INTRACAPSULAR EXTRACTION OF INTRALENTICULAR MAGNETIC FOREIGN BODIES*

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INTRALENTICULAR magnetic foreign bodies if left untreated lead in most instances to total cataract formation, siderosis, or as a later complication, loss of the eye.

Since the use of the magnet has been developed, and powerful hand instruments have made manipulation easier, intralenticular magnetic foreign bodies have been removed by this means *via* the anterior route. The risk of siderosis is thus excluded, but the risk of cataractous change is not lessened and may even in many cases be hastened by the second traverse of the lens by the foreign body. Needling of the cataract may be necessary, secondary glaucoma may result, or curette evacuation will be advised followed by single or multiple needlings of the capsular remains. In the older patient the presence of a hard nucleus may add to the surgical problem.

Most of the patients subjected to this type of trauma are young and the injury occurs at work. Until recently the age of such patients precluded intracapsular extraction because of the toughness of the zonule of the lens. Since the introduction of alpha-chymotrypsin ("Chymar") and Barraquer's corneo-scleral sutures of virgin silk, five intracapsular extractions of cataractous lenses containing magnetic foreign bodies have been performed. The vacuum erisophake, which was used in some of these cases, has the added advantage that the suction cap may be placed over the capsular entry wound to prevent further tearing of the capsule during the extraction. Intracapsular forceps may also be manipulated to grasp the capsule at the appropriate site but do not assert their influence over so great an area. In each case the position of the foreign body was seen in the lens on slit-lamp examination and it was localized by x ray (Sweet's method) and found to be the only radio-opaque foreign body present.

Case Reports

Case 1, a man aged 31 years, had been hammering steel 1 month previously.

Examination.—The visual acuity was 6/5 in the right eye and counting fingers at 1 metre in the left. The left eye showed mild iritis, extensive posterior subcapsular cataract, and localized opacity round the foreign body. The right eye was quiet.

Operation.—After premedication with 3 gr. phenobarbitone, a left intracapsular extraction was performed under local anaesthesia, using Arruga's forceps, peripheral

* Received for publication March 26, 1962.

iridectomy, instillation of "Chymar" for 4 minutes, and three Barraquer's corneo-scleral sutures.

Local atropine and cortisone were given post-operatively.

Post-operative Course.—1 month later the eye was quiet, and the visual acuity, with +12 D sph., +0.75 D cyl., axis 175°, was 6/5. An additional +3 D sph. gave N.5.

3 months later with a contact lens the visual acuity was 6/5, with full binocular vision.

Case 2, a male aged 28 years, had been hammering concrete 6 months previously.

Examination.—The visual acuity was 6/5 in the right eye and hand movements at 1 metre in the left, with accurate projection.

The left eye showed mild iritis and an immature cataract. The foreign body was not seen on slit-lamp examination but rust was seen in the cataract and a radio-opaque foreign body was localized in the lens by x ray. The right eye was quiet.

Operation.—After premedication with 3 gr. phenobarbitone, a left intracapsular extraction was performed under local anaesthesia, using Arruga's forceps, peripheral iridectomy, "Chymar" for 4 minutes, and three Barraquer's corneo-scleral sutures.

The extracted lens is shown in Fig. 1, with the foreign body at 5 o'clock at the periphery. Local atropine and cortisone were given post-operatively.

FIG. 1.—Case 2. Extracted lens containing foreign body.

Iris pigment is seen on the anterior surface of the lens capsule.

Post-operative Course.—1 month later the eye was quiet, and the visual acuity, with +11.75 D sph., +1.5 D cyl., axis 70°, was 6/5 partly.

3 months later, with a contact lens, the visual acuity was 6/5 with full binocular vision.

Case 3, a man aged 47 years, had been watching car breaking 3 months previously when something went into his eye. No notice was taken until suddenly he noticed that the vision in the affected eye was poor.

Examination.—The vision in the right eye was reduced to counting fingers at 1 metre, and in the left eye was 6/6. The right eye showed mild iritis, extensive posterior subcapsular cataract, and early subcapsular anterior opacities. There was a localized opacity round the foreign body. The left eye was quiet.

Operation.—After intravenous Largactil, phenergan, and pethidine, and local anaesthesia, a right intracapsular extraction was performed, using the erisophake, with full iridectomy, "Chymar" for 4 minutes, and three of Barraquer's corneo-scleral sutures.

Local atropine and cortisone were given post-operatively.

Post-operative Course.—Anterior uveitis was controlled by systemic steroids used for 3 weeks. There was a residual thin cyclitic membrane.

2 months later needling of the cyclitic membrane was carried out and local atropine and cortisone were given post-operatively.

1 month later the visual acuity, with +13 D sph., +1 D cyl., axis, 70°, was 6/12.

