

AN EVALUATION OF WOUND CLOSURE IN CATARACT SURGERY

By Raymond Y. Tan

SYNOPSIS

An evaluation of the effectiveness of the incision and closure, in cataract surgery, was carried out on 150 consecutive cases. The following criteria were used in the early post operation period:—

- (1) oedema of the conjunctival flap and/or
- (2) shallow or flat anterior chambers

and in the late post operation period, changes in astigmatism. There were three cases of flap oedemas and 2 occurred in 6 cases of shallow anterior chambers. There were 14 cases of shallow anterior chambers which occurred after discharge from hospital (10 days).

Refractions were carried out 6 weeks after the operation and were found to resemble very closely the controls.

INTRODUCTION

Patients undergoing elective cataract extraction to-day have two major advantages, both related to the incision and closure of the wound. They are early mobilisation and minimum distortion of the cornea, giving rise to little astigmatism.

MATERIALS AND METHODS

One hundred and fifty consecutive patients with primary senile cataract were studied. Those patients who had previous operations which would influence the outcome of surgery, e.g. glaucoma, and pterygium, and detachment operations, were excluded from the study. Another group that was excluded were those patients who showed any degree of scarring of the cornea due to any cause, usually trachoma.

As this was a study of a procedure most often done with local anaesthesia (about 95%), those patients that had to have general anaesthesia were left out as it was felt that it might have influenced suturing,—control of bleeding and intraocular pressure, etc.

A fornix based conjunctival flap of about 5 mm. was made from 9 o'clock to 3 o'clock and reflected on to the cornea. An incision was made at right angles to the most anterior part of the limbus under the conjunctival flap with a broken-off razor blade and the incision completed with right and left corneal scissors. Care was taken that the incision with the scissors was also at right angles and was 170°—a little less than the conjunctival flap.

Two sutures were placed before removal of the cataract at 1 o'clock and 10.30 o'clock. After removal of the lens, two more sutures were placed between them and one at 2 o'clock. These sutures were carefully placed so that they went down to half the

thickness of the corneo-sclera. The conjunctiva was sutured with 4 sutures at the end of the operation.

The entire operations were done without any magnification and suture material of 8-0 silk was used. All were interrupted sutures and all the operations were done by the same surgeon.

RESULTS AND DISCUSSION

This study was prompted by the fact that most controversy that surrounds cataract surgery to-day centres around the incision and its closure.

Size of Incision

This varies from the unpopular small (90°) to medium (130°—140°) to the classical (160°—170°) incision.

The location of the incision

This can be made slightly corneal without a conjunctival flap, corneo-limbal or further back to the sclero-limbal area. Eminent cataract surgeons prefer one or other location; thus Dr. Richard Troutman of New York favours a slightly corneal incision while Dr. David Paton of the Bayer Institute defends the sclero-limbal ones.

Type of Incision

Controversy also surrounds this point. Should it be vertical, bevelled or, as is becoming increasingly popular, be in two planes thereby supposedly leading to better locking of the wound.

Type of Sutures

These comprise of 9-0 or 10-0 nylon, 7-0 chromic catgut or 8-0 silk. The choice of suture material somewhat depends on the technique of suturing. Silk and catgut should not be inserted deeply into the

thickness of the wound edge as they may lead to some necrosis giving rise to fistules and leaks. Nylon on the other hand is non-irritating and can be inserted very deeply. This is supposedly desirable because it keeps the full thickness of the wound in apposition.

Lastly, difference in opinion exists as to the number of sutures required and whether they should be continuous or interrupted and what kind of knots are best.

The above resumé of the different techniques used all have two objectives, viz.

1. watertight closure of the wound leaking of which produces flat oedema or actual shallowing or a flat anterior chamber;
2. less induced astigmatism.

