

## Primary Pterygium Recurrence Time

Rahamim Avisar MD<sup>1</sup>, Aharon Arnon MD<sup>1</sup>, Erez Avisar BSc<sup>2</sup> and Dov Weinberger MD<sup>1</sup>

<sup>1</sup>Department of Ophthalmology and External Eye Disease Clinic, Rabin Medical Center (Golda Campus), Petah Tiqva and Sackler Faculty of Medicine, Tel Aviv University, and <sup>2</sup>Rappaport Faculty of Medicine, Technion–Israel Institute of Technology, Haifa, Israel.

**Key words:** primary pterygium, recurrent pterygium, recurrence time

### Abstract

**Background:** The time to recurrence after surgical removal of primary pterygium (pterygium) and the association between the rate of recurrence and the postoperative interval remain unclear.

**Objectives:** To determine the amount of follow-up time needed to identify recurrence in patients after surgical removal of pterygium.

**Methods:** We reviewed the files of 143 patients (143 eyes) with recurrent pterygium to determine the interval from surgery to recurrence.

**Results:** Almost all (91.6%) of the recurrences appeared by 360 days after surgery.

**Conclusions:** One year is the optimal follow-up time to identify recurrence of pterygium.

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Surgical excision of pterygium is necessary to improve visual acuity. However, the time to recurrence is unpredictable and the postoperative interval of maximal recurrences remains unclear. When adjunct chemotherapy to pterygium excision was used, Lawrence et al. [1] reported that recurrence could be identified within one year of follow-up. The aim of the present study was to define the optimal follow-up time after pterygium surgery.

### Materials and Methods

A review of the pterygium log (1989 to 1997) of the External Eye Disease Clinic at our center yielded 143 eyes (143 patients, 68 males and 75 females) with recurrence after surgery for primary pterygium (142 nasal and 1 temporal). In all cases, the pterygium was excised under local anesthesia, leaving the sclera bare [2]. Eleven eyes underwent adjuvant intraoperative therapy with 0.02% mitomycin C for 5 minutes.

The remainder received either postoperative thio-tepa 0.002% drops (triethylene-thiophosphamide, Lederle Laboratories, Neopharm Ltd. Petah Tiqva, Israel) 3 times daily for 2 to 3 months (n = 80) or indomethacin 1% (Indoptic, MSD Ltd., Petah Tiqva) (n = 52). All eyes were treated postoperatively with chloramphenicol 0.2% and polymixin B sulphate 0.25 µ eye drops (Phenimixin, Vitamed Ltd., Binyamina, Israel) 3 times daily for 6 days, and dexamethasone sodium phosphate 0.1% (Betnesol, Glaxo-Wellcome Ltd., Petah Tiqva) 3 times daily for 7 to 14 days.

All patients (100% of 143 eyes) were evaluated on postoperative days 1, 3, 7 and 14, and then every 2 to 3 months for 26 months. Recurrence was defined as the postoperative growth of fibrovascular tissue over the corneoscleral limbus onto the clear cornea. It did not include simple vascularization of the corneal stroma, or grouping or bunching of the conjunctiva only over the sclera and extending onto the cornea. Quantitative data of time to recurrence were evaluated by chi-square analysis. Statistical significance was defined as  $P < 0.05$ .

### Results

Patients' mean age at the time of operation was 41.3 years (range 30–67 years). Table 1 presents the rate of recurrence by type of adjuvant therapy and follow-up time. The correlation between time to recurrence (from the date of surgery to the date that pterygium recurrence was identified) and treatment modality was not significant, with recurrence time ranging from 180 days to 26 months for all of them. Most of the recurrences (91.6%) had occurred by postoperative day 360, with only a minimal number of cases thereafter.

Table 2 shows the total rate of pterygium recurrence according to adjuvant therapy after 26 months follow-up. The eyes treated with mitomycin C had significantly ( $P < 0.001$ ) less recurrences.

**Table 1.** Pterygium recurrence time according to treatment modality and number of months follow-up (% of all recurrences)

No. of eyes	Treatment	1 month	3 months	6 months	12 months	15 months	26 months
11	MMC 0.02%	0 (0)	3 (27.27)	5 (45.45)	10 (90.9)	11 (100)	11 (100)
80	Theo-tepa	0 (0)	10 (12.5)	70 (87.5)	72 (90.0)	79 (98.75)	80 (100)
52	Indoptic 1%	0 (0)	6 (11.53)	7 (13.46)	49 (94.23)	51 (98.07)	52 (100)
<b>143</b>			<b>19 (13.28)</b>	<b>82 (57.34)</b>	<b>131 (91.6)</b>	<b>141 (98.6)</b>	<b>143 (100)</b>

**Table 2.** Total rate of recurrent pterygium after 26 months follow-up

Adjuvant therapy	No. of operated eyes	No. of eyes with recurrence	Rate of recurrence (% of operated eyes)
Mitomycin C	199	11	5.8%
Thio-tepa	159	80	50.4%*
Indoptic	86	52	60.8%*

\* Chi-square test,  $P < 0.001$  compared to MMC

## Discussion

The incidence of pterygium in the general population in Israel is 2% [3]. We recently reported that a pterygium of 1 mm induces significant astigmatism of more than 1 diopter, which tends to increase as the size of the lesion increases [4]. Since the astigmatism decreases visual acuity, surgical intervention is warranted [4]. The main problem of pterygium surgery, however, is the high incidence of recurrence, which leads to repeated visits to primary eye care clinics and repeated operations. Until the last decade, the adjuvant treatment of pterygium was unsatisfactory, with no single method being clearly superior [5].

Kunitomo and Nori [6] were the first to report the promising effect of mitomycin C on the recurrence rate of pterygium. We found that the application of intraoperative 0.002% mitomycin C for 5 minutes is efficient in reducing the recurrence rate to a minimum. Most researchers agree that the time to recurrence depends on the individual host resistance rather than on the type of adjuvant therapy administered. The follow-up time in most published open studies of pterygium excision is variable, ranging from 2–3 to 6 months [7–11]. When pterygium was excised using different surgical techniques without adjunct chemotherapy, almost all recurrences occurred between 2.5 and 12 months [12,13]. In the present study almost all (91.6%) of the recurrences appeared by 360 days after surgery irrespective of the type of adjuvant chemotherapy administered. The results of our study support the data of Lawrence et al. [1]. We found that

the likelihood of recurrence was 57.34% within the first 180 postoperative days and 91.6% within 12 months. These results suggest that a 12 month follow-up period is optimal for identifying recurrence of pterygium.

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**Correspondence:** Dr. R. Avisar, Dept. of Ophthalmology and External Eye Disease Clinic, Rabin Medical Center (Golda Campus), P.O. Box 121, Petah Tiqva 49372, Israel. Phone: (972-3) 931-9588, Fax: (972-3) 904-1399, email:lavizar@bezeqint.net