surgery at the University of California, Irvine, straightforward,” said Roger Steinert MD, stable and secure, and surgically recent study.

THE use of the femtosecond laser to cut a optical zone is too small they tend to be

being placed in young patients, so if the ultimately obtain. Many of these implants are

include central corneal opacities and keratoconus with contact lens intolerance, no keratoconus is associated with high myopia, Intacs can also be combined with a phakic IOL in order to correct the residual ametropia.

"Are channels created with femtosecond laser better than mechanically dissected ones? If we use the laser, is it better to create wide or narrow channels? It may be more difficult to use narrow channels to hope to obtain a better biomechanical effect of the PMMA segments."

Intacs are also useful in treating post-LASIK ectasia, said Dr Colin.

"In the cases, we have always used one inferior segment because the biomechanics of the cornea have been so changed by the cut performed at the Bowman’s membrane level by the microkeratome. It is easy to implant one segment under a flap, since the flap is usually 100 to 160 microns while the segments are implanted at 70 per cent of the peripheral depth which is usually 400 microns or more. We have obtained good results using this approach,” he said.

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THE use of the femtosecond laser to cut a zigzag incision that is the exact opposite in donor and host cornea is an effective way to perform penetrating keratoplasty, according to a recent study.

“The zigzag incision is biomechanically stable and secure, and surgically straightforward,” said Roger Steinert MD, director of refractive, cornea and cataract surgery at the University of California, Irvine, speaking at the AAO annual meeting.

The study included 16 eyes undergoing penetrating keratoplasty, many with simultaneous macular disease. The first six cases were performed at the University of California at Irvine using tissue from the Northwest Lions Eye Bank. Dr Steinert and his fellows used the Intralase femtosecond laser for all the procedures.

The procedure involves cutting a zigzag pattern incision that is the exact opposite in donor and host, creating a “lock and key” match. The posterior incision begins in the anterior chamber or deep stroma, angling from centre to periphery at 45 degrees. Then a lamellar ring 0.5mm in width at 320 microns of depth, runs from periphery to centre at a constant depth such as 320 microns. Finally, an anterior side-cut angled at 45 degrees extends from the central lamellar incision to the periphery. The result is a zigzag-shaped incision. The transplant is closed with a 24-bit 10-D nylon running suture.

Three months after the procedure, follow-up was available for eight eyes (the other eight had not yet reached the 90-day point). Topography revealed that the average simulated keratometry reading was 3.5 D with a range of 0.4 to 8.4 D. Six of the eight eyes had a reading of less than 3.5 D.

The researchers also found that BSCVA was 20/80 or better in four out of five eyes three months after the procedure, despite the fact that most patients had macular disease. Dr Steinert said this was especially significant because functional vision usually

Dr Colin also believes more studies are needed to try to address some of the key questions surrounding Intacs implantation.

“All keratoconus cases are different, so it is difficult to establish a perfect nomogram. W here we should make the incision - the temporal axis, steeped axis or comatic axis, where the patient has the most comatic aberrations? W hat is the optimal length of these incisions? Do we need a suture to increase the biomechanical effect of the PMMA implant in the cornea? If we put a suture in how long do we need it there? Must we use same thickness Intacs in the same eye? If we can mix them, is it better to put the thicker segment inferiorly or superiorly?” he asked.

The arrival of femtosecond technology also raises interesting questions for the surgeon, said Dr Colin.

“Are channels created with femtosecond laser better than mechanically dissected ones? If we use the laser, is it better to create wide or narrow channels? It may be more difficult to use narrow channels to hope to obtain a better biomechanical effect of the PMMA segments.”

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Intacs stable at five years in keratoconus patients

Zigzag incision using femtosecond laser effective for penetrating keratoplasty

Devon Schuyler in Las Vegas

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