

Title: Surgeon-dissected precut tissue for Descemet's stripping automated endothelial keratoplasty

Running title: Surgeon-dissected precut DSAEK tissue

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Abstract:

Purpose: Describe efficient mechanism currently in use to allow surgeon-dissected precut Descemet's stripping automated endothelial keratoplasty tissue.

Methods: Preparation of donor tissue is performed under a laminar flow hood in the eye bank at our institution by the surgeon approximately 1-2 hours prior to DSAEK surgery. The entire procedure utilizes sterile technique and complies with Association of Operating Room Nurses (AORN)/Eye Bank Association of America (EBAA) regulations. The eye bank staff then delivers the tissue to the hospital for use at the time of the procedure.

Results: Since institution of this protocol, a total of 32 lamellar cuts have been performed and no complications have been encountered during tissue preparation or peri-operatively. Reimbursement for tissue preparation quadrupled as compared to prior insurance reimbursement.

Conclusion: In institutions with an eye bank within a reasonable proximity to the operating room, this protocol could be easily instituted to ensure proper tissue preparation and maximize surgical reimbursement.

Key words: DSAEK; precut tissue; eye bank

Introduction:

Significant debate and study has gone into addressing the issue of precut tissue for Descemet's stripping automated endothelial keratoplasty (DSAEK) surgery and its comparison with surgeon-prepared tissue¹⁻⁵. Although published literature has shown eye bank pre-cut tissue to be comparable to tissue dissected at the time of surgery, surgeons continue to have concerns about varying quality of tissue preparation between different institutions¹⁻⁵. Possible tissue collapse on the artificial anterior chamber, decentration of the microkeratome cut, loss of tissue marking, lack of anterior cap adherence to posterior lamella, anterior edge undermining, and other tissue preparation problems continue to keep some surgeons from moving to exclusively precut tissue⁵. In a prior surgeon survey of tissue from a single eye bank used in 197 DSAEK surgeries, donor tissue preparation difficulties occurred in 10% of cases and the tissue was found to be unacceptable in 2%⁵. Due to these issues and the poor reimbursement for intra-operative tissue preparation, we developed an efficient mechanism for surgeon-dissected precut tissue for our DSAEK patients.

Methods:

The procedure is performed under a laminar flow hood in the eye bank at our institution by the surgeon approximately 1-2 hours prior to DSAEK surgery. Preparation of donor tissue using a Moria CB microkeratome and artificial chamber system has been previously described³. Necessary instrumentation is assembled by an eye bank technician who also assists during tissue preparation. The entire procedure utilizes sterile technique and complies with Association of Operating Room Nurses (AORN)/Eye Bank Association of America (EBAA)

regulations. Proper tissue preparation is confirmed by the surgeon. A 350 micron microkeratome head is used for all pachymetry measurements without epithelium of 550 microns or more. Alternatively, a 300 micron head is used. The periphery of the microkeratome cut is marked anteriorly using a single use sterile marking pen to allow proper centration during corneal trephination in the operating room. After the free anterior stromal cap is replaced, the surgeon-cut tissue is placed back in storage media, the container is resealed, and the eye bank staff then delivers the tissue to the hospital for use at the time of the procedure.

Discussion:

The described protocol allows donor tissue preparation for DSAEK surgery in an efficient and optimally sterile environment. It eliminates surgeon concern regarding the quality of tissue preparation, and allows the surgeon to bill for the service through the eye bank by the addition of a tissue preparation fee to the overall tissue charge which is paid as a pass through cost by most third parties. Insurance carriers typically reimburse the surgeon approximately \$100 for donor tissue preparation in the operating room, but using this protocol, our eye bank reimburses the surgeon \$400 (four times the amount) once the overall tissue charge is paid by the hospital. Because the instrumentation is set up by eye bank technicians and the protocol is performed by staff familiar with the technique, the procedure generally can be completed in less than 5 minutes. Since institution of this protocol, a total of 32 lamellar cuts have been performed and no complications have been encountered during tissue preparation or peri-operatively. In institutions with an eye bank within a reasonable proximity to the operating

room, this protocol could be easily instituted to ensure proper tissue preparation and maximize surgical reimbursement.

References:

1. Price MO, Price FW Jr, Stoeger C, et al. Central thickness variation in precut DSAEK donor grafts. *J Cataract Refract Surg.* 2008;34(9):1423-4.
2. Terry MA, Shamie N, Chen ES, et al. Precut tissue for Descemet's stripping automated endothelial keratoplasty: vision, astigmatism, and endothelial survival. *Ophthalmology.* 2009;116(2):248-56.
3. Price MO, Baig KM, Brubaker JW, Price FW Jr. Randomized, prospective comparison of precut vs surgeon-dissected grafts for descemet stripping automated endothelial keratoplasty. *Am J Ophthalmol.* 2008;146(1):36-41.
4. Chen ES, Terry MA, Shamie N, et al. Precut tissue in Descemet's stripping automated endothelial keratoplasty donor characteristics and early postoperative complications. *Ophthalmology.* 2008;115(3):497-502.
5. Kitmann AS, Goins KM, Reed C, et al. Eye bank survey of surgeons using precut donor tissue for descemet stripping automated endothelial keratoplasty. *Cornea.* 2008;27(6):632-3.