

Figure 6-1. Optical coherence tomography images of donor tissue obtained (A) before the debulking cut, (B) after the debulking cut, and (C) after the refinement cut.

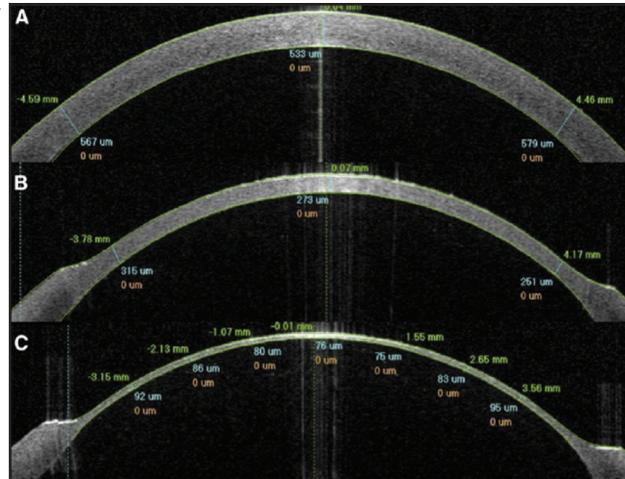
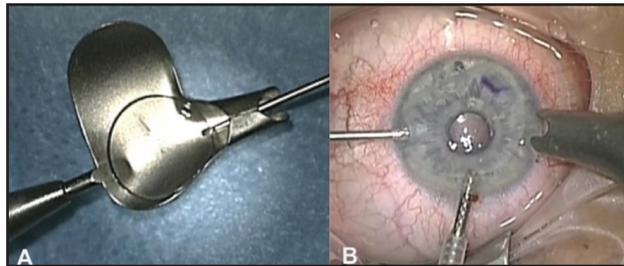


Figure 6-2. Photographs showing tissue (A) being loaded on a modified Busin glide and (B) delivered using the pull-through technique.



SURGICAL TECHNIQUE

The donor cornea is mounted on an artificial anterior chamber (AAC) of the Automated Lamellar Therapeutic Keratoplasty system (Moria S.A.). The central corneal thickness of the donor is measured intraoperatively using ultrasound pachymetry (SP-3000; Tomey GmbH). An initial debulking cut is performed using a Carriazo-Barrquer microkeratome (Moria S.A.) with a 300- μm head. After turning the dovetail of the AAC by 180 degrees, a second microkeratome-assisted dissection (refinement cut) is performed from the direction opposite the one of the first cut. Previous unpublished experiments conducted at Fondazione Banca degli Occhi del Veneto showed that microkeratome dissection is deeper at the beginning of the cut, when the instrument engages tissue. Performing the 2 cuts from opposite directions is therefore instrumental not only in avoiding perforation but also in evening out the final thickness of the residual lamella. The head used for this step is selected according to a nomogram developed by Busin aimed at leaving behind a residual bed with a central thickness of approximately 100 μm .¹¹ Pressure in the system is standardized by raising the infusion bottle to a height of 120 cm above the level of the AAC and then clamping the tubing at 50 cm from the entrance into the AAC. In addition, maximum care is taken to maintain a uniform, slow movement of the hand-driven microkeratome, requiring a time between 4 and 6 seconds for each of the 2 dissections. Figure 6-1 shows the optical coherence tomography images of the donor tissue before (Figure 6-1A) and after (Figure 6-1B) the debulking and the refinement cut (Figure 6-1C).

The DSAEK procedure is performed according to a standard technique previously described,^{11,12} except for the following modifications. The side platform of a modified Busin glide is used to scoop the tissue floating on a balanced salt solution cushion in the hollow of the punching block (Figure 6-2A); the graft then is delivered into the anterior chamber with the pull-through technique through a 3-mm-wide, 1-mm-long clear corneal tunnel (Figure 6-2B).

Because the funnel of the modified glide is smaller than the conventional glide, the tip can be inserted into the wound during delivery, thus preventing squeezing of the tissue while entering