Deep lamellar keratoplasty in the treatment of bullous keratopathy

EDITOR,—We read with interest the article by Chau et al.2 We agree with the authors that even though, nowadays, penetrating keratoplasty has a high success rate and a better visual outcome, deep lamellar keratoplasty might still be indicated in certain conditions. They mention that the procedure is indicated only in eyes with a normal, functioning endothelium. We feel that the indication can be extended even to corneas in which the disease is caused by a decompensated endothelium such as bullous keratopathy after cataract surgery. In these cases, however, a full thickness graft must be used as donor material. In our experience, if a supernumerary anterior chamber is formed between the retained host’s Descemet’s membrane and the graft, the transplanted endothelium may function properly, assuring graft clarity.1,3 McCullogh et al have reported that if the endothelium is left on the donor tissue in lamellar keratoplasty it does not survive.4 This is probably true only when the anterior face of the retained Descemet’s membrane and the graft’s endothelium are in close contact. However, when a double anterior chamber is formed, the aqueous humour that separates these two layers prevents the damage to the endothelium. Concerning the surgical technique, in oedematous corneas of bullous keratopathy, dissection of the stroma from the underlying Descemet’s membrane is not difficult since a cleavage plane exists owing to the marked oedema. We feel that air injection is not necessary in these cases.

Deep lamellar keratoplasty is a safe procedure, with an acceptable visual outcome. It might be indicated in severely damaged and high risk eyes with bullous keratopathy, in which opening the anterior chamber might necessitate difficult and major reconstruction of the anterior ocular segment, intracocular lens exchange, and vitrectomy. Performing an ‘extracocular’ procedure might avoid severe complications in these selected cases and achieve acceptable results.

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Reply

Editor,—Loewenstein et al are to be congratulated on their innovative variation of deep lamellar keratoplasty in which fresh tissue with intact endothelium is used in the treatment of corneal endothelial failure. In their series, five of six grafts remained clear with functioning endothelium, and there was only one graft failure where the supernumerary anterior chamber was lost and the host Descemet’s membrane came into apposition with the donor endothelium.

The risk of rejection with Loewenstein’s technique is probably different from that in conventional full thickness penetrating keratoplasty, and the advantages of an ‘extracocular’ technique are balanced against the risk of endothelial failure owing to contact between the donor endothelium and the host Descemet’s membrane.

In the technique of Chau et al, deep lamellar keratoplasty with ophthalmised tissue has the advantage of lack of graft rejection and lack of sensitisation of the host to donor antigens, and this is balanced against potential problems with re-epithelialisation of the graft and of interface opacification.

No doubt both of these techniques are valuable innovations for treatment of selected cases of corneal disease.

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