THE MALLYUGIN RING
The leading driving force of innovation is the necessity to solve a problem
by Soosan Jacob MS, FRCS, DNB

Recognition of the intraoperative floppy iris syndrome (IFIS) by Chang and Campbell has allowed the surgeon to be forewarned in many cases regarding the possibility of intra-operative iris billowing, iris prolapse and progressive miosis. Of the many solutions available for tackling the small pupil secondary to IFIS and other causes, the Malyugin Ring (MicroSurgical Technology) has proven to be very popular. This is a transitory, square shaped implant, made of polypropylene with four circular scrolls that engage the pupillary margin at equidistant points providing a balanced stretch. It is implanted and explanted through an injector.

Designed by Boris Malyugin MD (Cataract and Implant Surgery Department chief, deputy director (R&D, Edu) at the S.Fyodorov Eye Microsurgery Complex, Moscow), the Malyugin Ring has several advantages over traditional iris retractor hooks and other pupil dilating devices. Implantation and explantation are performed with an injector and are relatively simple. As the device is implanted through the main port, additional incisions are not required making the procedure less traumatic and easier. It can be inserted through regular incisions as well as through the 1.6-1.8mm incisions as well as through the 1.6-1.8mm.

The Malyugin Ring (MicroSurgical Technology) was invented to solve the problem of high friction occurring with the sledge; and was so with oblique sails invented to increase manoeuvrability of the ships on the seas, enhancing ability to sail against the wind. There are also many other examples...

The Malyugin Ring is manufactured in two sizes – 6.25mm and 7.0mm – the smaller one being universal for almost any case with small pupil. The larger one is useful in IFIS. It may also be preferred by surgeons using the phaco flip technique for nucleus as well as when implanting an IOL with 6.5mm optic.

On surgical pointers in insertion and removal techniques, Dr Malyugin advises: “Before inserting the ring it is better not to overfill the anterior chamber with viscoelastic to avoid pushing the iris against the anterior lens capsule. If posterior synechiae exist, they should be lysed first. With very small pupils, it is advisable to enlarge it to 3-3.5mm by stretching with two instruments and then inject the ring. The injector should be placed at the centre of the anterior chamber and the ring is expelled from it by pressing on the thumb button. As soon as the distal scroll is engaged with the iris, I prefer to start retracting the inserter while simultaneously injecting the ring.

“Before removing the ring I prefer to disengage both proximal and distal scrolls, leaving the two lateral scrolls in place. While engaging the proximal scroll (curl) with the inserter hook, the second instrument is introduced through the paracentesis to lift this scroll above the iris and help position it on the injector plate. I think there are no major problems in insertion and removal.”

The ring can also be used in cases with posterior capsular rupture without fear of dropping into the vitreous cavity by using the Agarwal modification proposed by Prof Amar Agarwal (Figures 2A, B). “We tie a 6-0 polyglactin vicryl suture to the leading scroll of the ring before implantation to secure a hold on the ring throughout the surgery. This prevents the expander device from inadvertently dropping into the vitreous during intra-operative manipulation,” says Prof Agarwal.

Other advantages of the Malyugin Ring include lack of any sharp or pointed ends which can damage intraocular tissue, equidistant loops which give just the required dilatation without causing overstretching of the pupil, retention of iris tissue in the right plane without forward bunching thus giving adequate anterior chamber space for performing phaco manoeuvres and the balanced stretch and stabilisation of iris tissue provided in cases with IFIS.

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