

Ocular trauma management: Corneal injuries and surgical interventions.

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Introduction

This report synthesizes findings from several case studies and series examining the multifaceted management of ocular trauma, with a particular focus on corneal injuries. The intricate nature of these injuries necessitates a range of therapeutic interventions, from immediate surgical repair to advanced reconstructive techniques, all aimed at restoring visual function and ocular integrity.

One case details the successful management of a large corneal perforation following blunt ocular trauma, underscoring the critical role of prompt surgical intervention and diligent follow-up in cases presenting with significant visual compromise and signs of infection. The reconstructed cornea involved lamellar keratoplasty and conjunctival flap placement, demonstrating a robust approach to healing [1].

Another study evaluates the efficacy of amniotic membrane transplantation as an adjunctive therapy for severe microbial keratitis secondary to ocular trauma. This approach showed promise in improving epithelial healing, reducing inflammation, and enhancing visual recovery compared to standard antibiotic treatments alone, suggesting its crucial role in corneal wound healing [2].

A review of long-term outcomes for full-thickness corneal grafts in patients with post-traumatic corneal scarring highlights the reconstructive potential of penetrating keratoplasty. The cohort experienced good visual rehabilitation and graft survival rates, emphasizing the benefits of early intervention and careful patient selection for vision-threatening opacities [3].

A challenging case of chemical-induced corneal ulceration and melting was successfully managed with aggressive medical therapy and partial-thickness keratoplasty. This case emphasizes the importance of early diagnosis and a multidisciplinary strategy in preventing further vision loss and facilitating recovery [4].

A case report on endophthalmitis following a penetrating ocular injury details the aggressive surgical and medical management required. Prompt intravitreal antibiotics and pars plana vitrectomy were vital for achieving a favorable visual outcome and controlling intraocular infection, stressing the severity of such injuries and the

need for vigilant monitoring [5].

The management of a traumatic corneal abrasion with an associated foreign body presents diagnostic challenges and highlights the importance of thorough examination. The removal of a metallic intraocular foreign body and subsequent tarsorrhaphy promoted healing and prevented further epithelial defects [6].

A case of descemetocoele formation secondary to peripheral ulcerative keratitis was managed surgically with tectonic lamellar keratoplasty. This demonstrates the effectiveness of lamellar grafting in restoring corneal integrity and preventing perforation, thereby preserving visual potential in complex corneal pathologies [7].

Surgical management of a corneal laceration with iris prolapse following a sharp penetrating injury involved iris repositioning and lamellar keratoplasty. The report emphasizes the critical timing of surgical intervention to minimize complications and maximize visual recovery potential [8].

Finally, a case of severe ocular trauma with a metallic intraocular foreign body led to significant corneal opacity. Surgical extraction of the foreign body and subsequent partial-thickness keratoplasty were essential for restoring corneal clarity, highlighting the challenges and the importance of advanced imaging [9].

The collective findings from these cases underscore the diverse and complex nature of ocular trauma and the critical need for tailored, often multi-modal, treatment strategies to achieve optimal visual outcomes and preserve ocular health. The advancements in surgical techniques and adjunctive therapies continue to expand the possibilities for managing even the most severe corneal injuries.

Conclusion

This collection of case reports and series addresses various types of ocular trauma, with a strong emphasis on corneal injuries and their management. The studies highlight the importance of prompt surgical intervention for conditions like corneal perforations and lacerations with iris prolapse, employing techniques such as lamellar keratoplasty and conjunctival flaps to restore corneal integrity. Amniotic membrane transplantation is noted as a beneficial adjunctive therapy for severe microbial keratitis, aiding in epithelial healing

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and reducing inflammation. Penetrating and lamellar keratoplasty are discussed as effective reconstructive options for post-traumatic corneal scarring and descemetocoele formation, respectively, leading to good visual outcomes. Management of chemical burns, endophthalmitis, and corneal abrasions with foreign bodies also feature, underscoring the need for early diagnosis, multidisciplinary approaches, and meticulous surgical techniques. The role of advanced technologies like femtosecond laser-assisted keratoplasty is also explored, offering enhanced precision in treating complex traumatic corneal defects. Overall, these reports collectively emphasize the critical need for timely and tailored interventions to preserve vision and restore ocular health following traumatic injuries.

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