The following table shows the incidence of 150 cases:—

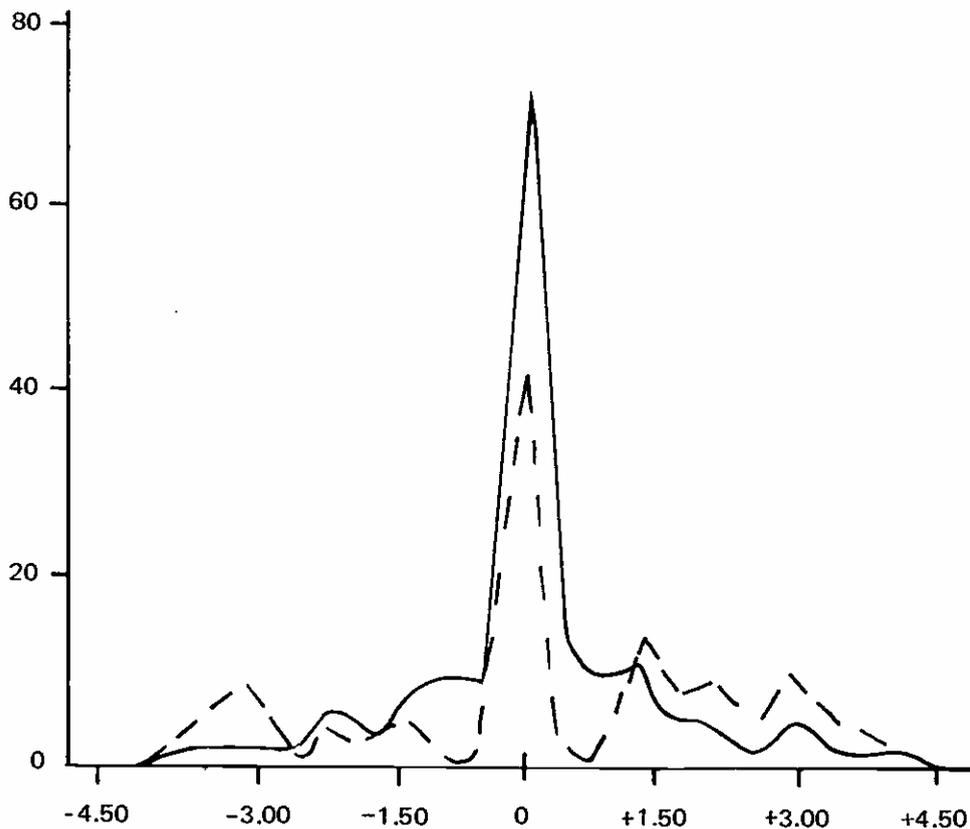
Flap oedema	-	-	-	-	1
Flap oedema with a slight shallow anterior chamber	-	-	-	-	2
Shallow anterior chamber during stay	-	-	-	-	6

Shallow anterior chamber after discharge - - - - 14

The patient with flap oedema was not treated any differently from the other post-operative patients, i.e. a simple pad and his oedema subsided before he was discharged at 10 days.

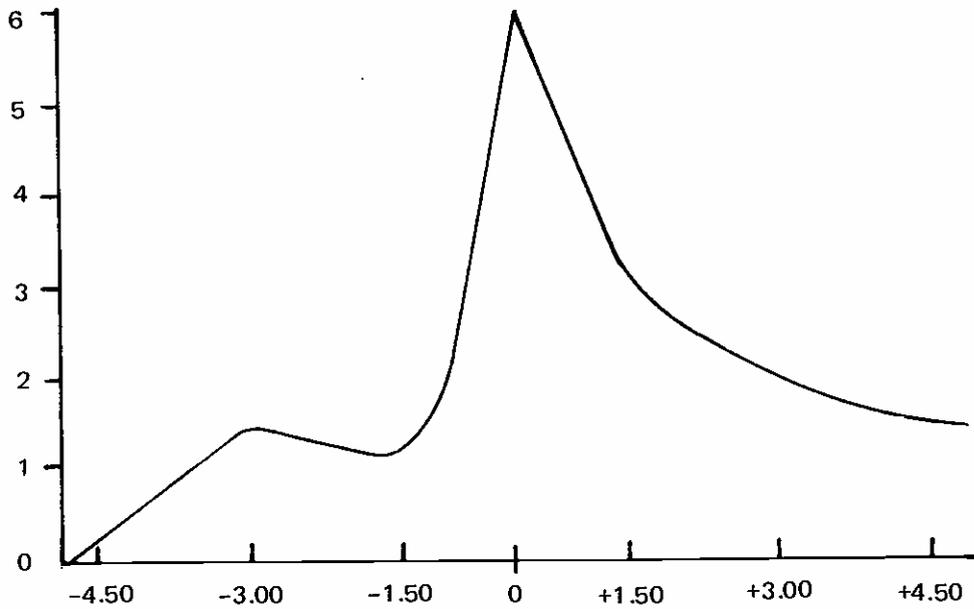
The six patients with shallow anterior chambers during their stay in hospital all responded to a tight pad and bandage and atropine drops and were discharged at the usual time. One of them deepened his anterior chamber immediately atropine was instilled. Of the 14 cases that developed late shallowing of their anterior chambers, 3 patients representing 6 eyes were bilateral, the others were all unilateral. They were all treated as out-patients with atropine drops and a pad and bandage. All but 4 patients responded within 3 or 4 days—3 of which responded immediately with atropine. Four patients had to be re-admitted and be put on bed rest. They also improved in a few days and were discharged. None required further surgery.

The astigmatic difference between a controlled age matched group and the operated (aphakic) group is shown in the graph (Fig. 1). It can be seen that



KEY:
 Aphakic eye - - - - -
 Normal eye - - - - -

Fig. 1.

**KEY:**

Aphakic eyes with complications ———

Fig. 2.

those cases that did not show any complications had a similar astigmatic curve to the normal whereas those who had complications showed a significantly different astigmatic curve (Fig. 2). There was however no correlation between the recovery time and the degree of astigmatism.

A slightly different suturing technique is now used in the hope of reducing these complications. The 2 preplaced sutures are still used and are of 8-0 silk inserted into the middle thickness of the wound. The other 3 sutures are of 10-0 Nylon and are inserted much more deeply but not through the whole thickness of the wound.

The retention of the preplaced 8-0 silk suture is for greater safety against loss of vitreous immediately during and after removal of the lens which will be the subject of a subsequent publication.

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