

OPHTHALMIC YEAR BOOK

THE CRYSTALLINE LENS.

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(Continued from the June issue.)

DIGEST OF THE LITERATURE.

Kearney has described a method by which the lens may be rotated on its antero-posterior axis by means of a cystotome manoeuvre, thus rupturing the zonula in its entire circumference. After the usual section and iridectomy, the cystotome with blade flat, is entered through the outer portion of the incision and passed downwards and inwards behind the iris until it has reached the locality of the lens ligament in its lower inner segment. The point of the instrument is then engaged in the capsule, a quick, jerky, circular movement is then executed in an inward and upward direction. When the release of the lens is noted the cystotome is carefully withdrawn and the lens delivered. The cystotome has a spear point fixed at right angles to the shaft. In case of failure to rupture the zonula, capsulotomy may be performed. In fifteen cases, thirteen were intracapsular extractions. Seven obtained 20/20 vision, none less than 20/50. Following an uncomplicated Smith-Indian operation, **Loeb's** patient developed an intense swelling of the lids two days later which persisted for several days. The same phenomenon occurred after the extraction of the cataract of the other eye. No definite cause could be ascertained. **Fisher** and **Thornburg** have described a method of developing the technic of this operation by using the eyes of kittens. The various steps are described. Much of the contribution has been previously described by Fisher.

SUCTION METHOD OF EXTRACTION. **Manes** has modified the Barraquer vacuum apparatus. The instrument is provided with two kinds of cups, to be used according to whether a prelimi-

nary iridectomy has been done. There are two conductors, one communicating with the air, the other with the vacuum. The cup is attached to one end of the instrument and at the other a rubber tube communicates with the vacuum apparatus. The instrument is about the weight of a 2 cc. Luer syringe. The vacuum which should be equal to 50 mm. Hg., is created either by compression of a bulb or by an electric motor. After the corneal section, with or without preliminary iridectomy, the cup is introduced into the anterior chamber and attached to the lower part of the lens. The vacuum is then created and by very gentle traction the lens is withdrawn. In the experience of **Castresana** this method has proved effectual and like other intracapsular methods can be applied to immature cataract. The incision must be large as additional room is required for the apparatus. He believes iridectomy to be indispensable. The method does not diminish the chances for loss of vitreous. **Barraquer** and **Anduyned's** description has been referred to in The Digest of the Literature, Amer. Jour. of Ophth., v. 1, p. 94.

EXTRACTION WITH PRELIMINARY CAPSULOTOMY. **Talmey** has made some suggestions towards improving the operation for cataract. In doing so he states his preference for his modification of the Homer Smith capsulotomy. This consists of making the cross or horizontal incision in two steps; that is, the temporal and nasal portions are made in each instance by cutting towards the vertical incision. Six hours later an inferior and slight nasal section is made, a small conjunctival flap being included. No iridectomy is performed. Three alternately black and white su-

tures are then inserted, so that the wound is divided into four equal parts each 3 mm. long. For each suture, the needle is entered 2 mm. from the edge of the wound, passes through the conjunctiva and superficial sclera, re-enters the margin of the corneal lip somewhat nearer the inner surface and emerges at the base of the flap or slightly in the corneal tissue. After expressing the lens with a spoon, or his expression hook, the middle suture is first tied. The sutures are removed on the fourth day. He has discussed its adaptability to intracapsular extraction.

PROTECTIVE EYE SHIELD. The use of an aluminum protective shield as described by **Kirkpatrick** was referred to in last year's Digest of the Literature, *Amer. Jour. of Ophth.*, v. 1, p. 98. See the same author under Results.

COMPLICATIONS AND SEQUELLAE. HYS-TERICAL AMAUROSIS. In a hysterical woman, 42 years of age, **Garcia** obtained a perfectly satisfactory result following cataract extraction, altho the operation was delayed for twenty days owing to lacrimal disease. Despite the good operative result, no light was appreciated. Twelve hours later the patient had a convulsion. Improvement in visual acuity began on the third day and by the fifteenth day $2/3$ vision was obtained with an appropriate lens.

COLLAPSE OF THE SCLERA. In **Loeb's** patient, a partial collapse of the sclera developed immediately after the section. Despite the necessary use of a vectis no vitreous was lost. While a low grade iritis developed, $6/10$ vision was ultimately obtained.

