



## Corneal Tattooing (Keratopigmentation) to Achieve Good Cosmetic Results in Traumatic Anirida Patient

### KEYWORDS

corneal tattooing, anirida, Leucomatous corneal opacity

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### ABSTRACT

A, 42 year male presented to tertiary care hospital in Mumbai, with chief complaints of glare and photophobia in left eye since one month. He had history of penetrating injury to left eye with bull horn, one & half month back, while working in the field. Removal of prolapsed iris and corneal tear suturing was done in peripheral hospital. Left eye showed finger counting from 3 meters with projection of light in all quadrants. Slit lamp examination of left eye showed leucomatous opacity in inferior one fourth of cornea and total anirida. Fundus examination of left eye showed temporal pallor. Corneal tattooing (Keratopigmentation) was done with 30 gauge needle and mixed black, yellowish brown colour pigment in irregular format to recreate better iris crest & colour. Patient became symptomatically better & also cosmetically satisfied. We found that there was no fading of colour, even after 6 months.

### Introduction:

Keratopigmentation (KTP) Corneal tattooing has been used for cosmetic treatment of corneal opacities for centuries.<sup>1,2</sup> Galen (AD 131-210) is considered to be the first to pigment human cornea, using reduced copper sulphate to mask a corneal leucoma. Keratopigmentation (KTP) gained limited popularity due to variety of reasons. Later surgeons experimented with different combinations of various chemical products such as Indian ink, metallic powders, organic colours, animal uveal pigment, chinese ink, gold & platinum chloride. The main problem affecting the outcome of previous KTP studies was the fading of colours which made the results inconsistent over time. Probably because of these reasons, using these techniques to improve the appearance of cosmetically disabled eyes and even normal sight KTP has been used only occasionally and very few scientific reports on its affectivity and stability are available.<sup>5</sup>

Cosmetic contact lenses, enucleation or evisceration with orbital prosthesis, Penetrating keratoplasty has various disadvantages. Thus, to overcome these disadvantages, corneal tattooing is very safe, easy and cost-effective method to achieve cosmetic results.

### Case report

A, 42 year male presented to tertiary care hospital in Mumbai, with chief complaints of glare and photophobia in left eye since one month. He had history of penetrating injury to left eye with bull horn, one & half month back, while working in the field. Removal of prolapsed iris and corneal tear suturing was done in peripheral hospital.

On ocular examination, right eye had 6/6 vision and left eye had finger counting from 3 meters with projection of light in all quadrants. Pupillary reaction in left eye had shown RAPD (relative afferent pupillary defect). On slit lamp examination of left eye leucomatous opacity was seen in inferior one fourth of cornea. Total anirida was also present. Fundus examination of left eye showed temporal pallor. This suggests left eye leucomatous corneal opacity with total anirida and optic atrophy.

On systemic examination of cardiovascular system, Respiratory system and Central nervous system were within normal limit. Routine blood investigations were also normal.

### Management

After careful examination of anterior segment of left eye and taking all preoperative fitness including measurement of pupil diameter of fellow eye; superficial corneal staining was done with black and yellowish brown pigment sparing pupillary diameter centrally.

Superficial staining was performed as follows: a drop of adequate stain was put on the corneal surface and then micro puncture were performed down to the superficial layer of the stroma with a 30 gauge needle. At this level, the bevel of the 30 gauge needle was facing inferiorly towards the cornea in order to increase the penetration of dye. The maneuver was repeated until the adequate amount of micronized stain was introduced into the superficial cornea, to eliminate the stained epithelium.

Postoperative treatment included patching of the left eye, topical dexamethasone one drop four times a day for 2 weeks and an antibiotic milfloxacin one drop two times a day for one week.

For this study, follow up period was 6 months after the surgery. The patient was examined on first postoperative day, seventh day, one month, three month & six month after the surgery by observer. Patient became free from photophobia and glare. Patient was symptomatically better & also cosmetically satisfied after surgery.

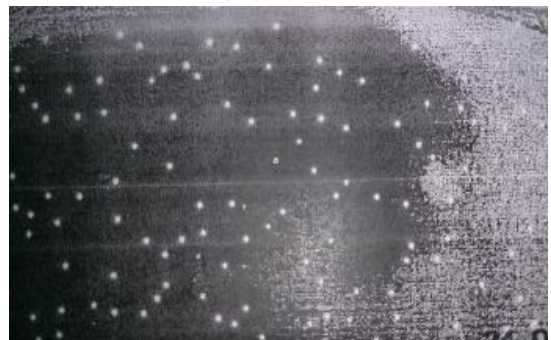


Fig. 1: Preoperative left eye showing inferior leucomatous opacity with total anirida.



**Fig2:Postoperative left eye after ¼ Keratopigmentation**

### Discussion

In the present study, patient had penetrating injury in left eye by bull horn, with complaining of glare & photophobia. These types of cases of bull horn injury are common in rural India. Most of the rural population is engaged in farming which consists of using of bulls for various activities. This case was reported one and half month after injury in tertiary care centre which indicates that specialty services are still far away from rural population. In this case leucomatous corneal opacity with total anirida and optic atrophy; corneal tattooing was done to achieve better cosmetic result and not for the visual prognosis.

In the present study, superficial staining was done by putting drop of adequate stain on the corneal surface and then micro punctures were performed on superficial layer of the stroma with a 30 gauge needle. Similar procedure were also performed in other studies.<sup>2,4</sup>

For this study follow up period was 6 months after the surgery. Patient became symptomatically better & also cosmetically satisfied. We found that there was no fading of colours, even after 6 months. Similar findings were also reported in other studies.<sup>2,3,4</sup>

Corneal tattooing is very safe, easy and cost-effective method to achieve cosmetic results in such patients.

Today, the preferred treatment for a blind patient & cosmetically severely impaired eye is the use of cosmetic contact lenses, which often are not well tolerated by patients. Another alternative is the use of external prosthesis which in some cases causes chronic inflammation, ocular surface erosion & frequently discomfort. PK, with its well known limitations and various risk is also occasionally used incases of injured eyes. Finally, evisceration, enucleation and prosthesis adoption are mutilating procedures that are used in the most severe or intractable cases.<sup>6,7</sup>

**Conclusion:** keratopigmentation (KTP) has achieved good cosmetic and symptomatic results and is associated with high patient satisfaction.

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