The 'Fishhook' technique – no frills cataract removal where phaco won't work

Stefanie Petrou Binder MD
in Nürnberg

THE ‘Fishhook’ technique, a low cost, time-saving, and effective cataract extraction method, has allowed surgeons to restore vision in more than a quarter of a million patients since becoming standard practice in Lahan, Nepal in 1998.

“The Fishhook technique allows our extremely high-volume surgery to remove very mature, very large cataracts quickly and easily. Visual acuity results are good in three-quarters of patients. By contrast, the uncorrected visual acuities in our phaco-treated cataract patients were far better than what we achieved with any other cataract technique. Although we are performing phaco increasing each year, not all patients are suitable for phaco in this part of the world, due to very mature cataracts,” said Albrecht Hennig MD, at the yearly Congress of the German Ophthalmic Surgeons (DÖC).

In a group of 500 patients who underwent cataract extraction with the Fishhook technique, uncorrected visual acuity on the first postoperative day was good (6/6-6/18) in 76.8% of patients, borderline (6/24-6/60) in 22.6% and poor (over 6/60) in 0.6% per cent. The complication rate was very low, at 0.2 per cent, including endophthalmitis, Dr Hennig said.

The technique requires a sclero-corneal tunnel, which Dr Hennig makes using a diamond knife. He fills the anterior chamber with a viscoelastic substance and performs an anterior capsulotomy. After hydrodissection and nucleus mobilisation, he inserts and glides a small hooked instrument behind the nucleus, hooks it into it, and extracts it entirely.

Very mature nuclei are extracted just as easily as less mature nuclei, and performed in just minutes, Dr Hennig observed. He noted that it was not unusual to remove nuclei with a 4.0mm thickness and an 8.0mm diameter in his patient population.

Dr Hennig implants a 6.0mm-optic IOI made of PMMA into the capsular bag, and completes the operation by cutting and removing the remnants of the anterior capsule.

He alternatively performs a capsulorhexis for this extraction technique, which has to be large enough to allow the lens to fit through. In white cataracts Dr Hennig dyes the capsule with Trypan blue and infuses air. This is followed by hydrodissection, nucleus mobilisation, viscoelastic application, and Fishhook extraction.

One disadvantage of fishhook extraction is that a cataract operation costs the clinic not unusual to remove nuclei with the large sclero-corneal cut, which can induce astigmatism. The cut, however, must allow for the extraction of the large, hard nucleus and for the 6.0mm PMMA lens to fit through. Dr Hennig creates the tunnel distal to the limbus in the steep meridian, to reduce astigmatism.

The availability of inexpensive, foldable lenses would decrease the cut and lessen the astigmatism.

“We buy cheap foldable lenses from India and currently use them. They cost us around €15 and we expect this price will drop in the future. In the meanwhile, the more economical €2 PMMA lenses are our mainstay,” he said.

In addition to switching to foldable IOIs, Dr Hennig is increasing the number of phaco surgeries he performs in Lahan. Phaco is reserved for selected patients with less mature cataracts. Softer cataracts undergo division (phaco chop) and ultimately emulsification of the nucleus.

Still other patients who have very hard nuclei undergo a combination procedure using phaco chop, to create two large nuclei pieces. However, piece removal is done using the Fishhook technique. This allows surgeons to reduce the size of the sclero-corneal cut.

The Lahan eye clinic performed between 600-1000 phaco surgeries yearly from 2001-2004, less than two per cent of yearly cataract surgeries. In 2005, 4000 were performed (8.6 per cent of patients), 6233 in 2006 (13.7 per cent of all cataracts) and over 10,000 are predicted by the end of 2007.

He explained that phaco was not established in the developing world due to the high cost of machinery; the mature nature of cataracts, and the difficulty in finding phaco training for local doctors. Overall, technological developments, such as phaco, generally first appear in the developing world with a delay of 10-20 years, Dr Hennig said. Eye doctors in developing worlds have needed to adopt alternative techniques, called ‘non-phaco small incision cataract surgery’ (SICS), such as the Fishhook technique, to meet their needs.

However, patients have changed over the last 20 years, he noted. They used to wait until vision was lost bilaterally before seeking help, and cataracts were therefore always very mature. Now patients come earlier for surgery, often in their first eye, allowing phaco to be performed on softer nuclei.

In addition, there is a growing interest on behalf of physicians and educated, paying patients for phaco. In fact, five per cent of patients coming for surgery in Lahan actually request phaco.

Dr Hennig hopes to set an example for phaco management in developing countries. At his clinic, an experienced OR assistant chooses suitable patients (young, soft cataracts) to undergo phaco, from the patients waiting in the preparation room. In the OR, the eye surgeon alternates between two operation tables, completing 7-10 surgeries/hour. All remaining patients undergo SICS using the Fishhook technique.

XXV Congress of the European Society of Cataract and Refractive Surgeons
Stockholm, Sweden

Monday, 10 September, 2007 @ 5.30 PM
The Parkside Foyer, Stockholm Fairs Conference Centre