

## A CLINICAL INVESTIGATION TO ANALYZE THE INDICATIONS FOR PENETRATING KERATOPLASTY: A RETROSPECTIVE STUDY.

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### Abstract

**Aim:** to analyze the indications for Penetrating keratoplasty

**Materials and Method:** The present retrospective study was conducted in the Department of Ophthalmology, Patna Medical College and Hospital, Patna, Bihar, India for the period of one year. The gender, age, laterality and indication for surgery were noted from the records, and analyzed using SPSS version 20.

**Results:** Mean age was 54.12 years and majority of them were male. Right eyes were operated more i.e. 32 (65.3%) followed by left eyes. 18 (36.7%) belonged to Finger count close to face followed by 13 (26.5%) PLPR.

**Conclusion:** the present study concluded that commonest indication for PKP was corneal opacity.

**Keywords:** Keratoplasty, Corneal opacity, Indications

### Introduction

The World Health Organization estimates that worldwide about 253 million people are visually impaired, of which 36 million are blind. It has been estimated that over 80% of global visual impairment is preventable or treatable.<sup>1</sup> Globally, acquired corneal blindness is the third leading cause of visual loss after cataract and glaucoma respectively, accounting for 8 million blind, including 1.5 million blind children.<sup>2,3</sup>

Corneal blindness encompasses a range of eye conditions that alter the transparency of the cornea, leading to corneal scarring and, eventually, blindness. In India etiology of corneal blindness include a wide variety of infections and inflammatory eye diseases, ranging from Keratitis, xerophthalmia, eye trauma, trachoma, congenital disease and traditional eye medicine or home remedies, which often harm the eye rather than relieve pain or improve eyesight.<sup>4</sup> The causal factors responsible for corneal blindness vary with age.

Penetrating keratoplasty (PKP) or cornea transplantation, which involves replacement of the diseased cornea with a healthy donor corneal tissue, is the only treatment option in majority of such cases. PKP is one of the most common tissue transplants performed across the globe. The indications for PKP vary with geographical location, socioeconomic status and changing demographic characteristics of a community.<sup>5</sup>

Over the recent two decades, there has been a paradigm shift towards performing lamellar keratoplasty instead of

full thickness keratoplasty for pathologies not involving the full thickness of cornea.<sup>6,7</sup>

The knowledge about the indications in a particular area is extremely important in terms of planning of eye banking and corneal transplant services in both public and private sectors. Hence the aim of the present investigation was to analyze the indications of PKP in a medical college in Patna, Bihar.

### Materials and Methods

The present retrospective study was conducted in the Department of Ophthalmology, Patna Medical College and Hospital, Patna, Bihar, India for the period of one year.

**Ethical approval** The study was approved by hospital ethics committee and followed the tenets of Helsinki declaration.

### Methodology

A retrospective review of the medical records of all patients who underwent PK over a period of 1 year was done.

The gender, age, race of patients, eye operated and indication for surgery were noted from the records, and analyzed. The graft failure was defined as irreversible graft reaction after intensive medical therapy, resulting in corneal pacification and poor vision (

### Statistical Analysis

The data was analyzed using SPSS 19 (SPSS Inc. Chicago, IL, USA) Windows software program. Descriptive frequencies were expressed using mean and standard deviation.

Sensitivity and specificity were calculated with 95% confidence interval (CI) where relevant.

## Results

**Table 1:** Mean age and Gender

Age (years)	54.16±3.81
Gender (M/F)	28 (57.1%) /21 (42.9%)

**Table 2:** Distribution of study subjects according to Laterality of eyes

Laterality	N	(%)
Right Eye	32	65.3
Left Eye	17	34.7
Total	49	100.0

**Table 3:** Visual status study subjects

Visual status	N	(%)
Finger count 1Meter	7	14.3
Hand Movement Only	11	22.4
PLPR	13	26.5
Finger Count close to face	18	36.7
Total	49	100.0

**Table 4:** Distribution of Indications

Indications	N	(%)
Corneal Opacity	12	24.5
Infectious Keratitis	10	18.4
Graft Failure	8	16.3
PBKP	6	12.2
Adherent Leucoma	5	10.2
Perforated Corneal	4	8.2
Ulcer	2	4.1
Staphyloma	2	4.1
Total	49	100.0

## Discussion

In the present study, the male recipients were more 31 (62%) than female recipients 19 (38%). This finding is explained by the male predominance in the workforce that is exposed to diseases that lead to indications for keratoplasty.

In our present study, clinically we found out that corneal opacity (24.5%) was the most common indication. Other studies reporting corneal opacity as commonest indication are Dandona et al.<sup>8</sup> (35.6%), Shilpa et al.<sup>9</sup> (42.54%) and Varghese et al.<sup>10</sup> (12.39 %) reports it to be less common indication. Kanavi et al.<sup>11</sup> (18.68%) and Xie et al.<sup>12</sup> (16%) report it as the second most common indication in their study. Most studies carried out in India report corneal opacity as the significantly the commonest indication compared to the other indications.<sup>9,13</sup>

Infectious keratitis was found in 10 (18.4%) as second major indication in the present study. In contrast, studies from other Asian countries like China<sup>12</sup> and Vietnam<sup>14</sup> have reported a higher incidence of infectious keratitis as

compared to corneal opacity in their PKP patients. We believe both these indications are inter-related, as corneal opacity quite often is the sequelae of infectious keratitis.

Previous Graft failure was present in 8 (16.3%) of the patients. It came out similar to studies conducted by Dandona et al.<sup>8</sup> (17.1%) and Cosar et al.<sup>15</sup> (18.1%). Bullous keratopathy occurs most commonly after cataract removal and is called pseudophakic. PBK (14%) was reported as fourth commonest indication in the present study. While, Saldhana et al.<sup>16</sup> (50%), Dobbins et al.<sup>17</sup> (31.5%), Cosar et al.<sup>15</sup> (27.2%), Brady et al.<sup>18</sup> (23%), Haaman et al.<sup>19</sup> (28.3%) report it as their commonest indication. Mamalis et al.<sup>20</sup> (23.0%) document it as a common indication too.

## Conclusion

Thus it can be concluded from our study that, the commonest indication for PK is corneal opacity. Emphasis should thus be laid on the need for patient education, preventive measures, and improvements in primary eye health care services which are required to reduce the burden of corneal blindness in this region.

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