Introduction

Clear vision without the need for glasses or contact lenses has been one of man's kind goals. The goal of cataract surgery with intraocular lens implantation is to provide the best possible long-term vision in the shortest period of time. With the advent and evolution of small incision cataract surgery, patients have experienced both improved visual outcome and reduced recovery time ***(Christ et al, 1989)***.

Kelman in 1967,first introduced the technique of phacoemulsification through a 3mm incision, thus eliminating many of the complication of large incision cataract surgery. However, intraocular lens (IOL) implants available at that time necessitated enlargement of this incision to 6.0-6.5 mm.

Mcfarland in 1990, introduced an incision architecture that allowed phacoemulsification and lens implantation without need for suturing.

Incisions for cataract extraction are either anterior or corneal incisions, midway or limbal incisions, and posterior or scleral incisions. The midway, limbal or corneaoscleral incisions, are further classified into anterior limbal, along the anterior limbal arcade, posterior limbal, along the posterior margin of the blue zone, and mid-limbal inbetween ***(Troutman and Buzard, 1992)*** (Figure 1).

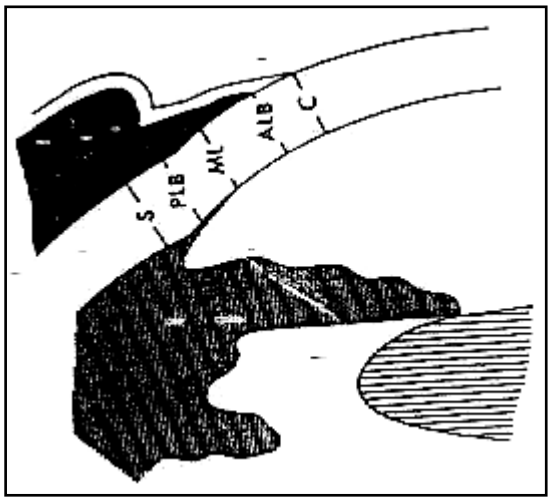

Fig. 1: Different locations of cataract incisions. Corneal (C), Anterior limbal border (ALB), Mid-limbal (ML), Posterior limbal border (PLB), and Scleral (S).***(From Jaffe et al, 1990 a)***.

Masket in 1995(a) reported that the ideal incision and closure, if necessary, would induce no change in corneal astigmatism at any time after surgery unless desired, remain watertight to all physiologic intraocular pressure (IOP) levels, allow easy access to the anterior chamber (AC), and preclude the escape of the intraocular fluid or contents during surgery . In other words, the cataract incision serves as more than just the portal of entry for intracameral maneuvers. Appropriate incision construction allows the surgeon to control fluid dynamics within the AC during surgery. Careful incision planning offers the opportunity to control induced astigmatism during the early and late postsurgical periods. The concept that modern cataract management can and should provide excellent vision very early after surgery depends greatly on surgical manipulation of the incision and its closure, where required. In fact, cataract surgery may now be recognized as a refractive surgical procedure, in that accurate implant power prediction and control of induced astigmatism often make achieving a specific postoperative refraction an obtainable surgical goal.

Small incisions are associated with lower surgically induced cylinders, earlier recovery of visual function, and better preservation of corneal shape. Some reports claimed superiority of 3 to 4mm incision surgery in reducing corneal shape changes. Control of postoperative astigmatism remains a challenge for today's cataract surgeons***. (Mendivil, 1996).***

Recently, clear corneal cataract extraction is increasing in popularity. Because it is done intracorneally, cauterisation is unnecessary. In addition, topical anaesthesia can be used in most cases, eliminating the risk of anaesthesia administered by injection ***(Pfleger et al, 1996)***.

Self-sealing clear corneal incision (CCI) using a 4 mm or smaller temporal approach have grown in popularity because of such advantages as easier approach to the surgical site, ease of construction even in deep-set eyes or those with filtering blebs, lack of postoperative injection, bleeding, or iris prolapse, and easy conversion to extracapsular cataract extraction (ECCE) ***(Cillino et al, 1997)*** .

To further reduce incision size, foldable IOLs have been developed. These can be implanted through a 2.4 to 4.0 mm incision. Materials used in the optics of modern foldable IOLs include silicon elastomers and hydrophobic and hydrophilic acrylate-methacrylate polymers ***(Kohnen et al, 1997)***.