Therapeutic penetrating keratoplasty in keratomalacia

GURBAX SINGH AND S. R. K. MALIK

Department of Ophthalmology, Maulana Azad Medical College, and Associated Irwin and G. B. Pant Hospitals, New Delhi, India

Malnutrition is of special importance in infants and children in India, where secondary malnutrition due to dietetic and infective diarrhoea may lead to keratomalacia.

Therapeutic keratoplasty was carried out in eight eyes in six cases of keratomalacia (Table). All the patients had a history of diarrhoea for 8 to 15 days; they came from a poor socio-economic environment and were aged between 9 months and 4½ years.

Table *Therapeutic penetrating keratoplasty in keratomalacia*

Case no.	Age (mths)	Sex	Eye	Preoperative condition	Size of graft (mm.)	State of graft	
						Clear	Opaque
1	9	F	R	Cornea sloughed, iris exposed	10	+	—
			L	Cornea sloughed, iris exposed	10	+	—
2	24	M	L	Cornea sloughed, iris exposed	8*	+	—
3	52	M	R	Eccentric iris prolapse with necrosis in 4 mm. area	6.5	+	—
4	18	M	R	Cornea sloughed, iris exposed	9	+	—
			L	Cornea sloughed, iris exposed	9	+	—
5	9	F	R	Cornea totally sloughed	9*	Yes	—
6	18	M	R	Cornea totally sloughed	8	Yes	—

*Lens curetted

GENERAL EXAMINATION

The children were dehydrated with a loss of elasticity of the skin.

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Address for reprints: Dr Gurbax Singh, Department of Ophthalmology, Maulana Azad Medical College, New Delhi, India

OCULAR EXAMINATION

The lids were inelastic. The corneae were completely sloughed out in seven eyes (5 cases), while one eye (1 case) showed subtotal necrosis of the cornea with iris prolapse. There was no injection of the conjunctival or ciliary vessels. In the cases in which the cornea had completely sloughed, the iris and lens were exposed with no bulging forwards. There was an associated hypotony of the globe.

PREOPERATIVE REGIME

The dehydration was controlled by giving fluids. Emergency blood transfusions were given in four cases to raise the haemoglobin to at least 7 g. per cent.

OPERATION

General anaesthesia was administered, using halothane in four cases and gas and oxygen in two.

In two cases both eyes were operated on one after the other, but in the others only one eye needed keratoplasty.

Penetrating homografts of varying sizes were given (6.5 mm. — 1 eye; 8 mm. — 2 eyes; 9 mm. — 3 eyes; 10 mm. — 2 eyes). In four of the seven eyes in which grafts of 8 mm. or more were inserted peripheral iridectomies were carried out.

A trephine of appropriate size was placed on the globe and a superficial trephine mark was made. The edges of the corneal window were made regular by cutting away the trephined area. The homograft was held in place by a continuous suture of 8-0 atraumatic virgin silk. Sterile air was injected to re-form the anterior chamber. Subconjunctival streptomycin and penicillin were given, and bandages were applied.

POSTOPERATIVE TREATMENT

The patients were given 0.25 g. streptomycin intramuscularly daily. Intramuscular injections of 1,000,000 units of vitamin A were given on alternate days for 21 days. The eyes were dressed on alternate days under general anaesthesia, with local application of atropine eye ointment 1 per cent. and soframycin eye ointment. Corticosteroids were given subconjunctivally on alternate days from the 8th postoperative day onwards. The sutures were removed after 21 days. In one case (case 5) the lens was curretted as it had become cataractous.

Observations

STRUCTURAL IMPROVEMENT

In all cases, the eyes were saved structurally. The graft was transparent in five eyes and semitransparent in three (Figs 1 and 2).

FIG. 1 *Preoperative appearance of a case of keratomalacia*

FIG. 2 *Postoperative appearance, showing a clear penetrating graft*

VISUAL IMPROVEMENT

It was not possible to assess the acuity in seven eyes because the patients were so young, but in Case 4 it improved to 6/36 from projection of light.

COMPLICATIONS

An epithelial ulcer was seen in both eyes of Case 3; these healed but left behind semi-transparent grafts.

Anterior synechiae were seen in two eyes; they were broken by anterior synechiotomy in the 3rd postoperative week.

Mild to moderate iritis was seen in two cases; this was controlled by medical treatment.

Discussion

Cases of keratomalacia are unfortunately brought to the ophthalmologist at a very late stage when the cornea has become necrosed or perforated. The present study is of importance, because eight eyes in the six cases were structurally saved, with transparent grafts in five of them.

Summary

Therapeutic keratoplasty was used in eight eyes in six cases of keratomalacia. All the eyes were saved, and in five the graft remained transparent.