

## LENS SLIDING IN REMOVAL OF CATARACTS

BY

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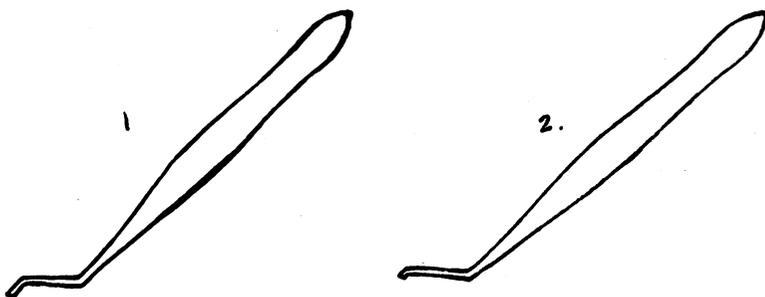
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IN this article, I wish to give my experiences of a little modification in the operation for removal of cataracts in capsule, where the lens is slid out over the iris, with the hope that it may be of use to other operators. So many methods have been described in the past that one hesitates to add further to the subject, were it not that the usefulness and simplicity of this method appear to warrant its description, complications are negligible, and the instruments required are just those in every day use, with the addition of the special, simple, forceps, about to be described.

I have found this method particularly useful for removing cataracts that are not advanced, but yet handicap the patient considerably.

Early in 1936 a modified Hess forceps was used by me, which gave a fair measure of success. This was made by Messrs. Carl Reiner of Wien, who did an excellent bit of work. The alteration consisted in shortening the terminal part of the forceps so as to allow of its being easily introduced into, and removed from, the anterior chamber, without touching the iris or unduly pressing the cornea back.

The accompanying sketches show the alteration.



The sharp teeth were on purpose made blunt by me as they used to cut through the capsule while it was being drawn upon. Owing to this draw-back, I had a similar forceps made, with the difference that the sharp points were replaced by two oval surfaces similar to those of Arruga's forceps—this was done for me by

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Messrs. Down Bros., these forceps have been in constant use since they reached me in November, 1937, and have given great satisfaction.

TABLE I

Since November 1, 1937, to October 31, 1938.

A.

Total number of cataract cases operated on (excluding congenital) 254 of these

	Per cent.
a. extraction in capsule without iridectomy - -	81 = 31.88
b. extraction in capsule with peripheral iridectomy -	54 = 21.25
c. extraction in capsule with total iridectomy - -	4 = 1.57
d. extraction in capsule with or without iridectomy, capsule burst, and was removed entire at the time - - - - -	29 = 11.40
	168
e. extraction with or without iridectomy and with capsulotomy - - - - -	86 = 33.90
	254

complications which occurred in these operations are shown in the following table—the letters corresponding to the type of operation mentioned in Table I.

TABLE II

	Iris stroked down	Excision prolapsed iris	Peripheral iridectomy	Needling of capsule	Vitreous escape	" Vitreotomy "	Retinal detachment
a.	7	-	4	-	2	2	-
b.	2	3	-	-	1	1	1
c.	-	-	-	-	-	-	1
d.	1	-	-	-	1	1	-
e.	1	-	1	4	2	2	1

B.

Total number of cataract cases operated on between June, 1936,-  
November 1, 1937 - - - - - 359  
of these, extraction in capsule were - - - - - 115

A short note of explanation regarding these cases of extraction : every case is approached with the idea of removing the cataract in capsule, and efforts to this end are made but not persisted in,

if any danger to the eye is seen to arise in the course of the operation. Hence, the type of operation finally done depends on the behaviour of the eye during the operation.

The forceps already described is used, and a conjunctival bridge is formed in every case.

It happens in certain cases that the capsule tears off in the grip of the forceps, the case then becomes a straight forward one of extraction with capsulotomy, the fairly large bit of capsule that is torn off allows easy delivery of the lens.

At times the capsule bursts while the lens is passing through the corneal section and comes away entire in the forceps, or can be removed entire with suitable forceps after the lens matter is cleared ( $d$  in Table I), if there is a hard nucleus it continues to slide out over the iris, if soft matter alone, it is pressed out or washed out of the anterior chamber. I have included  $d$  in Table I under the head "removal in capsule."

In the *Trans. Ophthal. Soc. U.K.*, 1936, pp. 337-338, H. Horsman McNabb mentions his operation of extraction in capsule without tumbling the lens, and states that Professor de Grosz of Budapest operates in a similar way.

In this operation done by me since 1936, the lens is not tumbled but is slid out over the iris, an easy, straight-forward method, which causes no damage to any part of the eye and leaves the vitreous face absolutely flat and unaltered. I realise, however, that this is not an operation for beginners, previous experience of cataract operations and a very light touch being essential.

