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Editorial

Difficulties of Corneal Graft Surgeries in Bahrain – Reasons for Failure

Nada S Hassan Al-Yousuf, FRCS(Ed)*

Penetrating keratoplasty is one of the major ocular surgeries performed at Salmaniya Medical Complex in Kingdom of Bahrain. Unfortunately, this remarkable procedure is faced with a number of difficulties and hurdles. Despite the successful surgical procedure technically, the difficulties we face in Bahrain endanger the grafted cornea with ultimate failure. The keratoplasty challenges confronting eye surgeons in Bahrain include: Chronic trachoma, lack of compliance, therapeutic keratoplasty, post operative trauma, late presentation of problems, and poor hygiene.

One of the major indication for corneal graft surgery in Bahrain is corneal scarring due to old trachoma. This indication is a challenge to keratoplasty procedures for several reasons. Chronic trachoma, itself is " non-friendly" to corneal graft[1]. This is because of the corneal vascularization, lid scarring and irregularity, eye dryness and conjuctival scarring. It is well recognized that lid scarring with resultant trichiasis and/or entropion increases the susceptibility of the cornea to infection. This puts the graft at risk of failure. Furthermore, dry eye syndrome, which is a major feature of chronic trachoma , is one of the important factors jeopardizing the corneal graft. Eye dryness causes sloughing of the epithelium with persistant epithelial defects which is a major challenge for graft survival. In addition, host corneal vascularization predisposes to graft rejection due to the "recognition" of the graft by the host immune system[2].

Although Keratoconus (KC) is the least troublesome corneal disorders requiring keratoplasty in Europe and North America, it can pose a challenge in the Bahraini population. The reason is that keratoconus in this region is quite often associated with vernal catarrh. An eye with a recent graft and with vigorous rubbing of the eye due to the large papillae of vernal catarrh is not very favourable for the graft[3]. Moreover, bombarding the graft with different sorts of antiallergic medications with their known toxic preservative action is another unfavourable factors in such individuals. Furthermore, keratoconus in Bahrain tends to be more aggressive and present early. Strangely enough, we had children in Bahrain presenting with acute hydrops as the first manifestation of keratoconus.

Lack of compliance among patients in Bahrain is another big hurdle which impede the success of the graft. This puts the grafted cornea at risk of rejection due to the improper use of the medication and irregular follow up. The success of corneal graft surgery depends to a great extent on: the use of topical steroids post operatively, checking the cornea for any signs of rejection, examining the cornea for any loose or broken sutures and the regular checking of the intraocular pressure. Unfortunately, those who are lost to follow up, miss the opportunity to diagnose and treat early rejection, high intraocular pressure, and any suture related problems. It is a documented fact that high intraocular pressure among patients with keratoplasty, if untreated, results in the tragic consequence of graft failure. In addition, loose or broken sutures if not removed may lead to rejection and failure. Moreover, patients who do not use their topical steroids as directed end up having rejection and ultimate failure.

Therapeutic keratoplasty, which is almost non existent in Europe and North America, is still one of the major indications for keratoplasty in Bahrain. Most cases of therapeutic keratoplasty in Bahrain are due to severe keratitis with perforation. Review of literature clearly highlights the low success rate associated with keratitis and keratitis related perforations[4-7]. Such grafts are usually trephined large to encompass the diseased tissue. Large keratoplasty is known to be associated with post operative high intraocular pressure, putting the graft at risk of failure. The recurrence of the original infection is another risk factor that can ultimately leads to graft failure[6]. Moreover, operating on a severely inflamed eye adds to the risk of post operative rejection.

Bahrain is not different from developing countries in terms of the high incidence of ocular trauma. Post keratoplasty trauma with globe rupture is a tragic result of ignorance and lack of safety procedures among individuals in Bahrain. We have had several examples of successful grafts which were subjected to accidental trauma leading to globe rupture and extrusion of the ocular contents. In general, an eye which had just had a surgery is weak. Post keratoplasty eye is even more weak because of the 360 incision which renders the eye susceptible to rupture particularly if the patient is elderly with a slow healing process.

Patients who undergo penetrating keratoplasty are usually warned to present to accident and emergency immediately if they experience any of the early signs of graft rejection such as reduction of vision, redness, pain, foreign body

* Consultant Ophthalmologist
Salmaniya Medical Complex &
Clinical lecturer
College of Medicine & Medical Sciences
Arabian Gulf University
Kingdom of Bahrain

sensation and so on. Unfortunately, they do not present until late in the process of rejection where it becomes difficult to reverse the problem. One of the challenges we deal with in Bahrain is late presentation of patients during the disease process. Those with corneal disorders requiring surgical intervention usually come with other ocular problems such as hard cataract, undiagnosed glaucoma etc which may complicate the surgical procedure and the post operative results.

Quite large percentage of patients particularly elderly with chronic trachoma come from a low socioeconomic background. Such individuals usually have poor personal hygienic habits. We have noticed that elderly females use their head cloth, to wipe their eyes. This and other bad hygienic habits constitute a major risk factor for corneal infections with resultant graft failure.

Most of the above-mentioned problems are difficult to control. However, the author recommends a highly selective approach to patients undergoing penetrating keratoplasty in Bahrain. Moreover, preoperative correction of lid conditions such as entropion and trichiasis is necessary. Punctual occlusion for patients with dry eye syndrome is recommended. Last but not least, establishing a system involving a health education nurse to give a thorough advice on compliance and hygiene is mandatory.

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