Corneal blindness is the most common cause of blindness in Egypt (Al-Hussaini M.K. 1987).

Although keratoplasty is the ideal solution, its availability in Egypt is limited by legal and traditional factors.

Autokeratoplasty may be the logical solution for these cases.
Types of corneal autografting:

- Contralateral auto grafting.
- Ipsilateral rotational auto grafting.
- Surgical Vs Femtosecond assisted.

Aim of the work

- Studying the clinical outcomes of ipsilateral rotational autokeratoplasty.
- Comparing surgery and femto second assisted IRA results.
Introduction:

Homologus graft disadvantages:

- Unavailability.
- High cost
- Endothelial rejection...15 - 20%.
- Late graft failure.
- High doses of postop. steroids.

Autografting:

WHEN?

- Ipsilateral rotational autokeratoplasty (IRA) indicated in non progressive central corneal opacity and a clear cornea in one side.

HOW?

- The procedure involves an eccentric trephination of the cornea, rotating the opacity out of the visual axis and the clear peripheral cornea to the center.
Advantages of autografting over homograft:

- NO risk of immunological rejection (pediatric patients).
- Does not require high doses of postoperative corticosteroids (unlike PK) and therefore avoids its complications.
- lower endothelial cell loss than after homologous PK.

Disadvantages:

- Astigmatism continues to be a problem due to the eccentric nature of corneal trephination in rotational keratoplasty.
Methods:

1) Formulae.
2) Digital photographs and imaging software. ......drawback ....two-dimensional images do not consider the curvature of the cornea.
3) Simpler technique.

Steps:

- Preoperative assessment.
- Intraoperative calculations
- Appropriate trephine size.
- Appropriate position on the cornea.
Tools

- Calipers is inked with a marking pen (mark 1).
- (mark 2)
- (mark 3)
- (mark 4)

Technique:
## Results:

Two IRA studies:

<table>
<thead>
<tr>
<th></th>
<th>Surgical</th>
<th>FSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of eyes</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Duration</td>
<td>2003 to 2005</td>
<td>2016 to 2017</td>
</tr>
<tr>
<td>Mean preop. VA</td>
<td>C.F.</td>
<td>C.F.</td>
</tr>
<tr>
<td>Mean Postop. VA</td>
<td>360-618 (mean 6136)</td>
<td>6160-6118 (mean 6124)</td>
</tr>
<tr>
<td>Mean post op. Astigmat.</td>
<td>6.25D</td>
<td>4.75D</td>
</tr>
<tr>
<td>No. of failed grafts</td>
<td>2 (16.7%)</td>
<td>0</td>
</tr>
<tr>
<td>No. of rejected grafts</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No. of Pt. e VA more</td>
<td>9 (75%)</td>
<td>3 (100%)</td>
</tr>
<tr>
<td>than 6160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postop. glaucoma</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Instruments</td>
<td>Hand held trephine.</td>
<td>Allegretto WaveLight® FS200 Laser</td>
</tr>
</tbody>
</table>
The study has important clinical
DISCUSSION

Rotational autokeratoplasty has many advantages over homologous keratoplasty;

- **Availability**
- Absence of immune rejection.
- Rapid healing.
- Less postoperative visits.
- Less steroids.
- Eye banking is not necessary.
Disadvantages of this procedure is poorer visual acuity due to higher astigmatism caused by eccentric grafting with proximity of edge of graft to the center.

Although some authors use a special formula to determine the size and location of the graft (Jonas JB et al, 1994), we prefer a simpler technique; an eccentric graft of 8 mm diameter that include a part of opacity that occupies less than 4 mm of trephine.
Postoperative vision and astigmatism was comparable with other results (Murthy S. et al. 2001.)

Graft failure represents 17% of cases underwent conventional surgery, probably due to poor endothelial count so preop. specular microscopy is advisable.

Newer generations of CL e.g. Rose K2 XL (semi scleral lens) may compensate for high postop. Astigmatism.

CONCLUSION

IRA is considered a good alternative to homologous grafting specially when the later is unavailable, also in cases with high risk of immune rejection (pediatric) with less postoperative steroids.
Take home message:

- **Contrary to common belief, IRA is a safe and effective procedure.**
- **It can be alternative to PPK when donor tissues are scarce and also if risk of immune allograft rejection is high.**
- **Wider scale studies with use of specular microscopy and topography might be useful.**
- **Femtosecond laser may add some benefit to this procedure.**

References

THANK YOU