The Single Radial Incision (Sinrad) for the small incision cataract surgery

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Abstract
Aim: To perform the Small Incision Cataract Surgery through a single radial incision.
Methodology: 181 patients underwent cataract surgery through a single radial incision, 3.5mm in length, beginning at the limbus and 300 micron in depth. A partial thickness scleral dissection was made on either side and carried on into the cornea.
Results: The post operative astigmatism was significantly reduced. 76% had astigmatism of = 0.5D and 41% of these had no astigmatism.
Conclusion: The single radial incision is an excellent alternative incision for the small incision cataract surgery.
Key words: SICS, SINRAD, POST OP ASTIGMATISM

Introduction
Incisions of a variety of sizes and shapes have been used for the small incision cataract surgery. These incisions have all adhered to the basic principle of incision for this surgery – namely that a) incisions within the astigmatic tunnel do not produce significant astigmatism.
b) The inner corneal incision is equally or more responsible for the post op astigmatism as the external or scleral incision.
Over the past few years, I have been performing the small incision cataract surgery using the ‘V’ incision. This incision is made without lifting a conjunctival flap and has its apex at the limbus and is in effect 2 tangential incision. A rigid lens of 5 mm is implanted with excellent results.
The Single Radial or SINRAD incision has been a natural progression from the ‘V’ incision.

This Single Radial Incision though radical in concept, should expand the horizons of the small incision cataract surgery.

Methods
A fornix based conjunctival flap is raised and bleeders cauterized.
A single radial incision of 3.5mm is made using a 300 micron controlled depth blade beginning at the limbus.
A partial thickness scleral dissection for 3-4 mm is made on one side (the left half) using the bevel up crescent blade and the dissection is carried on into the cornea at the extreme end.

The corneal dissection is enabled using a ‘spoon’ blade so as not to tear the edges of the scleral wound. This dissection is done for 1.5mm into the cornea. The other half of the scleral dissection (right half) is done using the crescent blade.

The incision therefore is shaped like the letter ‘T’, the vertical limb of the ‘T’ being the scleral end and the horizontal limb being the corneal end of the incision.

The entry into the anterior chamber is made using a 1.2mm microkeratome and this may be extended on either side for 2-3mm.

The capsulorhexis is followed by a gentle hydro dissection and the inner corneal valvular incision extended using the crescent blade.

The nucleus is rotated into the anterior chamber using Sinsky hooks and fractured into 2 pieces using a 2mm serrated vectis and Sinsky hook of ½ mm tip.

The pieces are then extracted using the sandwich technique under abundant viscoelastic cover.

The cortex is cleared and a foldable lens inserted either using an injector or the folder and holder. The conjunctiva is then reapposed.

Results

The post operative astigmatism in these patients is only less than the routine SICS. The results assessed on the first post op day are shown below: Out of 181 cases performed 138 had post op astigmatism of 0.5D or less (76%) and 56 of these had no astigmatism (41%).

Discussion

The single Radial Incision causes lesser amount of post op astigmatism than the routine SICS.

- Foldable lenses can be used.
- Reproducible and conversion to ECCE is not difficult
- Hard brown nucleus above grade III are still a problem, which has to be overcome. The main complication here being the striate keratitis which disappeared in a short time.
- It is of course difficult to implant rigid lenses.

References