

A CASE OF LAMELLAR CORNEAL TRANSPLANTATION USING PRESERVED GRAFT MATERIAL

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INTRODUCTION

Lamellar Keratoplasty has never enjoyed much popularity in leading centres for corneal grafting, when compared with Full Thickness Keratoplasty. Yet it is a valuable surgical procedure and should be part of the armamentarium of an ophthalmologist performing grafts.

Lamellar Keratoplasty replaces one half or more of the thickness of the cornea without going into the anterior chamber. It is an operation with less risk than penetrating grafts, but the surgical technique involved is perhaps a little more difficult. The indications for lamellar grafting are briefly: -

1. Optical — although lamellar grafting may not have such dramatic visual results as penetrating grafts, yet visual improvement may be very marked in certain conditions e.g.
 - (a) multiple foreign bodies on superficial layer of cornea;
 - (b) band-shaped keratopathy;
 - (c) superficial corneal opacities;
 - (d) recurrent pterygiums;
 - (e) superficial corneal dystrophies.
2. Preparatory — lamellar grafting is sometimes done for preparatory or tectonic use. Indications for such grafting include advanced keratoconus, leucomas associated with trachoma, caustic burns, dense leucomas etc.
3. Therapeutic — lamellar grafting is of great value in treating progressive corneal lesions, chronic or recurrent disease of the cornea which have failed to show improvement with other methods. It actually forms a preventive measure against corneal blindness. Many conditions may be so treated e.g. recurrent, chronic, spreading dendritic ulcers, Mooren's ulcer, recurrent pterygiums, acute chemical burns, corneal fistula, descemetocèle etc.
4. Miscellaneous — lamellar grafting is preferred to full thickness keratoplasty in very nervous and mentally unstable patients, in one-eyed persons, in children and in aphakia.

A successful case of lamellar keratoplasty is now reported, particularly because it was performed, using graft material which had been preserved for nearly one year and obtained from abroad. It is of interest to know that this graft material was sent on request in a small lightly weighted container, and it was preserved by the chemical glycerine-dehydration method developed by King, McTigue and Merryman.

CASE REPORT

The patient T.G.K., a Chinese female, aged 20, was first seen in the Eye Department, General Hospital in June 1960 with bilateral granulomatous pan-uveitis. Investigations were done and the only positive evidence unravelled which could point to the aetiology was a positive Mantoux 1/100 and X-ray chest showing markings in both infraclavicular zones, possibly Koch's and inactive. Vision gradually deteriorated despite local steroids and antituberculous treatment (Streptomycin and INH). It was decided to start oral steroids (Prednisolone). Repeated subconjunctival injections of Hydrocortisone were given and the eyes slowly quietened and by November 1960 were now quiet. The patient now had Vision Right 6/9 partly; Vision Left 6/12 partly with — 2.25 D. Right and Left.

She did not turn up for 4 months and by this time band shaped degeneration of both cornea were noted and vision was 2/60 Right and Left. The uveitis had recurred and was quite active. She was readmitted and started on Streptomycin and INH, oral Prednisolone and local steroids, both by drops and subconjunctival injections. The inflammation was controlled and by June 1961, after 2 months stay, she was discharged and kept on a maintenance dosage of Prednisolone together with

INH and Streptomycin (1 Gm. twice weekly). In September 1961, her vision was 6/36 Right and Left. She continued attending until December 1961. Her uveitis was grumbling on at a low level and despite repeated warnings, she turned up irregularly and finally did not show up till October 1962. Her vision was now H.m. Right and C.F. in Left, and the band shaped dystrophy was much worse. The uveitis was however quiet at this stage.

She was admitted for lamellar keratoplasty of the Right Eye in December 1962. She had remained quiet during the intervening 2 months. Preserved cornea was used and the operation was performed on 5.12.62 and the graft was fixed in place by multiple (12) sutures using 6 - 0 silk.

