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Commentary

Procedure Involved in Corneal Grafting and its Risk Factors

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DESCRIPTION

Corneal grafting is also known as corneal transplantation. Corneal transplantation mainly used to treat the corneal blindness. The main risks occurred during the corneal transplantation are graft rejection, displacement of lamellar transplants after the transplantation. Graft rejection can be prevented by using the immunosuppressant drugs like cyclosporine A, tacrolimus, mycophenolate mofetil, sirolimus, and leflunomide. Chances of getting the corneal infections are also high, the main primary cause get infection is lack of blood vessels in the cornea so it must take the nutrients from the aqueous humor therefore it takes much longer time to heal when compared to an infection caused on the skin. Antibiotic prophylaxis are mostly used in the treatment to avoid such conditions.

There are mainly three levels involved in the corneal transplantation.

- Pre-operative examination
- Penetrating keratoplasty
- Lamellar keratoplasty

After the pre-operative examination a terpine is used to remove the circular disc of cornea to cut the donor cornea and second terpine is used to remove the similar size cornea from the patient donor tissue is then sewn in place with sutures. Later an antibiotic eyedrops are placed on the patched eye, and the patient is taken to a recovery area until the anesthesia wear off's. Lamellar keratoplasty encompasses several techniques which selectively replace diseased layers of the cornea by leaving healthy layers in place. The main advantage of the lamellar keratoplasty is the enhanced tectonic integrity of the eye. In the lamellar keratoplasty is divided into two types: Deep anterior lamellar keratoplasty and Endothelial keratoplasty. In Deep anterior lamellar keratoplasty layers of the central cornea are removed and replaced with donor tissue. It is mostly used in the cases of anterior corneal opacifications, scars, and ectatic diseases.

In endothelial keratoplasty patient's endothelium is replaced with a transplanted disc of posterior stroma. It is mostly helpful in treating the disorders of the inner most layers of the cornea. The surgery can be performed with one or no sutures, rather than a full-thickness corneal transplant. Functional in the vision can be seen within days to weeks, as opposed to up to a year with full thickness transplants.

However, the loss of endothelial cells that maintain transparency is much higher in Descemets/endothelium keratoplasty (DSEK) compared to a full-thickness corneal transplant. During surgery the patient's corneal endothelium is replaced with donor tissue. With DSEK, the donor includes a thin layer of stroma, as well as endothelium with a thickness of 100–150 μm. During the immediate postoperative period the donor tissue is held in position with an air bubble placed inside the eye and the tissue self-adheres in a short period slowly the air is adsorbed into the surrounding tissues. The complications involved in this procedure are folds in the donor tissue may reduce the quality of vision, It may require repairing, and rejection of the donor tissue. The prognosis for visual restoration and maintenance of ocular health with corneal transplants is generally good but the risk of failures is multifactorial.

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