

Monoscleral fixation for posterior chamber intraocular lenses in cases of posterior capsule rupture

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A method for monoscleral fixation of posterior chamber intraocular lenses in posterior capsule rupture is described. Five lenses fixated with this technique are reviewed.

In those cases in which, during surgery, a large tear occurs in the posterior capsule with vitreous loss or in those patients already operated on with an extracapsular cataract extraction who also have a large capsular rupture, the question arises whether to place an anterior chamber intraocular lens (IOL) or to try to place a posterior chamber IOL with special techniques^{1, 2}. Although an anterior chamber IOL is simple to place in cases of capsular rupture, it also has a greater number of postoperative complications and disadvantages depending on its positioning, design, and manufacture^{3, 4}.

McCannel sutures have been used to fix the haptics of a posterior chamber IOL to the iris⁵. Malbrán developed a method of using sutures for guiding and fixing the haptics to the sclera in patients after intracapsular cataract extraction⁶. Scleral fixation has also been used to hold IOLs in place with a whole capsule⁷ or a broken one^{8, 9}. Nano sutured the optic through its holes to the iris (personal communication).

We describe a transscleral fixation technique, 2 to 3mm behind the limbus, with Prolene sutures (Ethicon, Sommerville, NJ) tied to one of the lens's haptics in those cases where there is enough capsule remaining to support the other haptic, which is placed in the ciliary sulcus. The results

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obtained in five cases treated with this technique are presented.

Surgical technique

In those cases (Figures 1 and 2) in which there

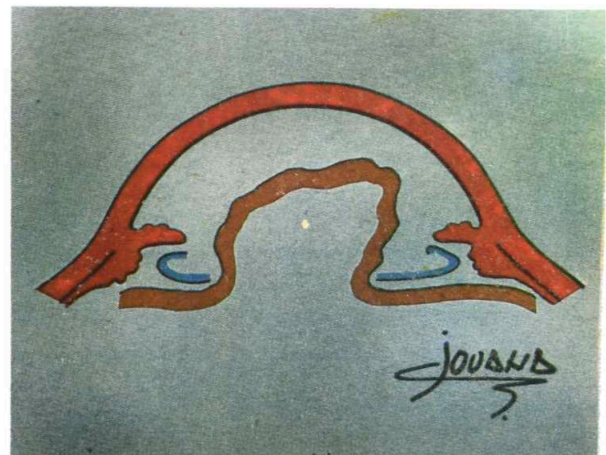


Figure 1 Posterior capsular rupture. The vitreous body is in the anterior chamber. Profile.

(Modification of original drawing by Rolando Agüero)

was a rupture of the posterior capsule and vitreous loss, a careful mechanical vitrectomy was done through the limbus, until the anterior chamber was clean and there was a concave surface on the anterior face of the vitreous behind the remaining posterior capsule (Figures 3 and 4). In general the enlargement of the capsular rupture expands towards the surgical incision, so there are normally remains of the capsule in the distal part.

The wound was closed provisionally, and a

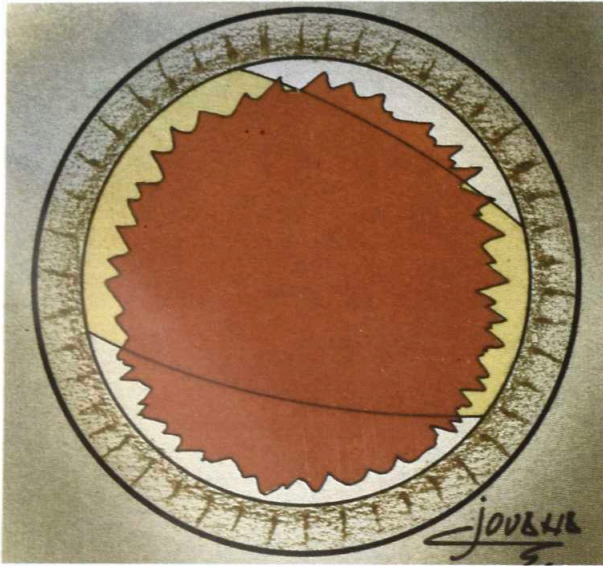


Figure 2 Posterior capsular rupture. Front.
(Modification of original drawing by Rolando Agüero)