3 months later with a contact lens the visual acuity was 6/6, with full binocular vision.

Case 4, a man aged 20 years, had been chipping the inside of a boiler 3 weeks previously.

Examination.—The visual acuity was 6/5 in the right eye and 3/60 in the left. An intralenticular metallic foreign body was present in the left eye, with localized surrounding lens opacity, early posterior subcapsular lens opacity, and minimal iritis (Fig. 2). The right eye was quiet.

Operation.—After intravenous Largactil, phenergan, and pethidine, a left intracapsular extraction was performed, using the erisophake with local anaesthesia. The wound bulged on making the section, and four Barraquer's corneo-scleral sutures were inserted. After peripheral iridectomy, and "Chymar" for 4 minutes, the lens was extracted. There was some vitreous loss and air was injected after the corneo-scleral wound was closed.

Local atropine and predsol N. were given post-operatively.

Post-operative Course.—The patient was restless and uncooperative, and on the sixth day there was a small subconjunctival iris prolapse.

1 month later the visual acuity, with +11.5 D sph., +1 D cyl., axis 15°, was 6/5 partly. 6 weeks later there was a supero-posterior vitreous detachment.

4 months later the iris prolapse increased in size and was abscised. Two Barraquer's corneo-scleral sutures were inserted and air injected. Local atropine and cortisone were used post-operatively. 2 months later the visual acuity, with +10.5 D sph., +1.5 D cyl., axis 180°, was 6/4. It was also 6/4 with a contact lens with full binocular vision.

Later Developments.—1 year after the injury the patient was complaining of "black-outs", and was attending a psychiatrist. 3 months later there was a sudden deterioration of vision in the left eye caused by a retinal detachment with a giant tear from 10 to 2 o'clock.

Scleral resection was performed above at 9 to 3 o'clock, but was post-operatively unsatisfactory, the vision being only perception of light in the upper field. Subsequently the eye remained irritable and photophobic despite treatment and 3-months later was enucleated.

Case 5, a man aged 20 years, had been hammering steel 3 weeks previously.

Examination.—The visual acuity was 6/5 in the right eye and 4/60 in the left. The left eye showed minimal iritis, early posterior subcapsular lens opacity, a localized opacity around the foreign body, and early peripheral anterior subcapsular opacities. The right eye was quiet.

FIG. 2.—Case 4. Intralenticular foreign body at 1 o'clock.

Operation.—After intravenous Largactil, phenergan, and pethidine, a left intracapsular extraction was performed under local anaesthesia, using the erisophake, peripheral iridectomy, "Chymar" for 4 minutes, and four of Barraquer's corneo-scleral sutures. Local atropine and predsol N. were given post-operatively.

Post-operative Course.—1 month later the visual acuity, with +12 D sph., was 6/5.

3 months later with a contact lens the visual acuity was 6/4 partly with full binocular vision.

In all five cases described the cataract extraction was intracapsular (two using Arruga's intracapsular forceps and three the vacuum-pump erisophake). Multiple post-placed Barraquer's corneo-scleral sutures were used after making a von Graefe section. "Chymar" (alpha-chymotrypsin) was introduced through a peripheral iridectomy and left *in situ* for 4 minutes before irrigating with Ringer's solution. The conjunctival flap was sutured with interrupted virgin silk.

The local anaesthetic was (i) 4 drops gutt. cocaine 4 per cent. and 2 drops gutt. adrenaline 1:1000 instilled into the conjunctival sac at 1-minute intervals, and (ii) lignocaine 2 per cent. with adrenaline 1:80,000 by injection for facial nerve block, retrobulbar, superior rectus, and lid margins.

Lid sutures were used and also a superior rectus stitch. Each patient was single padded post-operatively and if requiring sedation was given intramuscular Largactil.

Pre-operative cultures were taken in each case and the operation performed following a report of "No growth".

All five cases had vision varying from 4/60 to hand movements at 1 metre before operation and following operation all regained normal binocular vision wearing a contact lens within 3 months of the removal of a cataractous lens containing the foreign body. One patient, however, subsequently suffered an extensive detachment of the retina and eventually lost the affected eye.

Although these patients had magnetic intralenticular foreign bodies causing disabling and progressive cataract changes, the method of treatment described is applicable for similar lens changes caused by the presence of non-magnetic foreign bodies.

Summary

The surgical treatment is described of five cases of cataract due to intralenticular magnetic foreign bodies in adult male patients aged 20, 20, 28, 31, and 47 years respectively. In four cases the left eye was affected, and the patient had been using a steel hammer. The remaining patient was a bystander when his right eye received the injury.

I wish to express my grateful appreciation to Miss J. M. Dollar, Mr. T. M. Tyrrell, and Mr. R. Pitts Crick for allowing me to operate on their patients and to report these cases.