

Keratoplasty in the Management of “Irreversible” Blindness due to Trachoma: a review of the evidence

Introduction

- Trachoma is the leading infectious cause of blindness worldwide.¹ Having largely disappeared from high income countries, trachoma has continued to affect poor, isolated communities. Since 2004, it has been recognised as one of 17 neglected tropical diseases (NTD).
- *Chlamydia trachomatis* is spread by houseflies. Recurrent keratoconjunctivitis leads to conjunctival scarring, changes to tear film architecture, entropion and trichiasis. Corneal scarring and vascularisation cause trachomatous corneal opacification (TCO), leading to blindness.
- The SAFE strategy (see box) adopted by WHO in 1993 contributed to significant progress in eliminating Trachoma as a global public health problem.
- The WHO provide a comprehensive approach towards prevention and control of trachoma, however it fails to address the management of those already blinded by advanced disease, which they term “irreversible”.
- Patients with TCO are often not considered candidates for keratoplasty due to assumptions that ocular pathology will impair graft survival.² Posttrachoma sequelae can range from only mild corneal scarring to end stage scarring with vascularisation, ankyloblepharon and symblepharon, which have a significant bearing on graft survival.³ Appropriate patient selection, correction of trichiasis and aggressive perioperative management of ocular surface disease are factors which may affect outcome.⁴

1.9 million people blind or visually impaired from trachoma

1.4% of global blindness

Surgery
Antibiotics
Facial hygiene
Environment

Aims

- To perform an exploratory and possibly hypothesis generating exercise to assess available evidence regarding outcomes of keratoplasty in patients with TCO

Methods

- A search was conducted by one physician of PubMed, MEDLINE and Web of Science databases.
- Search terms used: “keratoplasty + trachoma”, “corneal transplant + trachoma”, “corneal transplantation + trachoma”
- The inclusion criteria was any study which presented the outcomes of corneal transplantation with corneal scarring due to trachoma.

Stages of Trachoma & the Pathway to Blindness

TF- follicular infection
TI- intense infection
TS- conjunctival scarring
TT- trichiasis
CO- corneal opacity



