New Devices in Marfan’s Syndrome Moderate Lens Subluxation. The Henderson Capsular Tension Ring

Javier Zarranz-Ventura, MD1, Elisa de Nova Fernández-Yáñez, MD1, Jose Maria Caire y González-Jáuregui, MD1, Javier Moreno-Montañés, MD, PhD1

ABSTRACT: A 46-year-old woman with moderate lens subluxation and Marfan’s syndrome underwent a phacoemulsification on the right eye with a sutureless Henderson Capsular Tension Ring (HCTR) implantation. The surgical procedure and the postoperative follow up period were uneventful, with a best corrected visual acuity (BCVA) of 0 (logMAR). Seven months after surgery the patient presented an inferomedial displacement of the HCTR due to contraction of the capsular bag, displacing the ring over the inferior haptic of the IOL that was pulled posteriorly beneath the equatorial area but remained centered. No further treatment was prescribed. The HCTR did not maintain an adequate capsular bag expansion and failed to redistribute tension from non-affected zonules over the areas of zonulysis. This case report raises the hypothesis that modified CTR’s stiffness should be evaluated as an independent factor in the selection of a proper device for each patient.

KEYWORDS: Capsular tension ring, Marfan Syndrome, lens subluxation, cataract surgery, phacoemulsification.

J Emmetropia 2010; 1: 33-35
Worth, Texas) was implanted in the bag. No intraoperative complications or enlarged zonular dialysis were observed. One day after the surgery the BCVA was 0 in OD. Seven months after the intervention, the BCVA in this eye was 0, but the slit-lamp examination revealed an inferomedial displacement of the HCTR (Figure 2). The contraction of the capsular bag displaced the HCTR over the inferior haptic of the IOL that was pulled posteriorly beneath the equatorial area but remained centered. No other symptoms were found and no special treatment was prescribed due to the good visual outcome of the patient, which maintains a BCVA of 0. No progression of the displaced complex has been observed in the next 18-month follow-up period, and the patient continues under periodical examinations.

DISCUSSION

The main accepted indications for CTR are zonular rupture after blunt or surgical trauma, and zonular weakness in cases of pseudoexfoliation, Marfan's syndrome, Weill-Marchesani syndrome, and long-standing silicone tamponade in vitrectomized eyes. In recent years modified CTRs have been developed to overcome different complications that arise in particular cases. The Cionni ring (CR) is a modified ring with an accessory hook dotted with an eyelet that is used to secure it to the sclera through a polypropylene suture. It has been widely employed in cases of severe lens subluxation associated with Marfan's syndrome with good results. However, the medium and long-term complications of this device are controversial. Dietlein suggested that little was known about possible long-term problems with the non-resorbable suture securing the CR. Posterior studies have remarked this assert, especially with the suture rupture. Cionni referred a rupture rate of the scleral fixation suture of nearly 10% in an 18 months follow-up period. In 2008 we reported a case in which the suture rupture provided a CR hook entrapment by the pupil that required a new surgical procedure that the patient denied. These problems with the suture have raised the surgeon's interest in new sutureless devices that have been recently developed to overcome moderate lens subluxation cases. The HCTR is a new sutureless ring designed specifically to avoid intraoperative tractions in cases of zonular weakness and to facilitate the cortex removal. Presented in San Francisco's ASCRS symposium in March 2006, it is an open C-shaped loop made of a single-piece rigid PMMA (poly-methyl-methacrylate) with 8 equally spaced indentations of 0.15 mm. The reason for this design is that these indentations provide an easier removal of nuclear and cortical material during the surgery and maintain the zonular stability intra and postoperatively. According to the authors, it is constructed with the same force parameters and spring constants as the conventional Morcher type 14 CTR. In this particular case, the HCTR did not maintain an adequate expansion of the capsular bag and failed to redistribute tension from non-affected zonules over the areas of zonulysis after surgery. In our opinion the modified HCTR does not seem to have the same stiffness as the conventional Morcher type 14 CTR. This case report raises the hypothesis that modified CTR stiffness should be evaluated as an independent factor in the selection of a proper device for each patient. Whereas we must be cautious about the medium and long term problems with the suture rupture, the trans-scleral sutured CR still appears as a good option in the surgical treatment of these moderate lens subluxation patients until the newly designed modified CTRs demonstrate their efficacy in prospective controlled studies.
REFERENCES


