxicity is a concern.

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