DISTURBANCES IN THE FORMATION OF THE ANTERIOR CHAMBER. After a preliminary iridectomy, uncomplicated extraction and a needling, one of **Knapp's** patients returned six weeks later with a collapsed anterior chamber due to a fine fistula. Several cauterizations and a conjunctival flap failed to give a permanent result but three weeks later the chamber reformed with the development of glaucomatous symptoms which yielded to miotics. The second case developed after a preliminary

iridectomy, extraction with conjunctival bridge and the use of capsule forceps. The chamber remained open three weeks. Later owing to a rise of tension and the failure of miotics a posterior sclerotomy was done. This was followed by two trephining with iridectomies and two days following the second of these operations there developed an acute iritis with exudation into the anterior chamber. A large iridectomy was then performed followed by a third trephining. A successful result with 0.8 vision was finally obtained.

INFECTION. Following a combined extraction **Radcliffe's** patient developed signs of infection on the seventh day. It was regarded as endogenous and was attributed to a bad tooth, the root of which exhibited necrotic changes but no abscess. Phthisis bulbi developed. **Schwenk** has recorded the history of a patient where signs of infection developed on the sixth day. Under boric acid irrigations, the instillation of atropin and argyrol, the external application of a 50 per cent magnesium sulphat solution and the internal administration of quinin, the eye was saved with a resulting visual acuity of $6/30$. Similar treatment was successful with another patient who developed evidences of infection twenty-four hours after a discission for secondary cataract. The final vision was likewise $6/30$.

DELIRIUM. **Brownell's** study of this subject was recorded last year. See *Amer. Jour. of Ophth.*, v. 1, p. 97

PERSISTENT PUPILLARY DILATATION AFTER EXTRACTION. **Loeb** has referred to a maximum dilatation of the pupil that persisted for three months after cataract extraction, and the use of atropin immediately after the operation.

GROWTH FROM CILIARY BODY AFTER CATARACT EXTRACTION. Some time after the extraction of a cataract, **Ring** observed a growth lying on the opaque capsule. It apparently originated in the ciliary body and pressed the iris slightly forward.

GENERAL PAPERS. **Gifford** has discussed the various operative procedures and has emphasized the importance of

the Kuhnt procedure where loss of vitreous is feared. His objection to the Homer Smith method is that there is no certainty that the posterior layers of the lens have become opaque. Nearly all of his cases developed increased tension. After referring to the importance of the preliminary care of the patient, he states that he uses a stop speculum that can be readily elevated to relieve pressure on the globe. When fixing the eye he grasps the tendon of the internal rectus muscle. While he has opened the capsule with the point of the knife and Kalt's forceps, he prefers a capsulotome or toothed forceps. He refers to what he describes as a reverse spatula and states it is of much service in replacing the angles of the iridectomy wound in the presence of a threatened loss of vitreous. When necessary to pull out the lens he has found of service a slender loop in which are three small recurved hooks.

Hoare believes the time to operate is when the patient can no longer "carry on." He prefers lid retractors and believes their use lessens the occurrence of vitreous loss, although they increase the difficulty in getting the lens to present. He regards vitreous loss as comparable to shock, hemorrhage or sepsis in general surgery. He prefers a cystotome and makes a ring-shaped incision. After the delivery of the lens a peripheral iridectomy is resorted to. Finally the anterior chamber is irrigated and eserine instilled in the conjunctival sac. **Allport** has outlined in detail his own routine in cataract extraction. For illumination he prefers a modification of the Ziegler hand lamp. When possible he resorts to a preliminary iridectomy. When doing a combined extraction, he substitutes lid retractors for the speculum after the iridectomy is completed. After irrigating the anterior chamber, White's ointment is placed in the conjunctival sac.

Timberman includes half of the cornea in his incision, no conjunctival flap being used. After grasping the iris it is excised by his assistant. The Smith or Fisher hook is then substituted for the speculum. He thinks the double hook of the last named is

bunglesome. An attempt is then made to do an intracapsular extraction and failing in this he resorts to the procedure of Knapp. Both failing, a capsulotomy is performed. He prefers the intracapsular method. **Santos Fernandez** has reviewed the literature in connection with the very old. He has operated on several patients over eighty and one at ninety-five years of age. Good general condition is regarded as of importance. **Jervey** has emphasized the importance of safety. He has referred to the avoidance of pressure on the globe, the value of lid retractors and in those cases of probable vitreous loss, the value of the Kalt suture. He then refers briefly to postoperative infection and its prevention. **Srinivashary's** contribution was not available.