### Preparation

The day before the operation after the usual attention to lids and lashes, the pupil is fully dilated with a 1 per cent. atropine solution used morning and evening. Early in the morning of the operation atropine is again instilled once.

At the operation, the eye is anaesthetised with cocaine drops 4 per cent. and adrenalin, and eserine drops  $\frac{1}{2}$  per cent. instilled just before the section is made.

The facial nerve is blocked by van Lint's method of injection in the temporal region, which we find ample for all purposes.

### The Operation

The eye being ready for operation, a speculum (Smith's-spring) is introduced, and after the corneal section is made at the limbus, is held off the eye by an assistant. A conjunctival bridge is always formed as it is an excellent means of keeping the corneal flap in position, and acts favourably in other ways.

Next, the conjunctival bridge is gently lifted off the eye with a

Bowman's spoon, the special forceps introduced with closed blades into the anterior chamber till the ends touch the capsule, the blades are then opened and the capsule is seized at its middle, in a firm yet light hold.

The lens is now drawn gently and evenly to one side in the horizontal meridian, say "3 o'clock," till the zonular ligament gives at the opposite point, *i.e.*, "9 o'clock" the movement is next in the opposite direction, slow, even, continuous, and again the ligament gives, this time at "3 o'clock." Now the lens is drawn upwards, *i.e.*, towards "12 o'clock" and the ligament ruptures at "6 o'clock," the edge of the lens often presenting, lastly, the lens is gently pushed in the opposite direction, *i.e.*, towards "6 o'clock" and the last part of the ligament gives at the upper pole, and the edge of the lens presents again, tending to ride over the iris. As this happens, gentle pressure is made on the sclera under the conjunctival bridge, with Bowman's spoon, which up to this point has been lifting the conjunctival bridge up, and the lens is gently slid over the iris by a very light pulling movement directed through the forceps, and easily delivered, any remaining few fibres of the zonular ligament giving way at this stage. When the lens is out the iris will be found to lie back flat on the vitreous surface, and the pupil is quite regular in outline. In a few cases it is necessary to stroke the upper part of the iris gently into position, or in some cases where the iris is judged to be slack, a peripheral iridectomy is done.

With this, the operation is complete, a few drops of eserine  $\frac{1}{2}$  per cent. are again instilled, a little boric ointment smeared over the wound, and the eye is closed.

Total iridectomy is very seldom performed and only in such cases where the pupil does not dilate in spite of several instillations of atropine, or where some complication exists, or perhaps accidentally in a difficult patient.

The main point in this operation is the necessity for deliberate, even, gentle and continuous movements from the time the capsule is held till the lens is out. If the capsule ruptures during the operation, it either comes away entire in the forceps, and the lens matter is easily evacuated, or, the operation becomes a straightforward extraction with capsulotomy.

The following morning when the eye is dressed, it is found to show very little post-operative reaction, the anterior chamber is well formed, and the pupil is round and small. Given a docile patient, with ordinary care, he is ready to leave hospital in about 10 days, sight at this time being anything from 6/36 to 6/6. With time, sight improves. A few cases do show what may be termed complications, which, however, are not peculiar to this type of operation, and are remediable.

TABLE III

- 1, Slight haemorrhage into the anterior chamber.
2. Vitreous escape.
3. Shallow anterior chamber.
4. "Sublapse" of iris, and very rarely a prolapse of iris.
5. Glaucoma.

1. *Blood in the Anterior Chamber.*—A rare condition and often due to a little blood finding its way in at the time of the operation, from the section. It gets absorbed easily. Wright of Madras in describing his operations on South Indians, where he used a conjunctival bridge, attributed it, if I remember rightly, to some peculiarity in the blood or the condition of the blood vessels. We have not had this experience in our South Indian patients, of whom we get a good few.

On the other hand, in cases of general disease, *e.g.*, diabetes or kidney trouble, blood in the anterior chamber is more serious, specially in the latter condition. Here, we find calcium of assistance, in addition to continuation of treatment of the general condition.

2. *Vitreous Escape*—is again a very rare complication.  
 4 out of 168 cases in intracapsular operation  
 or 6 out of 254 cases in all.

The escape of vitreous may vary in size from that of a small bead to a pea. If the lens has been delivered, the eye is closed at once for a few minutes, then very gently opened and examined. If the lips of the corneal wound are found to be in apposition, the eye is again closed and the usual dressing applied. If the lips are not in apposition, any protruding vitreous is cut away with scissors, the parts stroked into position and the eye closed.

In Table I, three cases of vitreous escape consisted of tiny beads which settled back into the eye and allowed the corneal wound to heal without further disturbance.

However, it was found later that the pupil was drawn up slightly and pear shaped, owing to a very fine attachment of the vitreous to the corneal wound at the spot at which it presented during the operation. No operator feels comfortable at the thought of vitreous caught up in the wound, no matter how slight, and there is the cosmetic appearance to consider as well.