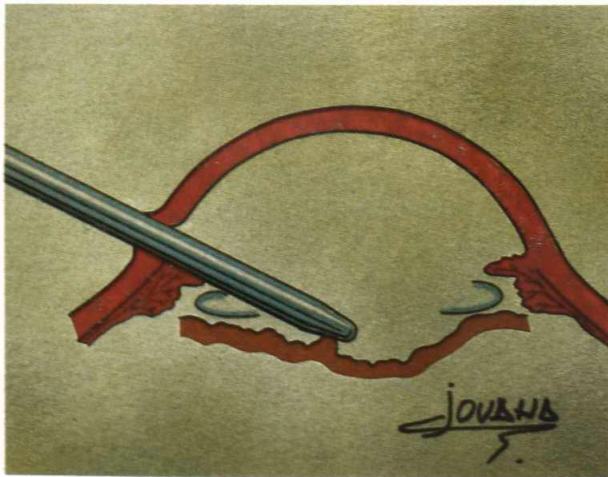


Figure 3 Mechanical vitrectomy through the limbus produces an anterior concave surface of the vitreous.
(Modification of original drawing by Rolando Agüero)

lamellar sclerotomy was done, making a lamellar flap, 2 to 3mm behind the surgical incision, but no further than 3.5mm behind the limbus. With this, the scleral wall was weakened to facilitate the passage of the needle and to leave the Knots buried.

Then the incision was reopened and using a viscoelastic substance with a 9-0 polypropylene

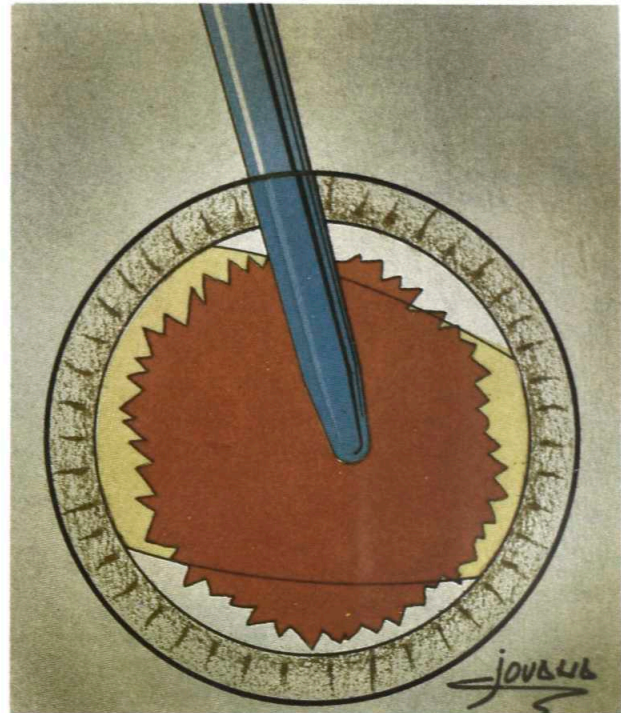


Figure 4 Mechanical vitrectomy. Frontal view.
(Modification of original drawing by Rolando Agüero)

suture (12" T 6160-6 Plus) with two needles, the Prolene suture was knotted around the proximal haptic of the IOL.

The needles were passed through the incision, through the pupil from front to back, and the sclera was pierced with both needles from the inside to the outside in the bed of the scleral flap (Figures 5 and 6). The IOL was gently introduced, placing the distal haptic in the ciliary sulcus in front of the remaining inferior capsule.

The haptic to be sutured was placed in front of the iris (Figures 7 and 8). Both Prolene sutures were pulled up with one hand, and using a Kelman McPhearson forceps in the other hand, the nearer haptic was introduced behind the iris.

Both Prolene sutures were tightened and knotted in the bed of the lamellar sclerotomy and covered with the flap which was sutured with two stitches of 10-0 nylon so the Knots were buried (Figures 9 and 10). The corneoscleral incision was closed with a suture of 10-0 nylon. Intraocular

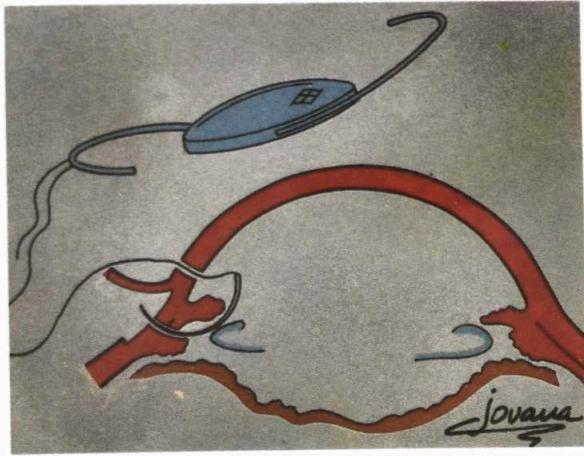


Figure 5 The Prolene suture is knotted in the lens haptic and the needle passed from the inside to the outside in the bed of the scleral flap.
(Modification of original drawing by Rolando Agüero)

