RETINAL DETACHMENT MANAGEMENT AND OPERATIVE TECHNIQUES

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HISTORICAL

The successful treatment of retinal detachment became possible only after the universal recognition of Jules Gonin's technique of occluding retinal tears by the use of thermocautery.[1] Before this, patients were seldom cured, and since the condition was considered hopeless, few patients were even admitted to hospital for treatment.

Weve[2] introduced the use of surface diathermy for closing retinal holes in 1932, and later Lindner,[3] Shapland[4] and Paufique[5] described the lameller scleral resection and paved the way for the varied procedures used today.

Schepens described the method of embedding a polythene tube in the site of the scleral resection, and in 1949 Meyer-Schwickerath described a new procedure known as light coagulation.

Custodis[6-8] later described the use of a polyviol implant without scleral excision and without drainage of the subretinal fluid.

PRESENT MANAGEMENT

The present procedure regarding retinal detachment in my practice is broadly as follows:

Prophylactic Treatment

This consists in using the light coagulator on areas in the retina that show degenerative changes, usually in the equatorial region (lattice-like degenerative areas); or coagulation diathermy where the changes are very peripheral and not easily accessible to the light coagulator.

In prophylaxis the patient who complains of light flashes or large muscae must not be dismissed lightly. Repeated examination must be carried out and the patient treated as though he had a threatening detachment.

There is another type which I call preclinical detachment, where a definite retinal break exists, but the patient has no symptoms.

There is also the patient who, having had a lens extraction in one eye, subsequently gets a detachment. Then the other eye, should a lens extraction be necessary, should have a prophylactic scleral resection performed,[9] or alternatively light coagulation should be done following removal of the lens.[10,11]

Detachment of the Retina

All patients must have their ocular tension measured and their visual fields charted. Then a thorough search through a well-dilated pupil must be made for holes and weak areas. This consists of the use of the direct ophthalmoscope, the indirect ophthalmoscope plus scleral depression, and the Goldmann three-prism lens. The vitreous body is also examined.

I must admit that I am still a little uncertain how to interpret the changes I observe in the vitreous, but I do

try to work out whether there are vitreous bands visible, whether there are cells or an operculum in the vitreous, or whether there is a detachment of the vitreous.

Unless the macula is threatened there is no great urgency to put the patient to bed. In fact it is better to investigate the eye thoroughly for retinal holes first, since after the retina settles down with bed-rest the holes may be very difficult to see. They also become more anterior.

The patient should be told of the serious nature of the condition and that it may also occur in the other eye at some future date.

Some patients, especially those of 60 years and over, may decide to withhold consent to operation if not warned, and to depend on the remaining eye to see them through. They should be told that more than one operation may be necessary to restore the sight, since a psychologically happy patient is essential to harmonious relations between surgeon and patient, should the initial operation not prove to be a success.

The Operation

The surgeon should realize that four operations may be needed: therefore the least amount necessary to achieve success should be done at the initial operation.

Too enthusiastic measures at the primary operation often make a successful result impossible later. Excessive diathermy will cause necrosis of the sclera and the formation of vitreous bands that will tear the retina off in another place. Repeated perforations to let out subretinal fluid may cause an intraocular haemorrhage or pierce the retina.

One puncture in the right place is usually all that is necessary.[12] Schepens *et al.*[13] stated that it is quite easy to avoid perforating choroidal vessels, since they can be seen, but I myself have not been able to visualize the vessels before perforation. If one intends to perforate in the bed of the resected area, and this area has been treated with surface diathermy, no current is necessary.

How much diathermy and what strength of current to use is not an easy question to answer. The electrode should be hot, but not burn, and I usually apply it on a dry surface for approximately 8 seconds.

When using a machine like the Keeler diathermy machine, I seldom exceed 50 milliamps (ma); sometimes go up to 60 ma; but never use 70 ma or more.

It is important to keep the field of application absolutely dry, since a wet surface conducts the heat and gives a bigger spread but less penetration.

Variations occur in machines and also in scleras, and the reactions of flat detachments are much more easily obtained than when there is a balloon detachment. Try to avoid a marked white reaction — a change of colour is all that is necessary.

I find the 'national' headlamp, as described by Epstein,[14] invaluable in visualizing the fundus and localizing retinal holes.

The principle is the same as that involved in the use of the binocular ophthalmoscope as described by Schepens;[15] but this headlamp is monocular and therefore more easy to use when the surgeon becomes presbyopic. He is then able to use the operating glasses at the same time.

I should also mention that in my practice no retinal detachment is operated upon without the assistance of another ophthalmologist.

Custodis Operation

The operation I am inclined to do in the first instance in retinal detachment is the Custodis operation.[16-18]

The sclera is exposed in the area of the retinal holes. The holes are located exactly, either by seeing the light shining through on the sclera from the headlamp or by scleral depression. Coagulation diathermy is performed directly over the breaks.

'Supramid' mattress sutures are inserted for 2 - 3 mm. on either side of the coagulated area — it is important that they do not pass through an area that has been subjected to diathermy, since they may then cut out later. At least 2 mattress sutures should be used for each polyviol implant in case one should give way at a later date.

Polyviol is a soft rubbery type of plastic material made by B. Braun of Melsungen, W. Germany.

The polyviol must lie directly over the breaks, either radially or parallel to the limbus, and the assistant stretches the polyviol as the sutures are tied. No drainage of subretinal fluid is necessary and no muscles are detached.

When the operation is successful the patients are given pinhole glasses on the 3rd day and are allowed to get up. I usually give them mydriatics for a month.

In those cases with large tears which need 2 implants alongside each other or where the tear extends across a larger area than usual, I use intravenous urea during the operation to lower the intraocular tension.[19] All operations, if possible, are performed under general anaesthesia.

Other operative procedures can be undertaken should the Custodis operation prove unsuccessful. Scleral resection with or without a polythene implant or a 360° buckling procedure can be performed, after removal of the polyviol. If still unsuccessful, vitreous replacement can be considered.[20-22]

DISCUSSION

At first I tried out the Custodis operation very warily and full of misgivings, mainly because of adverse criticism from Schepens, who stated that he had too many cases that went wrong. He said that 'after the startling statement of Custodis that the release of subretinal fluid was unnecessary', he tried it in 25 cases.[23] Of these, 6 developed an infection in the area operated upon, making the removal of the polyviol and the sutures imperative. In 4 cases there was an enophthalmitis, and in 3 evisceration became necessary.

I have used polyviol on 10 cases and have had no complications at all. Other ophthalmologists have recommended the use of skin,[24] and others describe the use of cartilage[25] taken from the patient's ear. I have not tried either of these suggestions.

Prof. L. Gerard of Houston, Texas, described a 360° buckling with polythene and drainage, followed by light coagulation to the breaks.[18]

SUMMARY

The successful treatment of retinal detachment became possible only after the universal recognition of Jules Gonin's technique of occluding retinal tears by the use of thermocautery. Since then various other procedures such as scleral resection with or without implants have been described, all of which assist us in treating a condition which until 1929 was considered incurable.

Prophylactic treatment of retinal detachment is playing a more important role, especially since light coagulation has become available.

The thorough examination of the fundi of both eyes before surgery by every method available is most important for a successful result.

The minimum surgical intervention necessary to effect a cure should be undertaken in all procedures, and therefore the operation described by Custodis should be considered as a primary procedure.

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