
CAPSULORHEXIS CONTRACTION SYNDROME DESPITE CAPSULAR TENSION RING IMPLANTATION

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ABSTRACT

A 35-year-old woman with zonular weakness in the left eye had phacoemulsification with in-the-bag implantation of an acrylic intraocular lens (IOL) and a capsular tension ring. 6 months postoperatively, the patient developed significant visual loss secondary to capsule shrinkage and contraction of the capsulorhexis opening, associated to a slight IOL decentration. Neodymium: YAG laser radial anterior capsulotomy and anterior capsulectomy were performed leading to visual acuity restoration.

KEY WORDS

Capsular contraction; capsular tension ring; phacoemulsification

INTRODUCTION

Shrinkage of the capsulorhexis opening due to proliferation and metaplasia of residual lens epithelial cells (LECs) is a possible complication of continuous curvilinear capsulorhexis (CCC) (1). Capsule contraction syndrome remains a concern in phacoemulsification and posterior chamber intraocular lens (IOL) implantation. Clinically, capsule contraction may reduce the size or change the shape of the capsulorhexis after cataract surgery, and contraction forces may cause IOL decentration (2). In an effort to reduce this contraction, capsular tension rings (CTR) have been implanted. It maintains the circular contour of the capsular bag and may help prevent postoperative contracture of the anterior capsule opening in eyes with zonular weakness (3).

We report the occurrence of a severe capsulorhexis contracture after cataract surgery in a patient with zonular weakness despite the use of an acrylic IOL and a polymethyl methacrylate (PMMA) CTR.

CASE REPORT

A 35-year old woman with history of ulcerative colitis, presented with decreased vision from white cataract in the left eye. On examination, Snellen best corrected visual acuity (BCVA) was 10/10 in the right eye and reduced to worse than 1/20 in the left eye. Slit lamp biomicroscopy revealed the presence of dense complete white cataract in the left eye, with iridodonesis and phakodonesis without irregular anterior chamber depth. Intraocular pressure was normal, and fundus examination was normal in the right eye. Echographic examination of the left eye was normal.

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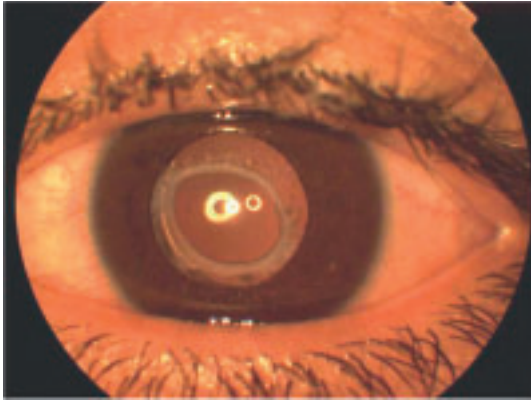


Fig. 1: Four months after cataract surgery, the capsulorhexis opening was slightly displaced inferonasally and had a smaller diameter than in the early postoperative course.

The patient had phacoemulsification in the left eye. During cataract surgery, a 5.0 mm capsulorhexis was performed and a CTR (i-Medical®, 13 mm diameter, uncompressed) was inserted in the capsular bag before nucleofractis phacoemulsification. A single-piece foldable Acrytec® lens with a 5.5 mm optic was implanted in the bag. Neither IOL nor capsular bag decentration was noted intraoperatively. The section was closed with a 10-0 nylon suture.

The postoperative course was normal and the best corrected visual acuity (BCVA) in the left eye was 10/10, but four months later the BCVA was 8/10. The capsulorhexis opening was slightly displaced inferonasally and had a smaller diameter. The IOL was slightly decentered temporally (Figure 1). The patient had a radial anterior Nd:YAG laser capsulotomy (4 incisions of the capsular margin with a 250 μ m anterior focus and a 3mJ power) and circular anterior capsulectomy. Two weeks later, BCVA returned to 10/10 (Figure 2).

DISCUSSION

Although CCC seems to be the method that anatomically corresponds best to open the anterior capsule, several complications can occur such as capsule contraction. Capsule contraction syndrome may lead to malposition of the opening, reduction in equatorial capsular diameter, or IOL displacement (4,5). This syndrome is more common in patients with pseu-

doexfoliation, zonular dehiscence or weakness, diabetes mellitus, old age, history of uveitis, myotonic dystrophia or retinitis pigmentosa because of an imbalance between the centrifugal forces of the zonules and the tensile force of the IOL haptic on one hand, and the centripetal forces of the proliferated and metaplastic residual LECs on the other hand (3, 6, 7). The amount of residual LECs depends on the capsulorhexis size, which should be between 5.5 and 6.0 mm and can be reduced by polishing the inner surface of the anterior capsule (8). In our case, the risk factor was zonular weakness. To attempt to overcome the capsule contraction syndrome in this case, we used CTR during phacoemulsification and in-the-bag IOL implantation. In fact, it has also been suggested that CTR implantation would stretch the capsular bag equator to its original position and provide resistance against the tendency of anterior capsule fibrosis to shrink the capsulorhexis opening. But, in our case we note the failure of the CTR to prevent capsule contraction syndrome. Waheed and al. were the first to report two cases of severe capsule phimosis in eyes with CTR and PMMA intraocular lens (9). Faschinger and Eckhardt have describe the development of anterior capsule phimosis in 2 patients with a silicone IOL despite the presence of a CTR (4).

Therefore, authors recommend close follow-up of all patients with risk factors for capsule contraction syndrome, especially during the first postoperative weeks and to perform early radi-

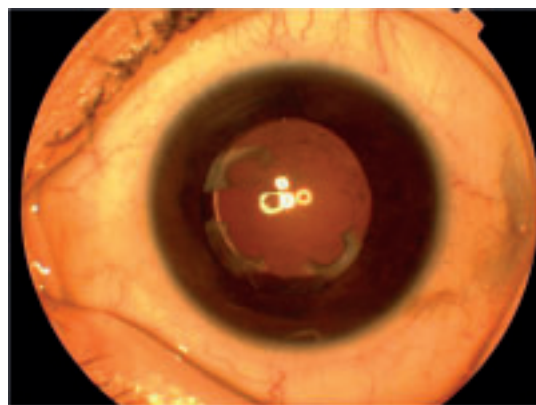


Fig. 2: Clinical presentation two weeks after radial anterior Nd:YAG capsulotomy and circular anterior capsulectomy.

al anterior neodymium: YAG capsulotomy before complete capsulorhexis occlusion, possible zonulolysis and IOL decentration (9). The Nd:YAG laser offers a safe and effective method to treat the capsule contraction syndrome.

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