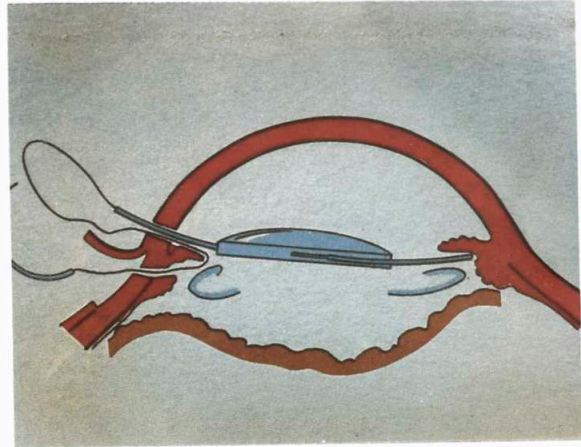


Figure 7 The IOL is inserted into the eye. The distal haptic is placed in the ciliary sulcus in front of the remaining capsule, and the near haptic lays in front of the iris.
(Modification of original drawing by Rolando Agüero)

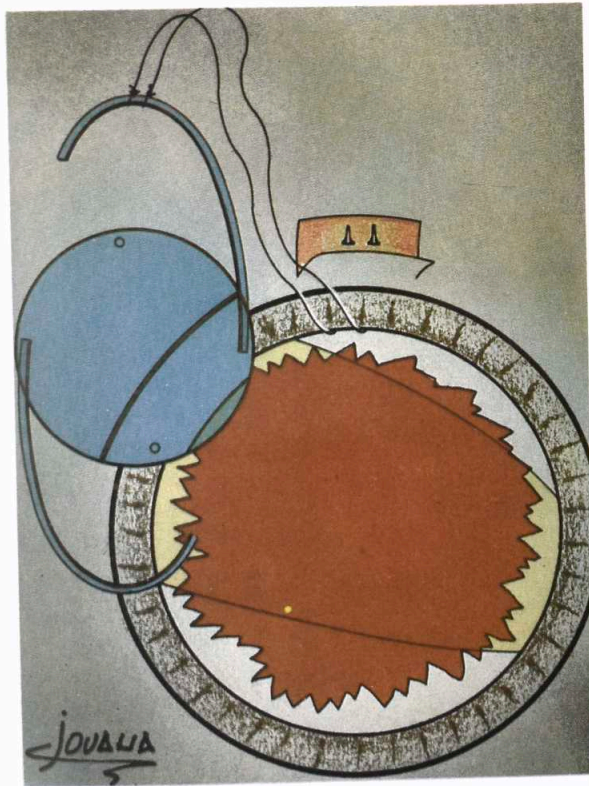


Figure 6 The same in frontal view.
(Modification of original drawing by Rolando Agüero)

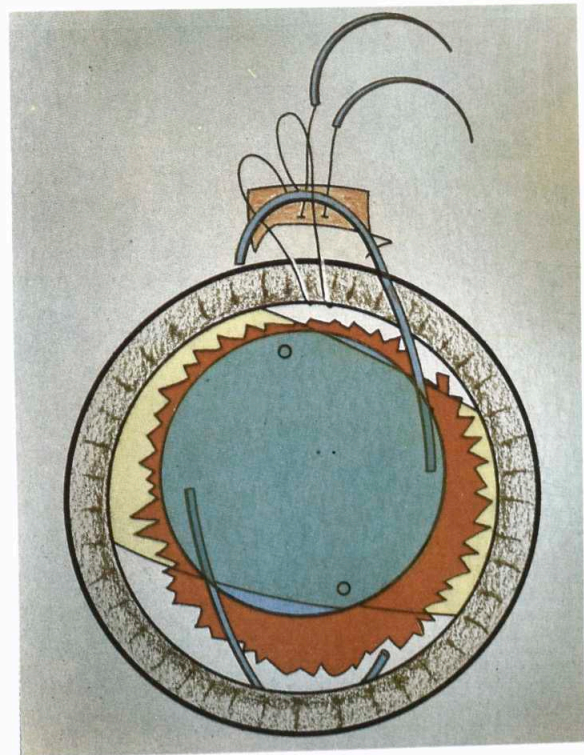


Figure 8 The same in frontal view.
(Modification of original drawing by Rolando Agüero)