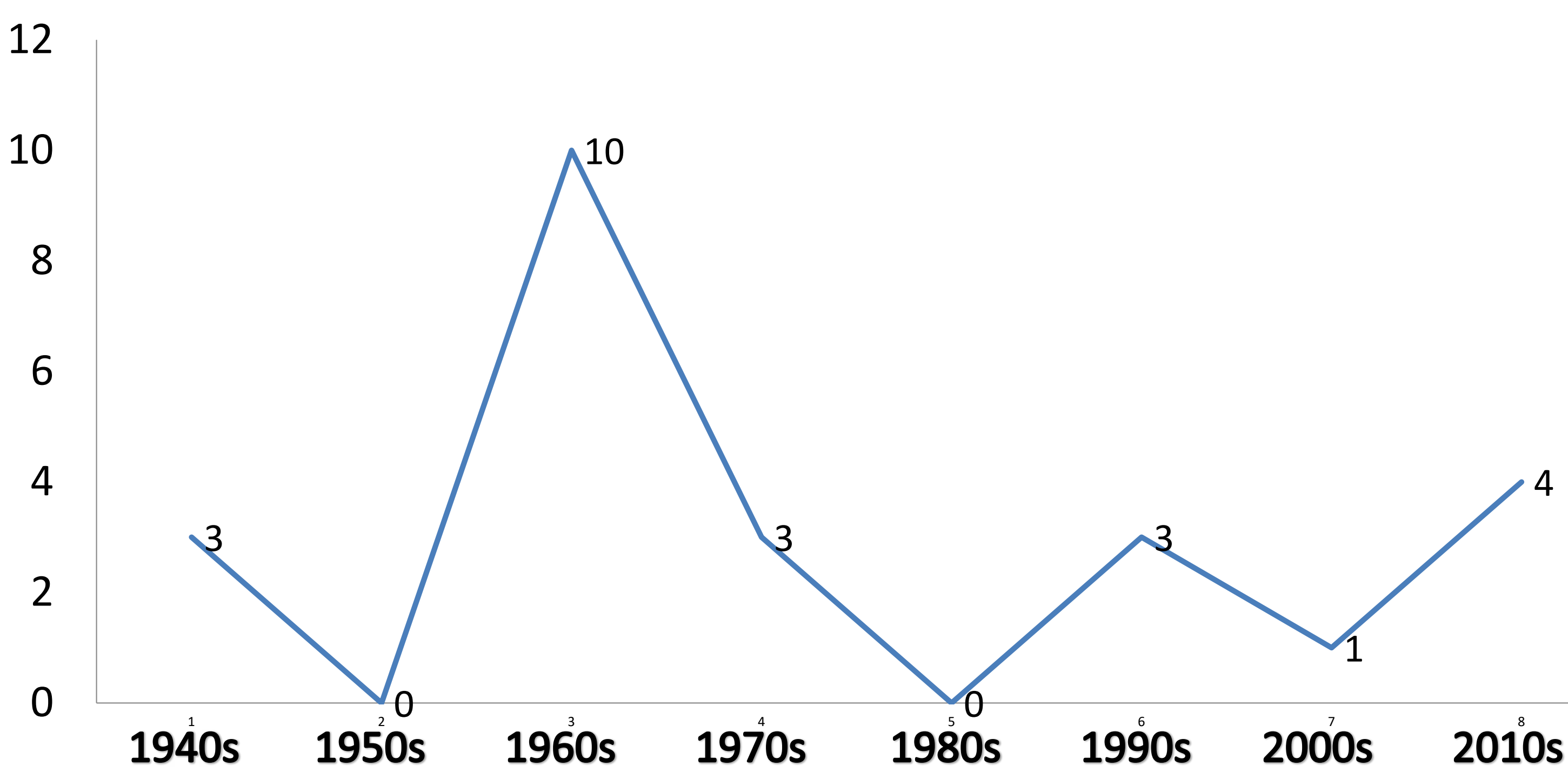
Results

0 Zero randomised control trials, systematic reviews or prospective studies

3 Three retrospective analyses focusing on trachoma published in the last 30 years (see data below, transcribed from Sharma et al)

- Few studies were published in the period following 1973, possibly reflecting the reduction of trachoma as a public health problem in wealthy countries. Given the advances in surgical equipment, knowledge and technique, the value of these studies is debatable.
- Aside from the three studies described below, most recent evidence exists in the form of large population surveys for indications for keratoplasty. There is very limited reporting of factors regarding patient selection, complications, follow-up and visual outcome.

Studies published per decade



Study	No of eyes (procedure type)	Mean follow-up in months	Clear Grafts at	Complications final follow-up	Final Visual Outcome
Kocak-Midillioglu et al ⁵ (1999)	16 eyes (PKP)	26.1 (14-61)	87.5%	Graft rejection 12.5%	81.3% >6/60 (due to vascularisation)
Al-Fawaz & Wagoner ³ (2008)	127 eyes (PKP)	42 (3-114)	80.2%	Glaucoma (27.6%), graft rejection (17.3%), bacterial keratitis(8.7%)	53.5% > 20/160
Sharma et al ² (2012)	17 eyes (ATLK)	16 (12-34)	94.1%	Bacterial keratitis (5.9%)	70.6% > 6/18,

Conclusions

- Trachoma continues to affect the world’s poorest communities
- Improving eye health infrastructure in lower-middle income countries has drastically reduced the rate of global blindness. Increasing numbers of “Eye Banks” and spreading of surgical expertise make transplantation an important part of addressing the burden of global blindness
- The limited evidence available suggests keratoplasty can be effective in restoring vision in those with trachomatous corneal opacity
- Though there is a high risk of reporting bias, this review highlights the paucity of recent evidence.
- Well designed, prospective studies are required to assess the role of keratoplasty in visual rehabilitation

References

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3. Al-Fawaz A et al. Penetrating Keratoplasty for trachomatous corneal scarring. *Cornea* 2008; 27(2): 129-32
4. Panda et al. Penetrating Keratoplasty for Trachomatous Corneal Scarring. *Cornea* 2008; 27(10): 1217-18
5. Kocak-Midillioglu I et al. Penetrating keratoplasty in patients with corneal scarring due to trachoma. *Ophthalmic Surg Lasers* 1999; 30(9):731-41