Multimodality imaging aided diagnosis of early zonular dehiscence following laser peripheral iridotomy

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DESCRIPTION

A 57-year-old man presented with diminution of vision in left eye (LE) for 2 days. He underwent both eyes laser peripheral iridotomy (LPI) once prior to his symptoms. On examination, he had right eye (RE) vision of 6/9, LE of 1/60 and intraocular pressure (IOP) of 14 mm Hg in RE and 44 mm Hg in LE on topical timolol (0.5%) and brimonidine (0.2%). On slit-lamp examination, LE had diffuse corneal oedema, shallow anterior chamber (AC) with dispersed blood, fixed mid dilated pupil with two superior large iridotomies with surrounding iris chafing and a cataractous lens (**figure 1A**). RE had a shallow AC with patent iridotomy. Fundus examination showed a cup-disc ratio of 0.6:1 in RE and 0.7:1 in LE. He was started on oral acetazolamide and glycerol along with maximum topical glaucoma medications. We suspected LE lens subluxation, which was confirmed by ultrasound biomicroscopy which revealed zonular dehiscence with dispersed lens matter superiorly (corresponding to LPI site) with inferior lens tilt (**figure 1B**). Anterior segment Optical Coherence Tomography (ASOCT) also showed narrow angles with scattered blood in AC and membranes over iris (**figure 1C**). After giving intravenous mannitol (1 g/kg) 15 min prior, LE phacoemulsification was attempted with taking all precautions for subluxated lens. Intraoperatively

Learning points

- ▶ During laser peripheral iridotomy (LPI), if a patent iridotomy is not achieved after one or two laser shorts, chipping of the remaining lamellar area should be done with low energy and multiple attempts using higher energy in LPI should be avoided in a single sitting.
- ▶ Dilated examination of lens on follow-up must be encouraged after LPI.
- ▶ Surgeon must be cautious to look for occult lens subluxation or zonular dehiscence during cataract surgery and prepare with iris hooks or three-piece intraocular lens in patients with such suspicion.

capsular tension ring placement was attempted after emulsifying the nucleus to stabilise the bag, but was unsuccessful and surgery was converted to lensectomy due to highly unstable bag with >200° subluxation and patient was left aphakic. Postoperatively day 2, vision was 6/18 with +10D lens and IOP was 12 mm Hg with a stable AC (**figure 1D**).

Complications of LPI include transient blurring of vision, transient raised IOP, diplopia, corneal damage, minor iris bleed, uveitis, localised lens or zonular damage/subluxation, closure of iridotomies, retinal burns and detachment.¹ Zonular dehiscence following LPI is rare and has been reported in few cases.^{2–4} Shockwaves from LPI could have damaged the already predisposed or weak zonules causing lens subluxation or dislocation. Athanasiadis *et al* reported LPI as a possible cause for the zonular dehiscence which occurred during the phacoemulsification.⁵ In most of these cases, lens subluxation or dislocation occurred after months to years after LPI and evidence of causality between them was inadequate.⁶ Hu *et al* also reported an occult lens subluxation related to LPI after 5 days of treatment.⁴ We report a rare case of early zonular dehiscence only after 2 days of LPI with the possibility of multiple attempts of peripheral iridotomy of high energy (evident by two visible large peripheral iridotomy with surrounding iris chafing) in a single sitting leading to zonular dehiscence.

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Figure 1 (A) Slit-lamp image of left eye showing shallow anterior chamber with two large superior peripheral iridotomies with iris chafing (white arrows). (B) Ultrasound biomicroscopy of left eye showing superior zonular dehiscence with dispersed lens matter (yellow arrow) and inferior lens tilt (red arrow). (C) Anterior segment OCT picture of left eye showing narrow angles, scattered blood in anterior chamber and superior membranes over iris superiorly. (D) Postoperative day 2 clinical image showing a deep anterior chamber.

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