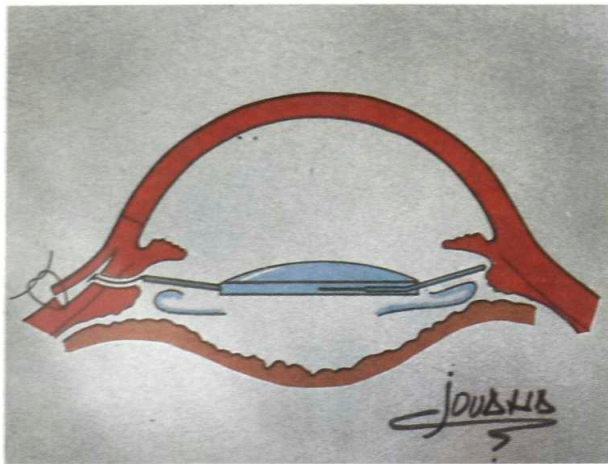


Figure 9 The lens in place. One haptic is located in the ciliary sulcus; the other is fixated by the polypropylene transcleral suture.
(Modification of original drawing by Rolando Agüero)

lenses with both Prolene and polymethylmethacrylate haptics were used.

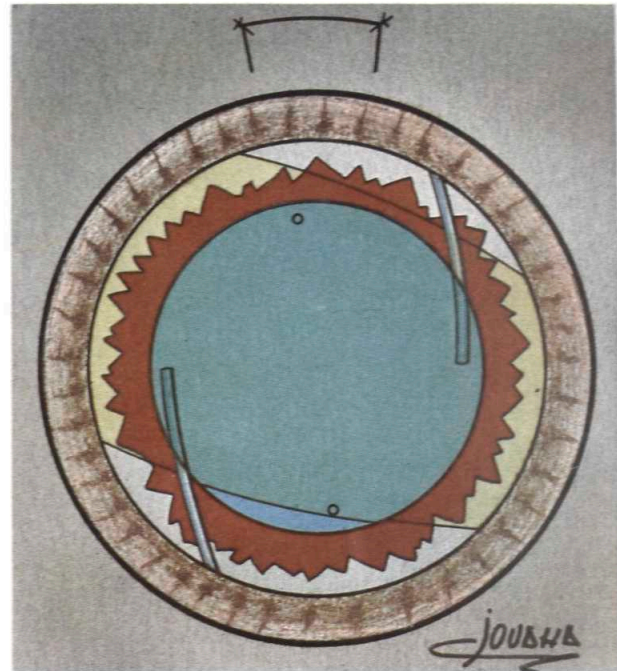


Figure 10 The lens in place. The scleral flap closed by two nylon 10-0 knots.
(Modification of original drawing by Rolando Agüero)

Table I

Summary of Clinical Data						
Case	Sex	Age (Yrs)	Follow-up (mos)	Primary Technique	Reason for sutured IOL	Optic Diameter and Haptic material
1	M	66	12	Phacoemulsification	Capsule rupture	7mm PMMA
2	F	64	9	Intracapsular	Capsule rupture	6.5 Prolene
3	M	61	10	ECCE	Complicated aphakia	7mm PMMA
4	F	62	11	Intracapsular	Luxated IOL	6.5 Prolene
5	M	67	8	ECCE with AC IOL	Corneal decompensation CME and uveitis	7mm PMMA

ECC = extracapsular cataract extraction; AC = anterior chamber; IOL = intraocular lens; CME = cystoid macular edema; and PMMA = polymethylmethacrylate

Table II

Summary of Clinical Data							
Case	Power	VA Preoperative	VA Postoperative	IOP Preoperative	IOP Postoperative	Complications	Tyndall Effect at 15 Days
1	+ 16.50	20/200	20/30	15	17	-	-
2	+ 10	20/200	20/200	15	16	Previous myopic maculopathy	+
3	+ 19.50	20/200	20/20	16	14	Pigmentary dispersion	+
4	+ 19.50	20/60	20/25	22	16	-	-
5	+ 19	20/400	20/60	15	14	CME	+

VA = visual acuity, IOP = intraocular pressure, CME = cystoid macular edema.

Results

This technique was used in five eyes (Tables I and II). Two cases were done at the time of cataract surgery after capsule rupture. One eye was operated on with phacoemulsification and the other with an intracapsular procedure.

Of the three remaining cases, one was aphakic with the remains of the nucleus and uveitis; the second had a relocation of a luxated IOL in the anterior vitreous; and the third had an exchange of an anterior chamber IOL in an eye with complications of endothelium decompensation and cystoid macular edema.

The postoperative courses of these eyes were similar to our normal cases, and the visual acuity obtained was better than 20/40 in those cases with no preoperative macular problems.

One eye had visual acuity of 20/200 due to myopic maculopathy. Another had 20/60 visual acuity due to preexisting cystoid macular edema; the previous operation had been an extracapsular cataract extraction with complications, and the patient came to the consulting room with an anterior chamber IOL.

Conclusion

Suturing of one loop of an IOL to the sclera is an easy, useful, and satisfactory technique in our hands in cases where rupture of the capsule leaves a shelf on one side to support the other IOL haptic.

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