ABSTRACT

PURPOSE: The aim of this study was to ascertain the outcome of transscleral suture fixation of posterior chamber intraocular lenses.

METHODS: This was a retrospective study. We reviewed the records of patients undergoing scleral fixation of posterior chamber intraocular lenses from June 2007 to December 2008 in the Ophthalmology Department Unit II Civil Hospital and Dow Medical College Karachi.

RESULTS: 18 eyes of 12 patients underwent transscleral suture fixation of posterior chamber intraocular lenses during this period. Age ranged from three years to forty-nine years. Indications included idiopathic lens subluxation, aphakia due to surgery, traumatic lens subluxation and Marfan’s syndrome. All patients had improved postoperative visual acuity. Complications included lens tilt and vitreous haemorrhage in one patient.

CONCLUSION: Transscleral suture fixation of posterior chamber intraocular lenses is a useful technique for the treatment of aphakia in the absence of adequate zonular/capsular support.

KEY WORDS: Transscleral suture fixation, posterior chamber intraocular lenses, aphakia, capsule deficiency, visual acuity.

INTRODUCTION

Intraocular lens implantation is an essential component of modern cataract surgery. Most cataract procedures are carried out with posterior chamber intraocular lens (IOL) implantation. However, if capsular/zonular support is inadequate it may not be possible to implant a posterior chamber lens. In these cases anterior chamber IOLs, iris claw IOLs or iris/sclera sutured IOLs are other options available.

Most commonly used are anterior chamber IOLs. These are associated with a number of complications. Iris claw IOLs have also been associated with various complications. Posterior chamber IOL placement without capsular support can also be carried out with either transscleral suturing or iris suture fixation. Iris suture fixation has a high incidence of lens dislocation in children. Suturing an IOL to the sclera was first described by Girard in 1981 and then later refined by Malbran and colleagues in 1986. In 2003, an American Academy of Ophthalmology sponsored report on IOL implantation in the absence of capsular support concluded after a thorough literature assessment that scleral sutured posterior chamber IOLs were safe and effective in adults.

The aim of this study was to ascertain the outcome of patients undergoing transscleral suture fixation of PCIOL.

MATERIALS AND METHODS

We retrospectively reviewed the records of all patients undergoing transscleral suture fixation of PCIOL from June 2007 to December 2008 in the Ophthalmology Department Unit II Civil Hospital and Dow Medical College Karachi. 18 eyes of 12 patients were included. Data were collected on demographics, indications, procedure, complications and visual acuity. Follow up was done from 6 to 12 months postoperatively.

Surgery was carried out in general anaesthesia in children and local anaesthesia in adults. Local anaesthesia consisted of retrobulbar injection of 1:1 mixture of 0.5% bupivacaine and 2% lignocaine. Proparacaine eye drops were used topically. Conjunctival peritomy was carried out and scleral flaps were constructed temporally and nasally. A 6.5mm biplanar corneal incision was given superiorly. If crystalline lens was present it was removed through the corneal incision. Anterior vitrectomy was carried out. 10/0 prolene...
was used in all cases. Ab interno fixation as well as ab externo fixation was used depending on the availability of suture material. In the ab externo approach, a 27 gauge needle was passed through sclera on one side and a 10/0 prolene suture on a straight needle through opposite scleral bed. The prolene suture needle was passed into the 27 gauge needle. The 27 gauge needle was withdrawn along with the prolene needle. The suture was drawn out through the dilated pupil and corneal incision. The suture was cut and each end tied to the haptics of the IOL. If haptic eyelets were present suture was passed and tied there. In other cases heat cautery was used to bend haptic ends to prevent suture slippage and prolene ends were tied to the haptics. Sutures were pulled through the scleral bed and tied. Scleral flaps and conjunctiva were sutured with 10/0 nylon. The corneal wound was also closed with 10/0 nylon. In the ab interno approach prolene suture ends were first tied to the haptics in a similar fashion and then curved needles were passed inside out 1.5mm posterior to limbus and suture ends tied in scleral bed.

RESULTS

18 eyes of 12 patients underwent transcleral suture fixation of posterior chamber Intraocular lenses during this period. Seven patients were females and five were males. Age ranged from three years to forty nine years. Follow up was available for 6 to 12 months. Two male and four female patients underwent bilateral fixation the rest needed unilateral surgery. Indications included idiopathic lens subluxation, aphakia due to surgery, traumatic lens subluxation and Marfan’s syndrome. In four eyes polymethylmethacrylate (PMMA) IOL’s with haptic eyelets were used. In the rest PMMA IOL 6.5 mm was used and the haptic ends were bent with electrocautery. In seven eyes ab interno approach was used and in the rest ab externo approach was carried out for transscleral suture fixation. One case of vitreous haemorrhage with lens tilt was encountered which necessitated removal of IOL with replacement with anterior chamber IOL in a 38 year old female patient. No late complications were noted. All patients had improved post operative visual acuity.

DISCUSSION

In the absence of adequate capsular support or in the presence of zonular dialysis various techniques of IOL implantation are available. Capsular loss or zonule weakness may be due to trauma, old age, pseudoexfoliation,
complicated cataract surgery, Marfan’s syndrome, homocystinuria etc. If the dialysis is limited in extent, in the bag implantation of IOL can be attempted. Larger dialysis can be managed by capsular tension ring (CTR) with IOL implantation in the bag. In general, up to 6 clock hours of zonular dialysis may be present for a CTR bag. In general, up to 6 clock hours of ring(CTR) with IOL implantation in the bag can be managed by capsular tension dialysis is limited in extent, in the bag implantation is not possible. However this is stronger and may reduce chances of IOL dislocation. PMMA IOL’s are usually used for scleral suture fixation. However if a small incision is desired foldable IOL’s maybe used. Complications of scleral fixation include lens tilt/rotation, dislocation of IOL due to suture erosion, vitreous haemorrhage, retinal detachment, cystoid macular oedema. In this case series one complication of vitreous haemorrhage and IOL tilt was seen in the same patient. No case of retinal detachment or suture erosion with lens dislocation or cystoid macular oedema was seen.

CONCLUSION

Scleral suture fixation of posterior chamber IOL’s is an effective option for eyes in which due to zonular dialysis or capsule deficiency enough support for sulcus or bag PCIOL implantation is not possible.

REFERENCES

15. Y. F Yang, C Bunce, J K G Dart, R L Johnston and D G Charteris Scleral-fixed posterior chamber intraocular lenses in nonvitrectomised eyes. Eye.2006;20:64–70.