In such cases, a minor operative procedure is carried out. We pass a blunt Lang's knife into the anterior chamber and sever the vitreous thread at its attachment to the corneal wound. This successfully does away with any after danger and leaves a round normal pupil. We call this vitreotomy—rather a cumbersome name.

3. *Shallow Anterior Chamber.*—A few cases occur from time to time, if the iris and vitreous are clear of the corneal wound,

the condition is of no consequence and settles down in a few days. The patient is best kept in bed during this time. I have detected no cause for this shallowness, there is no detachment of retina or choroid, and the whole eye looks normal but for the shallow anterior chamber. The tension is slightly below normal in such cases, till the chamber reforms.

On the other hand, a shallow anterior chamber due to a small detachment of the choroid or retina in the periphery is more serious, two cases out of 168 intracapsular operations or three cases in 254 operations in all.

Fortunately, this is a rare occurrence and those I have met with have all settled down normally and had no further trouble, even years after. The treatment consists of complete rest in bed, use of Lochbrille spectacles in more pronounced cases, and, we use calcium intra-muscularly. We feel that calcium has been of assistance, and continue to use it. Omnadin and such like preparations appear to be definitely contraindicated, as they seem to increase the detachment. Any operative procedure for this condition is not to be thought of, no matter how tempted one may be to try it, as a lasting, completely satisfactory result, is obtained with rest and patience. My last case had four large balloon detachments from "2 to 5, and 7 to 11 o'clock." These came on a fortnight after the operation, which was a perfectly straight-forward one. The patient was old, emaciated and very weak. I managed to induce him to lie up for three months and at the end of that time there was perfect reposition and vision was 6/6 and J.1. This was an exceptional case, the usual period of rest is about a month.

Here again I wish to stress the point that this condition is not peculiar to this type of operation, as I have met it in cases operated on with capsulotomy.

4. "*Sublapse*" of iris and rarely prolapse of iris.—Regarding what we call a "*sublapse*" of the iris in contra-distinction to a prolapse—In this condition the periphery of the iris is found to be displaced forwards lying up against the cornea at the limbus, the pupillary part lies free, and the pupil is slightly oval in shape (10 out of 168 operations).

A definite prolapse under the conjunctival bridge, or to one or other side is rare (3 out of 168 intracapsular operations) and has to be excised.

The treatment carried out in cases of "*sublapse*" is to pass a blunt Lang's knife into the anterior chamber at a little distance from the "*sublapse*" and stroke the iris down towards the pupil. The adhesion between iris and cornea gives easily and a flat iris with round pupil results. Eserine is required for a few days and the patient should be kept quiet. This little procedure is done at

the end of a week after the major operation, I have, however, done it a month after the extraction, and found little difficulty in accomplishing it. Seldom is an iridectomy required (4 cases in 168) and there is no difficulty in doing one, if it is judged necessary. This little procedure is termed "stroking down of iris" and is shown in Table II column 1.

5. *Glaucoma*.—A. Secondary to some cases of :—

- (a) definite prolapse of the iris.
- (b) a fairly large sublapse left uncorrected.
- (c) prolapse of vitreous.

B. Primary—with no evidence to account for its occurrence. Both kinds of glaucoma have been met with, and here again, are not peculiar to this type of operation.

Under Class A the treatment is obvious and has already been discussed. As regards the very few cases of primary glaucoma for which no cause can be detected, corneo-scleral trephining or cyclodialysis cures the condition.

In the last case of this nature, a recent one, the anterior chamber appeared quite normal, the iris flat, pupil round and reacting normally, the fundus showed few haemorrhages and few points of exudate. The patient was diabetic, the percentage of urinary sugar varying from 0.5 per cent. to 3 per cent.

After treatment for some time with miotics and dextroglucosan, cyclodialysis was performed, as it was considered unsafe to venture on a bigger operation. The result is satisfactory so far, the tension of the eye varying now from 15 to 18 (Bailliant). After the operation, the haemorrhages and exudates increased considerably, reducing vision from 6/12 to 6/60.

The success of this method of sliding cataracts over the iris, with a special forceps, depends on

- (a) the condition of the lens capsule.
- (b) the condition of the zonular ligament.

The former can be gauged more or less with a little experience. The hypermature cataract with changes reaching up to the capsule, the fluffy type where the lens is quite white and the matter has a flocculent appearance, are not always successful, as the capsule ruptures easily. In Morgagnian cataracts, the chances are equally divided. Immature cataracts give the greater number of successes. Here, however, the condition of the zonular ligament is of importance, as it is found that in early cases of immature cataract the ligament is usually tough. Conditions in such cases vary a good deal, hence the necessity of not expecting every attempt at delivering a lens in capsule to succeed, but of adapting the type of operation to the response of the eye during the operation.