JOINT SURGERY
Bag-in-lens reduces complication risk, making combined surgery more attractive
by Howard Larkin in Milan

Given that most vitrectomy patients develop cataracts, doing phaco at the same surgery seems to make sense. But it can be risky. Employing the bag-in-lens designed by Marie-Jose Tassignon MD may eliminate many common complications, making the combined procedure an effective and safe option. Claus Eckardt MD, Frankfurt, Germany, told the 12th EURETINA Congress.

The main advantages of combined phaco-vitrectomy are eliminating a second surgery, better access to the peripheral retina during phaco, and possibly better outcomes, Prof Eckardt said. But intracapsular IOL implantation in complex pathologies, involving issues such as posterior retinal detachments, uveitis, weak zonules and diabetes, can increase postoperative inflammation and result in posterior synechiae.

Decentration and early secondary cataracts are also common in vitrectomy patients, Prof Eckardt added. These often result from pressure from gas or air tamponade, which can lead to dislocation of the anterior capsule behind conventional IOLs soon after surgery. The bag-in-lens design addresses these issues by capturing the edges of anterior and posterior capsulorhexes in a 360-degree groove, much like a bicycle rim holds a tire, Prof Eckardt said. This makes the lens much more resistant to pressure from bubbles, seals in lens epithelial cells and holds the lens well away from the iris.

"The Tassignon-designed IOL guarantees excellent centration and never leads to synechiae. I routinely use it in all presbyopic [vitrectomy] patients," Prof Eckardt said.

Intraoperative issues Of course, pathologies associated with vitrectomy in general can significantly complicate an added phaco procedure. And there is a learning curve to master implantation of the Tassignon lens. Nonetheless, Prof Eckardt believes the issues can be addressed, and the effort is worth it.

"I have used this lens in combined phaco-vitrectomy now for three and a half years, and have done more than 900 cases," said Prof Eckardt, who presented slides of more than a dozen cases months and years after surgery. Invariably, the lens was centred, the pupil well-dilated and the eye clear, even in cases that had undergone multiple vitrectomy procedures before the lens implant.

"They all look the same. In fact, they sometimes look better than my standard cataract surgery cases," Prof Eckardt said. And though he has no study to conclusively prove it, he believes his visual outcomes are better in combined surgery patients than in vitrectomy patients undergoing a subsequent separate lens extraction.

Prof Eckardt offered advice on addressing various intraoperative issues seen in combined procedures.

Intravitreal haemorrhage can block the red reflex, making visualisation difficult in phaco. An endoscopic light source placed in the anterior chamber provides excellent illumination, though it may require switching to a one-hand hold on the phaco probe while the other holds the light, Prof Eckardt said.

"When you have removed the nucleus and you do not see the red reflex, you may think everything is removed. But when you put in the light you can see leftover cortical material and remove it. It is a big help," Prof Eckardt said.

Pressure from behind may cause problems during phaco, but this is not unique to combined procedures, Prof Eckardt pointed out. Using local or topical anaesthesia rather than peribulbar injections helps minimise the problem.

Conversely, a vitrectomised eye may offer no counter pressure, and lens implantation may be difficult. Small pupils may benefit from a bimanual technique or iris hooks, while capsular tension rings should be used to stabilise capsules in patients with pseudoxefoliation syndrome, Prof Eckardt added.

As for the Tassignon lens, several issues must be dealt with. First, the lens requires both anterior and posterior capsulorhexes. Before the posterior rhexis is torn, the anterior hyaloid membrane must be detached to prevent vitreous from entering the anterior chamber. Prof Eckardt recommends injecting viscoelastic behind the posterior chamber, watching to make sure the separation is complete.

The two rhexes also must be concentric, round and about 5.0mm to 5.5mm in diameter. Prof Eckardt recommends using the anterior rhexis as a guide to placing and sizing the posterior.

Inserting the lens, which requires that the edges of the rhexes be captured 360 degrees by the groove in the lens edge, also takes a little longer, but is not difficult once the technique is mastered, Prof Eckardt said. "If you want a new tire on your bike, this is the same manoeuvre; back and forth, and back and forth, and all of a sudden you have succeeded."

After implanting 50 lenses, Dr Eckardt said he no longer had to think about the implantation technique. The entire procedure takes about 30 seconds longer than implanting a standard IOL, he said.

While the Tassignon lens eliminates more serious postoperative complications such as posterior synechiae, its 360-degree groove is susceptible to iris incarceration, where the iris slides into the groove. This generally occurs in the early postoperative period, and is brought on by pressure from a tamponade pushing the lens forward, Prof Eckardt said.

The problem can be corrected in about a minute by pushing the lens back behind the iris. But this does require a return to the operating room. The risk can be minimised by avoiding dilating the pupil in the early postoperative period, Prof Eckardt said. Dilation should not be performed until the bubble retreats to about 30 to 40 per cent of its original size.

So are the advantages worth the risks and extra effort? Prof Eckardt believes they are. "I can say combined phaco-vitrectomy is an effective, and in my hands, a safe technique." He encouraged surgeons to tackle the learning curve to give patients the benefit of reduced complications.