Unusual sequel to a known complication

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A 76-year-old man underwent cataract surgery with implantation of an acrylic foldable intraocular lens by standard phacoemulsification technique. The preoperative and immediate postoperative period was uneventful. His postoperative visual acuity was 6/6.

However, 3 months later he gradually developed visual problems while doing close work or reading, although his distant visual acuity still remained 6/6.

He visited the eye casualty with the above complaints and the following slit-lamp picture was noted.

What condition is seen in the picture (fig 1) and what may have caused it?

BRIEF ANSWER

Modern phacoemulsification cataract surgery involves injecting a pliable intraocular lens implant (IOL) with a total diameter 12.5 mm through a sub 3 mm incision. The IOL unfolds into the original lens capsule.

Although initially delighted with the result of his surgery, this patient noticed a progressive disturbance of his vision 3 months after surgery.

The supporting leg or haptic of the implant had folded over on itself as the capsule contracted around the IOL (figs 1 and 2).

Anterior capsule contraction and a decrease in the anterior capsule opening size have been attributed to fibrous metaplasia of lens epithelial cells (LECs). These cells at the inner surface of the anterior capsule margin in contact with the IOL optic can produce a ring-shaped fibrous membrane under the

anterior capsule. A small anterior capsule opening at the time of surgery has been cited as the cause of severe anterior capsule shrinkage, and the ideal capsulorhexis size is proposed to be 5.5–6.0 mm or larger.¹

Capsular phimosis is known to cause the following malpositions of intraocular lens:

- (1) Posterior vaulting of the IOL causing hyperopia
- (2) Anterior vaulting of the IOL causing myopia
- (3) "Z syndrome" or cortical retention syndrome—one side of the optic is anterior and one side is posterior, causing optic tilting with pseudophakic astigmatism up to 3.00 D.
- (4) IOL decentration²

The complication shown in the figure has not been published to the best of our knowledge but seems to have occurred due to the same condition.

Ocular conditions such as pseudoexfoliation syndrome,³ which can weaken ciliary zonular fibres, and chronic intraocular inflammation, such as pars planitis,^{3,4} have been associated with anterior capsule contraction. High myopia^{4,5} may be a factor. Medical conditions such as myotonic dystrophy^{3,5} and diabetes mellitus⁶ have also been associated. Lens design and lens material have also been found to play a role. In particular, silicone and PMMA intraocular lenses have been implicated for this condition.^{7,8}

Figure 1 Folded lower haptic of intraocular lens implant (IOL) in the contracted capsule. Photograph taken with direct focal illumination of slit-lamp.

Figure 2 Folded lower haptic of IOL better seen with retro-illumination. Arrow shows folded haptic.

Figure 3 Postoperative status after 2 months. IOL haptic no longer seen. Photograph taken on slit-lamp with broad beam illumination. Arrows show relaxing cuts made in anterior capsule.

Figure 4 Postoperative examination with retro-illumination show IOL in position with trimmed lower haptic. Two uninterrupted reflections of slit-lamp beam confirm proper positioning of IOL.

The treatment options available for capsular phimosis may be:

- Nd:YAG laser anterior and/or posterior capsulotomy
- optic repositioning
- IOL removal or replacement.

In this case, the eye was reoperated on and the folded haptic trimmed. This did not cause instability of the IOL because of the firm capsular contracture around it.

Learning points

- It is necessary to keep capsular phimosis as one of the differential diagnoses of gradual blurring of vision after uneventful cataract surgery.
- Capsular phimosis can cause distortion of vision due to contraction of the capsule or due to displacement or distortion of the implant itself
- A routine referral should be made to eye clinic after appropriate reassurance

Case summary

Modern phacoemulsification cataract surgery involves injecting a pliable intraocular lens implant (IOL) with a total diameter 12.5 mm through a sub 3 mm incision. The IOL unfolds into the original lens capsule. Although initially delighted with the result of his surgery, this patient noticed a progressive disturbance of his vision 3 months after surgery. The supporting leg or haptic of the implant had folded over on itself as the capsule contracted around the IOL. The eye was operated on again and the folded haptic was trimmed. However, this did not destabilise the lens implant because it was firmly fixed in place by the contracted capsule around it. A follow up after 2 months showed good result.

Follow up after 2 months showed good surgical result (figs 3 and 4).

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