On 9.12.62, it was noticed that the Anterior Chamber was slightly hazy, and a faint trace of hypopyon was seen. The graft remained transparent and the graft bed too seemed clear. The eye was not tender, nor chemotic. It was felt that the operation had exacerbated the previous uveitis. The Left Eye was quite quiet. As a precaution Chloramphenicol was given subconjunctivally together with hydrocortisone and oral steroids was started. Diamox too was given by mouth. There was marked improvement by the next day. A further subconjunctival dose of Chloramphenicol and Hydrocortisone was given and by 13th October, the Anterior Chamber was clear. Meanwhile the graft and graft bed remained transparent. The pupil was well visualised. Ung Atropine 1% was installed daily from the first dressing. The Left Eye remained quiet throughout.

The patient was discharged after 6 weeks stay and kept on local Betamethasone eye drops after discharge. The oral steroid was gradually withdrawn prior to discharge.

At the last examination in August 1963, her vision Right Eye was 3/60 (without correction) whilst the Left was H.M. only. Whereas she had to be assisted when coming to hospital previously, she was now happily doing her chores at home and looking after her little baby. The graft has remained clear and further examination showed an early post cortical cataract (complicated) which has, doubtless prevented a better recovery of vision from the graft.

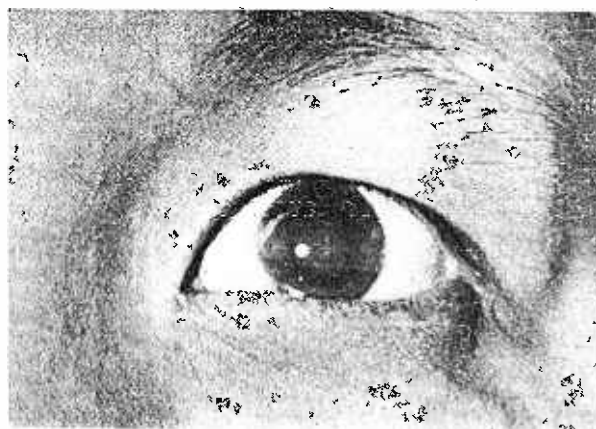


Fig. 1. Left eye showing band-shaped degeneration of cornea. The right eye showed a similar appearance.



Fig. 2. Right eye showing clarity of right cornea after Lamellar Keratoplasty. The remnants of the original band-shaped degeneration are seen in the periphery adjacent to the graft.

DISCUSSION

The preservation of cornea for keratoplasty has been a source of research and experimentation for a good many years. Various methods have been used, but generally however, any donor material that can be preserved for more than 10-14 days has proved useful only as material for lamellar (partial thickness) grafting. For full thickness grafting fresh or very recent cornea still must be used. Whilst there is no doubt that full thickness (penetrating) grafting has a much wider application, nevertheless, lamellar grafting has a definite place in ocular surgery.

The major problem to corneal grafting in Singapore is the supply of donor material. Since fresh material or very recent material is very difficult to obtain in Singapore, any that are obtained are reserved for full thickness

grafting. We have to fall back on preserved material with, as mentioned before, its less wider application, for those cases that would benefit with lamellar grafting. This preserved material is most useful in countries where corneal opacification from various conditions is one of the major causes of blindness and defective vision.

Several cases using such preserved material have been operated on in this hospital. This report of one such case is presented to demonstrate the practicability of using such preserved donor material.

The exacerbation of uveitis after surgery is another interesting feature of this case. There is very little doubt in the author's mind that it was not due to pyogenic infection. An acute flare up of previous intraocular inflammation

(iridocyclitis) has from time to time been reported after keratoplasty, and this must be borne in mind by the surgeon who may be dealing with such case on which a recent keratoplasty has been done.

In conclusion, grateful acknowledgement is made to Mr. John Harry King of the International Eye Bank in Washington, who after visiting this department, decided to send preserved graft material on request.

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