A flare-up in IOL dislocation surgery

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On January 30, 2025, Helle Medin defended her thesis "Late in-the-bag intraocular lens dislocation surgery: intraocular inflammation and long-term complications after surgery" at the Institute of Clinical Medicine, University of Oslo (UiO). The PhD project was conducted at the Dept. of Ophthalmology, Oslo University Hospital (OUH). The main supervisor was Prof. Olav Kristianslund, MD PhD, head of section, senior consultant, with co-supervisor Prof. em. Liv Droslum, MD PhD, senior consultant.

In-the-bag intraocular lens (IOL) dislocation is a late complication of cataract surgery. It is a result of the weakening of the zonular strands, which leads to loosening of the capsular bag. Pseudoexfoliation syndrome has been reported as the most frequent predisposing factor. The IOL-capsule complex eventually dislocates from its original position, causing visual disturbance. As the condition primarily affects older individuals, the incidence has increased in recent decades. Treatment requires surgery, where the dislocated IOL-capsule complex can either be repositioned or exchanged for a new IOL.

In this thesis, we compared two surgical techniques for late in-the-bag IOL dislocation in a randomized clinical trial called LION. Patients either underwent (1) IOL repositioning, where the dislocated IOL-capsule complex was sutured to the scleral wall, or (2) IOL exchange, where the dislocated IOL-capsule complex was removed and replaced with an iris-claw lens clipped behind the iris (retro pupillary).

The main outcome measures were inflammation, measured as laser flare, after surgery and the incidence of postoperative cystoid macular edema (CME). In addition, we performed a retrospective study examining the long-term risk of suture breakage after IOL repositioning surgery that required reoperation.

Before surgery, there seemed to be an inflammatory reaction in eyes with late in-the-bag IOL dislocation and an increased intraocular pressure compared to the patients' contralateral eye. This was a novel finding.

There were no differences in either postoperative inflammation or occurrence of CME between repositioning (n = 49) and exchange surgery (n = 51). Both groups had a prolonged inflammatory reaction after surgery. The two groups had equal visual outcomes six weeks after surgery.

We analyzed 192 eyes, with a mean follow-up of 6.2 years after surgery, and found that there was a relatively low long-term risk (6%) of suture failure after IOL repositioning with sutures to the scleral wall.

This thesis showed that both surgical methods were equally safe and effective treatments for late in-the-bag IOL dislocation.

Key points:

- There was increased intraocular flare before surgery in eyes with late in-the-bag IOL dislocation compared to the patients' contralateral eyes.
- Eyes with late in-the-bag IOL dislocation showed no difference in intraocular flare, cystoid macular edema or visual outcomes after IOL repositioning with scleral sutures versus IOL exchange with a retro pupillary iris-claw lens.
- There was relatively low long-term risk of suture breakage after repositioning of the dislocated IOL-capsule complex to the scleral wall.

Remaining questions:

- Is there a difference in postoperative inflammation between IOL exchange with an iris-claw lens, IOL repositioning with scleral sutures, and sutureless scleral fixation techniques in eyes with late in-the-bag IOL dislocation?
- How long does flare remain elevated after IOL dislocation surgery?
- What is the long-term risk of disenclavation of iris-claw lenses?

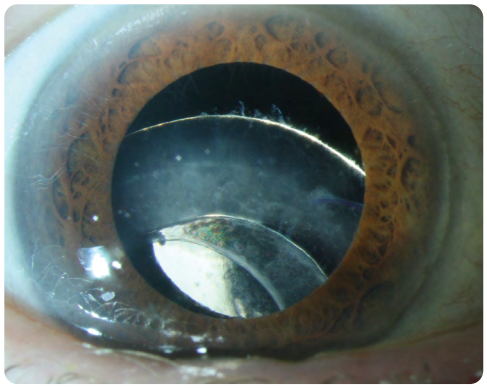

Figure 1. Late in-the-bag IOL dislocation. Photo: Helle Medin, Dep. of Ophthalmology, OUH (PhD dissertation University of Oslo)

References

1. Medin H, et al. Intraocular inflammation in eyes operated for Late In-the-bag intraocular lens dislocation: A randomized clinical trial. *Am J Ophthalmol*. 2022 Jun:238:66-74.
2. Medin H, et al. Inflammatory reaction in eyes with late in-the-bag intraocular lens dislocation. *Acta Ophthalmol*. 2024 May;102(3):306-311.
3. Medin H, et al. Long-term risk of suture breakage after scleral fixation of late in-the-bag intraocular lens dislocation with a polypropylene 10-0 suture. *J Cataract Refract Surg*. 2022 Dec 1;48(12):1408-1412.