Mitomycin-C for Prevention of Recurrent Pterygium

Banu M. Hosal, MD, & Emin Gürsel, MD

**Materials & Methods**

From December 1994 to February 1996, 64 patients (72 eyes) undergoing pterygium excision were included in the study. The inclusion criteria were as follows: age older than 18 years, and primary fleshy, growing pterygium that invaded more than 2 mm into the cornea. Patients with recurrent pterygium and atrophic primary pterygium were excluded from the study; also, patients who had had a previous eye operation on the same eye and who had had any systemic immune disease were excluded. Recurrence was defined as a fibrovascular growth extending onto the cornea at a position of a previously excised pterygium.1-7 All the...
patients had a complete eye examination preoperatively. Postoperatively, they were reexamined to evaluate the presence of complications and the recurrence of pterygium.

The patients were randomized into 2 treatment groups. Group 1 included 33 patients (38 eyes); group 2 included 31 patients (34 eyes). All the patients had a simple pterygium excision while leaving the sclera bare. After the pterygium removal, patients in group 1 were treated with a single application of 0.02% (0.2 mg/mL) mitomycin-C to the bare sclera for 5 minutes, while patients in group 2 received topical 0.02% mitomycin-C 4 times daily for 5 days. The treatment began after the eye examination on the first postoperative day.

The surgery was performed under local anesthesia with 0.4% oksibuprocain hydrochloride and subconjunctival injection of 0.5 ml 2% lidocaine with 1:200000 epinephrine under the pterygium. The pterygium was dissected from the cornea using a microsurgical blade and the body of the pterygium was excised using spring-action scissors. In group 1 patients, a 2 × 5 mm sponge was soaked in a solution of 0.02% mitomycin-C and placed over the sclera and the adjacent cornea for 5 minutes. After the sponge was removed, the eye was washed with 10 mL of balanced salt solution. The conjunctiva was closed, leaving at least 4 mm of bare sclera. Postoperatively, topical antibiotics were used until epithelization was complete. Steroid drops were used 4 times daily for 1 month.

The patients were followed at days 1, 7, 15, and 30, monthly for the first 6 months, and then every 3 months postoperatively. The follow-up was discontinued when the diagnosis of recurrence was established.

The statistical analysis was performed using chi-square test.

Results

The patients in group 1 included 8 men and 25 women. The age of the patients ranged from 25 to 57 years (mean, 52.3 years). The patients in group 2 included 9 men and 22 women, ranging from 20 to 75 years (mean, 48.3 years). All the patients had primary pterygium located nasally. The follow-up period was 6 to 24 months (mean, 13.9 months) in group 1, and 6 to 24 months (mean, 12.6 months) in group 2.

In all the patients, photophobia, lacrimation, foreign body sensation, and ocular pain were resolved between the first week and 2 months following surgery. The severity and duration of complaints were similar in both study groups (P > .05). Conjunctival reepithelialization occurred within 2 weeks in all the patients. In group 1, a postoperative granuloma occurred in 4 patients. It was excised in 1 patient and treated with topical steroids in the other 3 patients. All the patients except 6 had corneal reepithelialization within the first 2 weeks following the surgery. Two patients who had intraoperative mitomycin-C and 2 patients who had postoperative mitomycin-C had corneal reepithelialization within the first month. The other 2 patients who had postoperative mitomycin-C had corneal reepithelialization in 2 months following the surgery. One patient in group 1 and 3 patients in group 2 had a dellen at the limbal area for 2 months, which was treated with topical lubricant drugs and patching. A nonprogressive scleral thinning was observed in the first 4 weeks after the surgery in 2 eyes in group 1 patients and in 1 eye of group 2 patients. No other ocular or systemic complications were observed.

Recurrent pterygia developed in 2 eyes (5.3%) in group 1 patients, and in 4 eyes (11.8%) in group 2 patients. The statistical analysis showed no significant difference between the studied groups (P > .05). In the recurrence group, 3 patients were women and 3 were men. The average age of the patients was 54.8 years (range, 32–63 years) at the time of pterygium removal. The mean recurrence time was 5.3 months (range, 1–9 months). The recurrence time between the groups was statistically insignificant (P > .05).

Discussion

Pterygium is a degenerative, elastotic, and hyperplastic conjunctival reaction of unknown etiology. It occurs more commonly in sunny areas. Ultraviolet radiation exposure is shown to be associated with pterygium development. One of the major problems with pterygium removal is the high recurrence, depending on the type of therapy. Adjunctive treatments such as thiotepa, beta-radiation, 5-fluorouracil, and mitomycin-C are used to decrease the recurrence rate. Thiotepa, an antineoplastic agent, has reduced the recurrence rate when applied topically in a 1/1000 concentration after pterygium excision. But its side effect of causing eyelid depigmentation limits its usefulness. The use of strontium to deliver 1200 to 3000 rad of beta radiation also reduces the recurrence rate of pterygium. However, its side effects, such as cataract formation, corneal and scleral ulceration, infection, scleromalacia, keratitis sicca, and endophthalmitis are reported.

A lamellar corneal graft, argon laser photocoagulation, conjunctival flaps, and conjunctival autografts are also used in the management of pterygium. However, all these procedures require expertise and prolonged operating time.

The use of topical mitomycin-C to prevent recurrence after pterygium surgery is a favorable alternative to other therapies. However, serious complications such as secondary glaucoma, corneoscleral ulceration, corneal perforation, corectopia, iritis, cataract, and infections are reported after the administration of topical mitomycin-C. However, many of these patients had coexisting diseases such as acne rosacea, Sjögren syndrome, and severe keratoconjunctivitis sicca. It is suggested that higher concentrations of mitomycin-C are toxic to the corneal epithelium and most of the complications are thought to be related to uncontrolled and prolonged use of the drug by the patient. However, mitomycin-C may cause complications even when applied at a low dosage.