

# Prophylaxis for Peripheral Retinal Structural Abnormalities

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## ABSTRACT

A considerable controversy still exists in the management of patients with retinal breaks and degenerations without retinal detachment<sup>1</sup>. Prophylaxis is generally more desirable than corrective surgery. It has been reported that 20 - 40% of all retinal detachments can be prevented if the retinal lesions are detected and diagnosed at an early stage<sup>2</sup>. The aim of this study is to outline the importance of early detection and subsequent prophylactic treatment of peripheral retinal lesions leading to retinal detachment and probably irreversible loss of sight. Also to compare between the results of different types of therapeutic tools used for prophylaxis.

Between January 1979 and December 1983, 110 patients (150 eyes) were treated prophylactically for peripheral retinal lesions in the Department of Ophthalmology, Salmaniya Medical Centre. 35 patients had cryoretinopexy, 14 patients had xenon-arc photocoagulation (Zeiss) and 61 patients had argon laser therapy (Coherent).

This article is based on the study of 55 patients only (75 eyes) who had complete medical records. The detailed analysis of the results was therefore limited to these patients. 41 of the patients were males and 14 were females. The age distribution of the patients was as follows : 26 patients were between 10 - 30 years, 24 patients were between 30 - 50 years and 5 patients were over 50 years.

The left eye only was treated in 16 cases, the right eye only in 19 cases and both eyes in 20 cases.

The associated risk factors taken into consideration at routine examination were as follows : History of retinal detachment in the other eye (12 patients),

ocular trauma (7 patients), myopia (41 patients) and aphakia (4 patients). The minimum follow up period was 12 months and the maximum was 60 months.

## METHODS

Complete treatment of the retinal lesions as well as the surrounding collar of healthy retina is essential. This is achieved by producing aseptic chorioretinal reaction by means of heat, freezing or light coagulation.

Diathermy is abandoned because of its destructive effects. Adequate reaction can also be produced with the xenon-arc. However, a retrobulbar anaesthesia is required in this case. Trans-conjunctival cryotherapy is preferred in cases of multiple peripheral lesions which cannot be reached by light photocoagulation or when the view of the interior of the eye is blocked by opacities in the media, as in early senile cataract. Though cryopexy could be performed under local or surface anaesthesia, the nature of our patients required general anaesthesia to complete the procedure. The introduction of laser photocoagulation made prophylactic treatment an easy and relatively safe procedure. Laser photocoagulation needs a widely dilated pupil, clear ocular media and adequate pigmentation in the choroid and retinal pigment epithelium. Only a surface anaesthesia is needed with this technique.

No complications were observed in the prophylactic treatment except of transient chemosis of the conjunctiva in cryopexy. There were no posterior segment complications such as vitreous haemorrhage or macular pucker.

All procedures can be done as out-patient or day cases. Patients who receive cryotherapy may need to be hospitalised for one or more days.

Sometimes an operative technique such as trap-door explant or plombage may be necessary as an adjuvant to other prophylactic procedures. This may be when there is subretinal fluid to prevent absorption of the light energy of the laser or to attain a more lasting therapeutic result by relief of a vitreal traction on the edges of the lesion with continuous threat of detachment, in spite of prophylaxis.

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## RESULTS AND DISCUSSION

To assess the potential benefits of prophylaxis, two methods are available :

1. A comparison between the prognosis of the untreated and prophylactically treated cases. This requires a lengthy period of follow-up<sup>3</sup>, which can not be applied to this retrospective study.
2. The effectiveness of prophylactic treatment in the fellow eye in cases where the patient has a previous history of retinal detachment in the other eye.

The latter method of assessment was successfully applied in this study as evidenced by the fact that 22% of our patients were operated on to correct retinal detachment in one of their eyes.

None of the patients prophylactically treated developed retinal detachment or encountered any change or reduction in their visual acuity during the post-therapy follow up period. There was no difference between the results of different modalities of therapy<sup>1</sup>.

In spite of effective diagnostic procedures and prophylaxis there was no significant fall in the number of retinal detachments which continued to occur at the same annual rate. However, not a single case of retinal detachment presented to us had ever received any prophylactic therapy before. An explanation comes from the fact that the prevalence of retinal breaks and degenerations are 70 - 80 times more frequent than retinal detachments, as evidenced by examining autopsy eyes<sup>2</sup>. As it is impractical to scan and treat almost the entire population, we must be more selective in choosing and treating only those lesions prone to cause retinal detachment. Therefore, avoiding the treatment of innocent lesions and stress to the patient.

Prophylactic management is best indicated in the following cases :

Symptomatic lesions with persistent symptoms of floaters or flashes of light or vitreous haemorrhage, patients with history of detachment in the fellow eye, patients with family history of detachment, young and physically active patients, one-eyed patients, patients with silent full thickness or large retinal breaks, patients with small subclinical localised peripheral retinal detachment when there is systemic contraindication to surgery, progressive peripheral retinoschisis towards posterior pole showing breaks in the outer layer, postoperative newly developed breaks and for reinforcing existing demarcation line of an old standing retinal detachment.

The chance of retinal detachment increases in the presence of additional risk factors such as, absence of pigmentation around breaks, presence of vitreous traction on the operculum or edges of the breaks or degenerations, presence of acute posterior vitreous detachment, presence of aphakia or moderate to high myopia and superior location of the breaks. The size of the break is not directly related to its potential to produce detachment but detachments which originate from large breaks usually progress more rapidly.

## CONCLUSION

The current trends of prophylactic treatment for peripheral retinal breaks and degenerations without retinal detachment were discussed. In this retrospective study, the overall success rate was 100% irrespective of the method used as compared to the lower success rate when surgical interference for retinal detachment was performed. Since the majority of our patients were from the young age group with longer life expectancy and productivity, there is no doubt that preventive therapy has its firm place. Each case has to be considered individually in order to avoid unnecessary treatment. We strongly recommend Fundus Scanning, prompt treatment and regular follow up for cases at risk.

## REFERENCES

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