Surgery for pterygium using a conjunctival pedunculated flap slide

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Abstract

Eight hundred and eighty patients (913 eyes) with primary pterygium who were surgically treated from 1983–93 were followed up for 5.7 years on average. Based on the large number of cases and a 10 year period of practice, it was found that pterygium excised with a pedunculated conjunctival flap slide was effective and safe in the treatment of primary pterygium. The recurrence rate of 1.6% (15 out of 913 eyes) in this series compared favourably with other reports. The characteristics and techniques concerning the operating process are described in detail.

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Pterygium, a wing-shaped fibrovascular connective tissue overgrowth encroaching on the cornea, may produce a cosmetic blemish, ocular irritation, or visual impairment. Although many surgical techniques have been proposed to remove pterygium, none is particularly efficacious. Reported data of recurrence of a pterygium after primary excision vary from 37% to 44%.^{1–3} However, the most recent report indicates a recurrence rate of 9.38%.⁴ We reviewed retrospectively the records of all patients (1468) treated at the Yantai Yuhuangding Hospital who underwent excision of a primary pterygium combined with a slide pedunculated conjunctival flap.

Materials and methods

There were a total of 1468 patients treated at this hospital with the same operating process

from 1983 to 1993. In late 1994, we sent out letters to all the patients and asked them to come back for a free check at a specific time. Finally, 880 patients (913 eyes) with more than 1 year of follow up were included in the study. There were 363 men (383 eyes), and 517 women (530 eyes) with an average age of 49.6 (range 32 to 64) years. Most of them (652 of 880, 74%) were peasants. The diagnosis of primary pterygium was determined by clinical findings before any surgical treatment was performed. All the pterygia advanced from the nasal side of the cornea, no matter whether they were fleshy, progressive, or not, and only when they extended for more than 2 mm into the cornea, was aggressive surgical intervention considered.

Antibiotics were usually administered topically 3 days before the operation. All operations were performed under local anaesthesia. A small amount of local anaesthetic was injected into the superscleral space just beneath the pterygium. Penetration between the sclera and the pterygium of the corneoscleral limbus can be made easily with an iris retractor (Fig 1). Then moving the retractor back and forth towards the head of the pterygium results in separating the head from the cornea. When the pterygium was stretched in the original state, subconjunctival injection of local anaesthetic was used to 'balloon' the conjunctival layer of the pterygium. After the creation of a total conjunctiva thickness vertical incision at the junction of the head and the body of the pterygium, the pterygium body was dissected from both the surface of the sclera and the overlying conjunctiva and then excised. Thus, the tissue removed includes the head of the pterygium and the body without the overlying conjunctiva. Any suspected pathological tissue which may be left over should be scrubbed with an operating blade.

Subconjunctival injection of local anaesthetic was accomplished in the upper bulbar conjunctiva. A pedunculated conjunctival flap without Tenon's capsule was created from adjacent conjunctiva with the help of scissors and was slid down over the bare sclera (Fig 2). The conjunctiva was sutured with 5/0 silk interrupted sutures. In most of the patients, at least 2 mm of bare sclera was left adjacent to the corneoscleral limbus. Postoperative antibiotic and/or corticosteroids were given topically for about 2 weeks. All suture threads were removed 5 days after surgery.

Results

There were no operative complications. Severe foreign body sensation was the chief complaint

Figure 1 Penetration between the sclera and the pterygium with an iris retractor.

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Figure 2 A pedunculated conjunctival flap was created and can be easily slid down. (A—A', B—B').

during the early postoperative period. The donor site was completely repaired within 10 days after surgery. Recurrence was defined as the postoperative regrowth of fibrovascular tissue similar to the original pterygium. After more than 1 year (average 5.7 years) follow up, only 15 of 913 eyes exhibited recurrence. The incidence of recurrence was 1.6% in this series.

Discussion

Pterygium excision was considered to be a minor procedure. Analyses showed that about 150 patients with pterygium would need an operation on an outpatient basis every year. In the present study the three main goals of successful pterygium surgery – safety, good optical result, and avoiding recurrence – have been achieved. The recurrent rate was so low that we rarely informed the patient of the possibility of recurrence, although we knew what had been done was inadequate.

The characteristics of the surgical process mentioned above are as follows: (1) It is easy to perform. An experienced surgeon can complete the whole procedure by him(her)self within 30 minutes. Any special, costly instruments and equipment, such as an operating microscope, would not be needed. (2) A pedunculated conjunctival flap makes it easier to suture compared with a free conjunctival flap. (3) It is safer to use the iris repositor in dissecting the pterygium from the cornea. (4) As the pterygium was excised as far as

possible, more healthy conjunctiva remained, so only a relatively smaller conjunctival flap should be prepared. (5) The barrier formed by the flap may play an important role in the prevention of a recurrence. (6) No special care would be required for the patients, pre-operatively or postoperatively. Special post-operative treatment, such as β radiation or instillation of mitomycin C, was not used in this series.

The following techniques concerning the operating process may be helpful in achieving better results: (1) making full use of local anaesthetic to separate the different tissues required by injecting at the different points; (2) dissecting and excising the pterygium as much as possible, making a thorough polishing with the blade on the cornea and the bare sclera; (3) the thinner the flap, the better. When the flap is slid in, it must not be put in upside down; (4) occasionally, a pedunculated conjunctival flap can be made from the lower bulbar conjunctiva.

Environmental factors have been shown to play an important role in the causation of pterygia⁵ and whether or not the operated patients continue to be exposed to presumed risk factors will, in turn, affect the recurrence. In this paper, we believe that the change of surroundings had little effect on the lower recurrence. In China, it is very difficult for urban residents to change their jobs just because of minor operations, and for peasants, who account for 80% of the population of China, it is almost impossible to alter their social status.

Only 60% of the original cohort of patients were involved in this study. As all the follow up visits were stochastic, they can be recognised as random samplings. However, economic and social factors dictate whether relapsed patients should be rechecked without charge.

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