The significant contribution of amniotic membrane transplantation to a variety of severe ocular surface diseases. Some of these diseases previously had no effective management and the outcome was severe loss of vision. The results with amniotic membrane transplantation successful. The amniotic membrane is attached to the placenta and surrounds the fetus in uterus.

Indications for Amniotic membrane transplantation
- Persistent of recurrent corneal defects
- Corneal perforation or melting
- Sever Symblepheran
- Dry eye: Lachrymal punctual occlusion
- Glaucoma: Large leaking filtering blebs

Characteristics and effects of the transplanted amniotic membrane
1. This membrane stimulates re-epithelialization, it has antinflammatory effects, it is anticatricial and antineovascular.

2. It is not invaded by blood vessels. Once you transplant the membrane, the previous tendency for blood vessel proliferation is significantly diminished including blood vessel invasion of the cornea.

3. It reduces the tendency for scar tissue proliferation and invasion of the damaged tissue. It acts as a barrier against fibroblast multiplication because it creases obstacles to growth factor.

4. It does not trigger immunol ogical rejection. Immune rejection does not occur after the transplantation. The stromal matrix shawls a moderate antigenicity. The other fetal membrane, the chorine must be removed because it has considerable antigenicity and provides strong host- vs.- graft rejection.

5. It stimulates apoptotic death of inflammatory cells.

6. It takes easily, creating a new surface membrane. It is nourished by simple diffusion from the subjacent host tissue and it creates a resistant and protective sheet covering the affected tissues that we want to heal. Tensile strength of the amniotic membrane is very high.

7. It enables the surrounding epithelial cells to migrate over it. This includes epithelial cells of any type: cornea, mouth and also endothelial cells. There is a strong attachment of these epithelial cells to each other and to the amniotic membrane.The amniotic membrane also triggers and reinforces the typical differentiation of the epithelium that migrates over it. The epithelial cell attachment to its basement membrane suppresses apoptosis.

8. It protects the tissues it covers, reducing fibroblast proliferation and scarring in the tissue it contacts. It reduces haze after (experimental) photo therapeutic keratotomy. It facilitates nerve regrowth

9. It has nonspecific mild antimicrobial effects both antiviral and antibacterial. Advantages of amniotic membrane Murube reveals that the amniotic membrane has no antigenic substances. These substances act like an identity card or a passport that identify each different cell as friendly or unfriendly to the patient’s immunological system. The absence of these antigens allows the cells in the amniotic membrane not to be attacked by the patient’s immunological system.

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Schaffer Tseng, M.D., in Miami and Prof. Kazuo Tsubota, M.D. in Tokyo have done some additional revealing work analyzing the various compounds impregnated in this membrane. It is like a chemical sandwich in which both anti-inflammatory compounds and cyostimulating compounds are present. Professor Hugh Taylor, M.D. believes that the amniotic membrane is effective in treatment for two primary reasons. First, it serves as a new basement membrane over which epithelium can grow more easily. Secondly, it contains many chemical mediators, or cytokines, that reduce inflammation and stimulate healing.

We performed two studies at Cornea Clinic, Islamia Eye Hospital are

**Study-1: New technique in management of corneal perforation with multi layer amniotic membrane**

**Purpose**: To evaluate the effectiveness of newer technique in management of corneal perforation with multiplayer amniotic membrane graft.

**Methods**: This is a prospective non-randomized study. A clinical trial of 38 cases of perforated infectious keratitis attending Islamia Eye Hospital, Dhaka, Bangladesh from January 2001 to December 2003. The patients were treated with multiplayer Amniotic membrane graft (AMG) to seal the perforation of cornea. The perforation which affected the optical zone is classified as optical zone perforation and which affected the peripheral and para central did not affect the optical zone is classified as non-optical zone perforation. The patients were followed for three months.

**Result**: 38 eyes of 38 patients with corneal perforation due to infectious keratitis and sterile corneal perforation. 27 of them are male and the rest 11 are female. Of all those perforation only 23 affected the optical zone and 15 in non-optical zone. All cases of corneal perforation had prolapsed iris. Bacterial infection was present in 23, fungal infection in 9 cases and sterile corneal perforation in 6 patients. All patients were treated with multiple layers AMG and Bandage contact lens (BCL), along with topical and systemic antibiotic or antifungal agent accordingly in intensive form. Sterile perforated eyes were managed with multilayer AMG and BCL along with simple dose of topical antibiotics and steroids. Each patient was followed at least three months. After an average follow-up of three months, 15 eyes (39%) had the best-corrected visual acuity (BCVA) 20/60 or better and all of them were in non-optical zone. The vision was save Hand Movement (HM) to Counting Finger Close to Face (CFCF) for perforation in optical zone group of which 6 were undergone Keratoplasty and rest 9 are waiting for Keratoplasty.
**Study-2: Management of pterygium: Stem cell conjunctival auto graft vs amniotic membrane graft**

**Purpose:** This study is to determine the efficacy and safety of stem cell conjunctival autograft and amniotic membrane graft in prevention recurrence pterygium.

**Methods:** We performed a prospective, clinical trial on 50 eyes of 46 patients with primary and recurrent pterygia. 35 eyes were advanced primary pterygia and 15 eyes were with recurrent pterygia. Stem cell conjunctival autograft were done in 33 eyes and amniotic membrane grafts were done in 17 eyes. Selection of cases were done at a random basis. Whole procedure was completed from June 2000 to May 2001 at Cornea Clinic and Research center, Dhaka, Bangladesh. Patients were followed for last six months.

**Result:** There were two recurrences (6.06%) in a stem cell conjunctival auto graft and two recurrences (11.8%) in amniotic membrane graft. No significant difference was seen in recurrence rate between the two groups (P=0.59). No major complication occurred in any patient of two groups.

**Conclusion**

Use of Amniotic Membrane in ocular surface disorder is now practicing successfully in our country. From Study-1 we have seen that corneal perforations resulting from delayed & improper treatment is not uncommon in our country. Management by tissue adhesive with BCL followed by PK isn't possible in many cases due to un-availability of cornea. This study shows how useful this new technique of Amniotic Membrane Graft in sealing the perforation. This technique served a useful gross workable vision in non-optical zone perforation group, as cornea is not easily available in country like Bangladesh and in cases of optical zone perforation; patient could wait for a longer period for keratoplasty.

In Study-2 we have seen that pterygium was managed successfully by both stem cell conjunctival autograft and amniotic membrane graft. In some cases amniotic membrane graft is superior especially in cases of primary double-head pterygia and large pterygia. Recurrence rate was higher in amniotic membrane graft than stem cell conjunctival autograft in our study. But statistically recurrence rate is insignificant in both groups. So Amniotic membrane graft is an alternative to stem cell conjunctival autograft.

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