

SUMMARY

Pterygium represents a major problem in Egypt which lies in the temperature zone (40 degrees latitude on both sides of the equator). Its incidence in comparison to the number of outpatients ranges between 33-35%. The recurrence rate of pterygium in spite of good surgical excision remains high 30-50%. Many workers had studied the causes of recurrence and the different methods which should be fulfilled to minimize the incidence of recurrence without producing much complications.

The aim of our study is to compare between the value of applying beta irradiation and argon laser after pterygium surgery, in preventing its recurrence. It included also the study of the possible complications that can occur in the course of therapy and the precautions that should be taken in consideration to gain the maximum benefit with the minimal complications.

The study was based on 90 eyes with primary and recurrent pterygia from the patients attending the out patient clinic in the Research Institute of Ophthalmology. The cases were divided into two big categories the first included the primary pterygia (56 eyes) which by turn divided into 3 groups. The first was subjected to surgical

removal only, the second was treated by beta irradiation postoperatively and the third group was treated by 3 argon laser sittings after pterygium excision. The second category, the recurrent cases, included also two groups, the first one (15 eyes) was treated by beta rays after surgery and the second by 4 sessions of argon laser postoperatively.

Follow up of patients for 9 months was performed and signs of recurrence or complications were reported, tabulated and discussed. For all cases treated by beta irradiation a pure Strontium-90 source was used, type SIA 20, the total dose (2400 Rads) was divided on four sittings in four successive days. The first application was given immediately after the operation. We used an applicator shield with a kidney shaped fenestration coinciding with the limbal area to prevent scattering of radiation to other eye structures.

In our study, the recurrence rate among the cases treated with surgery alone was found to be 56%, in agreement with most of the literatures. The conjunctival recurrence was 20% and actual corneal recurrence 36%. Most recurrences appeared within 2-3 months after surgery, and the recurrence among males was 3.5 times that in females, the males being more exposed to the same noxious factors responsible for producing the primary.

In the group treated by beta irradiation, the incidence of recurrence in the primary pterygium cases was 12%, of which only 4% were actual corneal recurrences. In the recurrent cases the incidence was 33%, only 13% were corneal recurrences and the number of recurrences in males was twice that in females.

These results are generally good, however, they reflect the fact that the effect of beta irradiation in controlling the recurrence in the recurrent pterygia is not as good as its effect in the primary pterygia.

It should be remembered that before the elapse of 6 months cure with no recurrence is never reported.

Argon laser was found by many workers a successful substitute for beta radiation postoperatively in controlling recurrence in pterygia without harmful effects.

In our study, argon laser proved to be an easy and effective procedure, which needs no special lenses, no contact with the patient eyes and its effect on the new vessels occurs on the spot.

The percentage of recurrence in our cases was 8% among primary pterygium cases and 22% among the recurrent cases. All the recurrences were conjunctival i.e. actual corneal recurrences were nil.

Regarding the complications, many workers reported

that beta rays could be responsible for many bad effects as cataract, corneal opacities or ulcers, scleral thinning, ulcers and softening, perforation with endophthalmitis, uveitis, infection, symblepharon, ptosis and glaucoma. On the other hand many workers who had used argon laser for pterygia postoperatively reported that no bad effects were faced. In our cases treated by beta irradiation the complications that could be attributed to the use of Sr-90 were minimal. Three cases with mild infection, symblepharon in one case, mild iritis in one case, considerable change in IOP in only one case, but no corneal ulcers or scleral changes, no radiation cataract during the follow up period apart from enhancing maturity in already present immature cataracts in two cases.

These relatively good results may be due to the proper dosage, the fractionation of dose, the proper technique including the use of fenestrated shield and straddling the whole bare area with irradiation, avoiding undue pressure by the applicator and applying the first sitting immediately after surgery.

In the cases treated by argon laser very mild change in IOP occurred in one case, 3 cases showed very mild corneal oedema which resolved spontaneously in a few days. Haemorrhage in the bed area occurred in 3 cases during the treatment. No other complications were met with.

From the results we recommend the following:

- * As the trauma of surgery is a major stimulus for rapid fibroblastic proliferation and hence recurrence, it is not recommended to remove small pterygium with less than 2 mm corneal extension for cosmetic reasons, especially when it has fibrotic cap.

- * The type of pterygium has a great influence on its behaviour after surgery even with the use of postoperative beta irradiation or argon laser, therefore a thorough preoperative evaluation of every case is important. One should expect a high incidence of recurrence when the pterygium is thick, aggressive and reaching the visual axis, when the blood vessels are found reaching the cap and in the progressive type which has a hyperaemic neck, a voluminous head with a gelatinous appearance and a very serrated cap.

- * The first sitting of Sr-90 should be applied before the elapse of 24 hours and better just after the surgery

- * Calibration of the Sr-90 source every 6 months to ensure a proper dosage.

- * The total dose should not exceed 3000 rads surface dose which is agreed by many workers to be cataractogenic.

- * A fractionated dose is better than a single dose as it gives the same effect with less incidence of discomfort and complications.

- * Undue pressure on the globe during the application of Sr-90 and the use of the fenestrated shield are important to minimize the complications.

- * Argon laser, whenever possible, can be a very good substitute for Sr-90. It is safer for the patient and for the treating physician, needs no special lenses and provides a lower incidence of true recurrences and minimal complications, but, the laser parameters including the power, the spot size and the number of shots should be mobilised from one case to another to fit the requirements according to the amount of new vessels and their calibre and the size of the bare area.