RESULTS OF CATARACT OPERATIONS. Following the suggestion of Doyne, **Knapp** has operated on four cases of cataract occurring in patients with retinitis pigmentosa. All were typical cases with posterior cortical or polar opacities. Two were intracapsular extractions and in the other two cases a capsulotomy was done. In Case I, the vision improved from 20/200 to 20/70; Case II, from 20/200 to 20/50; Case III, from 3/200 to 15/200, and in Case IV, from 3/200 to 6/200. Microscopic examination of one of the lenses showed the following: Changes in the equatorial capsular epithelium, prolongation of transformed capsular epithelium along the posterior surface and irregular cavities filled with lens detritus in the posterior cortical layers.

Kirkpatrick has reported in detail concerning 1164 cases of cataract that came under observation at Madras. Nine hundred and thirty-one were operated on by one surgeon and all but three were tested. Of the remaining 928, capsulotomy with iridectomy was done in 919, simple extraction in eight and expression in one. Of those operations, 85.35 per cent were successful, vision being 6/36 or better; 6.9 per cent were partially successful, vision being more than 2/60; 3.98 per cent were partial failures, there being some vision but less than 2/60; 3.77 were failures, the vision being H. M. or 0. Among

the 35 failures there was one expulsive hemorrhage and three instances of suppurative panophthalmitis. Iris prolapse occurred in 4.96 per cent of the cases, the high rate being attributed by Kirkpatrick to too early use of a shield. There was loss of vitreous in 2.59 per cent of the cases.

The same author has described his operative results on the lenses of 14 senile eyes that had been previously operated upon for glaucoma. Five were benefited by the operation. Four of these had been trephined and on one an iridectomy had been performed. Of the nine unsuccessful cases three had been trephined and six had had an iridectomy.

While reference has been made above to **Husain**, he has published elaborate statistics as to his results in 1,000 cataract extractions. While he is now doing the operation described above, he still does the Smith-Indian opera-

tion under certain conditions, while in children he prefers capsulotomy. Of his 1,000 cases, 737 were regarded as ordinary; 158 were bad eyes, on which he would not have ventured a Smith operation; 93 were immature and 12 were in children or infants. Of the 158 cataracts occurring in bad eyes, 146 were successfully operated, 7 of the 12 failures being due to suppuration and keratitis. Of the 93 unripe cataracts, 86 operations were successful, the capsule bursting in 6. Of the 737 ordinary cases, 722 were successful and 15 were failures, the latter being chiefly due to keratitis and iridocyclitis. Of the 1,000 operations, 29 failed; 6 required a secondary operation; 2 had poor vision, fingers at one foot; 963, including 146 bad cases, had sufficient vision to read or recognize cereal grains with glasses. The percentage of his ocular mortality was 2.19 for the ordinary cases and 7.59 for the bad cases.

THE VITREOUS HUMOR.

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This section brings the literature to April, 1919. For previous literature see June, 1918, p. 100.

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DIGEST OF THE LITERATURE

Koeppe has contributed an elaborate study of the histopathology of the human vitreous humor in vivo as demonstrated by the Gullstrand Nernst lamp and corneal microscope. He divides the subject into (1) The pathologic changes of the vitreous without actual change or destruction of its fibers; (2) the histopathologic changes of the vitreous tissues with changes of its fibers and partial or complete destruction, i. e., transformation of its fibrous structure.

As the result of his studies pertaining to the first part he found that the

changes observed with the Nernst lamp do not indicate the presence of a hyaline membrane in the posterior half of the vitreous, but there appears to be merely a thickening of the posterior marginal layer similar to that in the anterior portion of the vitreous.

The Nernst lamp demonstrates that in retinitis pigmentosa the pigment migration generally extends beyond the internal limiting membrane and that at this point the pigment cells become detached and wander between the vitreous fibers reaching the anterior margins intact as individual cells. The