THE “COMPLEX” SOLUTION FOR COMPLEX CASES

The correction of traumatic aphakia and aniridia in the absence of capsular support remains a challenge. Until recently, the only option was to implant an iris reconstruction lens. A large incision of at least 10 mm is required and the cosmetic appearance, as compared with the healthy fellow eye, is not completely satisfactory.

Spitzer and Forlini recently published a new technique for the simultaneous correction of aphakia and aniridia by means of haptic fixation of a foldable intraocular lens on an artificial iris. The iris prosthesis consists of a foldable, customizable, silicone device.

It is cut to the proper size using a manual trephine. A small triangular peripheral iridectomy is created and the haptics of a foldable hydrophobic acrylic IOL are sutured to the back surface of the prosthesis using 10/0 prolene.

We present two cases in which this combined prosthesis was sutured to the sulcus using the Hoffman technique.

The first patient had a history of scleral rupture, subconjuntival lens luxation, partial aniridia and vitrectomy which successfully repaired retinal detachment caused by eye contusion.

The second patient presented leucoma together with total aniridia an aphakia due to penetrating eye injury in his left eye.

The Hoffman technique is a refined method for scleral fixation in which the knots remain buried into scleral pockets, eliminating the need for conjunctival and scleral dissection. The whole procedure becomes less traumatic and faster.

A diamond knife was used to make 30-degree wide and 300 µm deep incisions just anterior to the conjunctival insertion at the limbus. Scleral pockets were then dissected posteriorly from these incisions using a crescent blade.

Sulcus was localized by means of transillumination.

Prosthetic complex scleral fixation

In the first case, three Hoffman pockets were prepared avoiding the area of sclera atrophy and a 5 mm incision was marked. Double armed 10/0 polypropylene sutures were passed at corresponding sites at the edge of the combined prosthesis and a 2.2 mm incision was performed. A nesting needle was inserted at the sulcus through the conjunctiva and the full thickness of the scleral pocket, and one of the needles inserted in the prosthesis was introduced into the anterior chamber through the opposite paracentesis. This needle was then docked into the nesting one, and both were removed externally through the scleral pocket and the conjunctiva. The same maneuver was repeated with each pair of needles at each one of the pockets. In order to facilitate the procedure at the pockets of 12 and 9 o’clock hours, needles were curved.
In the second case, the prosthetic complex was fixated to the sulcus at four equidistant points during an open sky penetrating keratoplasty to treat the extensive leucoma. Double armed 10/0 prolene sutures on long curve needles were inserted at the four corresponding quadrants of the iris prosthesis. Each pair of needles was inserted ab interno through the keratectomy and removed externally at the conjunctival surface of each pocket.

**Prosthetic complex implantation**

In the first case, the 2.2 mm incision was then enlarged to 5 mm, ophthalmic viscoelastic device was injected, and the combined prosthesis was then folded and carefully inserted into the anterior chamber. Sutures were pulled to center the whole complex. The iris retractor was removed and the prosthesis was placed behind the remaining iris from 12 to 6 o’clock hours.

In the second case, once the four pair of needles had been passed, the combined prosthesis was folded and inserted through the opening of the keratectomy. At the same time, sutures were pulled to achieve proper centration.

**Suture recovery and tying**

Sutures were recovered and tied allowing the knot to be concealed as it slid under the roof of the scleral pocket. The same maneuver was repeated in the other pockets.

**End of surgery**

The main incision was closed with 10/0 nylon in the first case while a donor corneal button was sutured in the second one.

This is the appearance of the first eye three days after surgery. Uncorrected distance visual acuity was 20/40.

And this is the appearance of the second eye 24 hours after surgery. Five months afterwards, corrected visual acuity was 20/60. Intraocular pressure was 18 mmHg under topical hypotensive drugs in both cases. The pupillar diaphragm of the prosthesis allowed performing fundus exam and macular OCT which were within normal limits.

**Conclusion:** Management of aniridia with aphakia by haptic fixation of a foldable acrylic IOL on a foldable iris prosthesis appears to be a promising approach which provides the possibility to correct both alterations with a single procedure. Differently from previous devices –iris reconstruction lenses-, the complex may be inserted through a 5 mm incision and provides an infinitely better cosmetic result.