GLUED PC IOL IMPLANTATION WITH INTRALAMELLAR SCLERAL TUCK IN EYES WITH DEFICIENT CAPSULE

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INTRODUCTION
Posterior capsular rent (PCR) \(^{1,2}\) can occur in early learning curve in phacoemulsification. Intraoperative dialysis or large PCR will prevent intraocular lens (IOL) implantation in the capsular bag. Implantation of IOL in the sulcus will be possible in adequate anterior capsular support. The first glued PC IOL implantation in an eye with a deficient capsule was done by the authors on 14th of December 2007. In eyes with inadequate anterior capsular rim and deficient posterior capsule, the new technique of IOL implantation is the fibrin glue assisted sutureless IOL implantation with scleral tuck. \(^{3-7}\)

SURGICAL TECHNIQUE
Under peribulbar anesthesia, superior rectus is caught and clamped. Localized peritomy and wet cautery of the sclera at the desired site of exit of the IOL haptics is done. Infusion cannula or anterior chamber maintainer is inserted. If using an infusion cannula, one can use a 23 G sutureless trocar and cannula. Positioning of the infusion cannula should be preferably in inferonasal quadrant to prevent interference in creating the scleral flaps. Two partial thickness limbal based scleral flaps about 2.5 mm × 3 mm are created exactly 180 degrees diagonally apart (Figures 1A and B). This is followed by 23 G vitrectomy via pars plana or anterior route to remove all vitreous traction. Two straight sclerotomies with a 20G/22G needle are made about 1.0 mm from the limbus under the existing scleral flaps. A clear corneal/scleral tunnel incision is then prepared for introducing the IOL. While the IOL is being introduced with the one hand of the surgeon using a McPherson forceps, an end gripping 23 G/25 G microrhexis forceps (Micro Surgical Technology, USA) is passed through the inferior sclerotomy with the other hand. One can use any end opening forceps like a micro rhexis forceps. The tip of the leading haptic is then grasped with the microrhexis forceps, pulled through the inferior sclerotomy following the curve of the haptic (Figures 2A and B) and is externalized under the inferior scleral flap. Similarly, the trailing haptic is also externalized through the superior sclerotomy under the scleral flap. Limbal wound is sutured with 10-0 monofilament nylon if it is a sclera tunnel incision. The tips of the haptics are then tucked inside a scleral tunnel made with 26 G needle at the point of extension. Scleral
flaps are closed with fibrin glue (Figures 3A and B). The anterior chamber maintainer or the infusion cannula is removed. Conjunctiva is also closed with the same fibrin glue (Figure 4)

**FIBRIN GLUE**
The fibrin kit the author used is Reliseal (Reliance LifeSciences, India). Another widely used tissue glue namely Tisseel (Baxter) can also be used. The fibrinogen and thrombin are first reconstituted according to the manufacturer’s instructions. The commercially available fibrin glue that is virus inactivated is checked for viral antigen and antibodies with polymerase chain reaction; hence the chances of transmission of infection are very

**FIGURES 1A and B:** Scleral flaps (sf) of 2.5 x 3 mm made about 1.5 mm from the limbus. Two flaps 180 degrees diagonally apart

**FIGURES 2A AND B:** Image showing sclerotomy made with 22 G needle beneath the flaps. Haptics exteriorized by 25 G forceps beneath the scleral flaps (sf)
FIGURES 3A AND B: Reconstituted fibrin glue (FG) injected beneath the scleral flaps over the haptics and scleral flaps (sf) closed

FIGURES 4A TO C: (A): Preoperative slit lamp image showing anterior subluxated IOL, (B) Day one postoperative period, (C) Three months after surgery

low. But with tissue derivatives, there is always a theoretical possibility of transmission of viral infections.

Reconstitution of Reliseal
It is available in a sealed pack, which contains freeze dried human fibrinogen (20 mg/0.5 ml), freeze dried human thrombin (250 IU/0.5 ml), aprotinin solution (1500 kiu in 0.5 ml), one ampoule of sterile water, four 21G needles, two 20 G blunt
application needles and an applicator with two mixing chambers and one plunger guide. First, the aprotinin solution is taken in a 2 ml sterile syringe and mixed with the freeze dried fibrinogen and is then shaken by slow circular motion. The reconstituted vial is then placed in a preheated water bath of 37 degrees for not more than 10 minutes. Next, about 0.5 ml of water for injection is aspirated and injected into the vial of freeze dried thrombin followed by gentle agitation of the vial. Reconstitution is considered complete when no undissolved particles are visible. Both the reconstituted fibrinogen and the thrombin are loaded separately in two 2 ml sterile syringes and mounted on to the Reliseal applicator for use.

Then, the reconstituted fibrin glue thus prepared is injected through the cannula of the double syringe delivery system under the superior and inferior scleral flaps. Local pressure is given over the flaps for about 10–20 seconds for the formation of fibrin polypeptides.