

Superglue Eye Injury in a Teenage Girl: A Case Report

Dr. Manoj Gupta¹, Dr. Siddharth Sharma², Pritish Gupta³

¹CMO, Sankara Eye Hospital, Ludhiana Panjab, India

²Fellow IOL, Sankara Eye Hospital, Ludhiana Panjab, India (Corresponding Author)

³Final Professor, Part 2 Student, Dayanand Medical College & Hospital, Ludhiana Panjab, India

Abstract: A 17-year-old Indian girl presented to the OPD of our hospital because her left eye had accidental spillage of cyanoacrylate adhesive. The patient needed mechanical removal of superglue. At follow up patient was having 6/6 vision.

Keywords: Superglue, Ocular trauma, corneal abrasion

1. Introduction

Superglue which is a cyanoacrylate adhesive has become readily available for domestic use in repairs, craft work, and cosmetic use like applications of nail tips. This is because it is highly adhesive for a wide variety of surfaces (metal, wood, paper, glass and plastics), easily available and cheap. Cyanoacrylate glue is a monomer of cyanoacetate, which polymerizes within seconds via a reaction to water in the air or target surface. On contact with human eye, it can result in chemical tarsorrhaphy (1, 2). It also has a high resistance to heating, humidity, and most solvents like alcohol, oil and gasoline. (3) Superglue also has many medical applications. Superglues available for public use are monomers, while those used for medical purposes are higher alkyl derivatives and are less toxic to tissues. This paper presents a case of accidental superglue injury to the eye of a teenage girl.

2. Case Report

A 17-year-old female presented to our OPD at Sankara eye hospital, Ludhiana on June 15, 2022 with complaints of sudden loss of vision for 2 hours in the left eye following accidental spillage of superglue into the eye. She was using superglue for repair of some domestic work when she suddenly realized of a spillage to her left eye. She rubbed her eye to wipe it out but of no use. She immediately

instilled water into her eye and when she couldn't open it. After washing her eyes with water, she noted pain, photophobia and decrease of vision in her left eye. She was immediately rushed to our center by her elder brother with fear & anxiety.

On examination at our hospital, after removal of the ice pack on the left eye, the upper and lower lids were separated under topical anesthesia. Visual acuity at presentation was 6/60 OS, with no improvement on pinhole. Slit lamp examination showed a Glue fragment present on the surface of the cornea at its center. There was a central 4-mm X 3-mm epithelial abrasion on the cornea. (Figure 1,2). The cornea stained centrally with fluorescein. No fragments of polymerized glue were found in the fornixes. Anterior Chamber was quiet and eyelid anatomy was normal. An eye bud was gently used to remove the piece of glue from the cornea followed by instillation of moxifloxacin eye drop. Patient was patched for 2 hours. She was started on topical lubricant (0.5% CMC) and antibiotic (0.5% moxifloxacin) eye drops 4 times daily. She was asked to follow up after 3 days.

Three days after the accident the corneal abrasion was completely healed, and visual acuity in her left eye returned to 6/6. External lid and lash anatomy was entirely normal.



Figure 1: Showing superglue injury on diffuse illumination (10x) examination

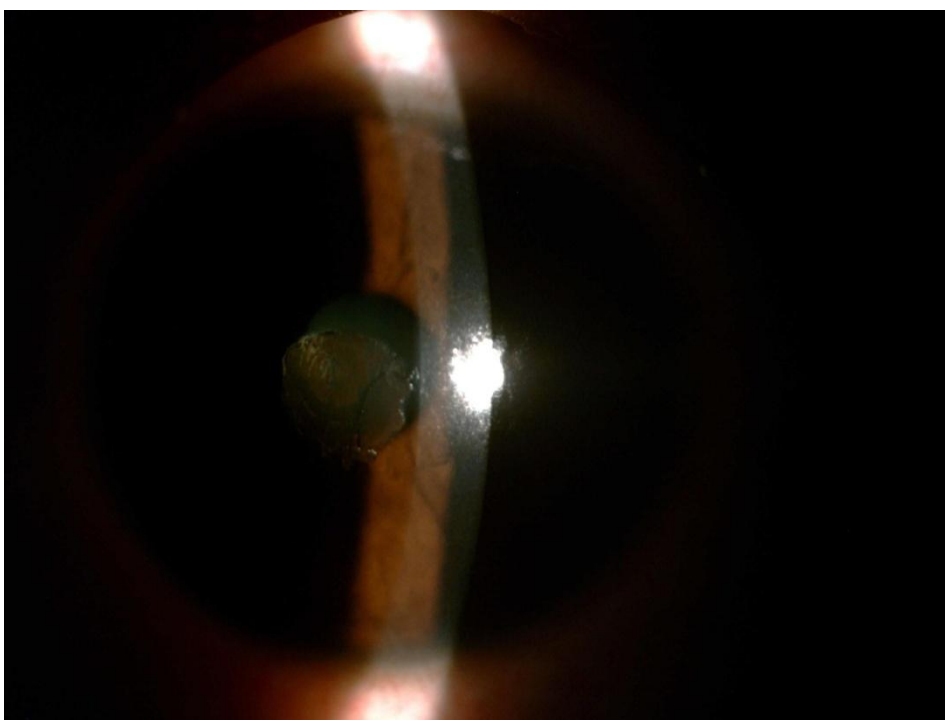


Figure 2: Showing corneal abrasion on corneal cross section (16x magnification) slit lamp examination

3. Discussion

Although cyanoacrylate tissue adhesives have numerous applications in clinical ophthalmology, including the treatment of corneal perforations (4), corneal thinning (5), and leaking filtering blebs (6), this brief report focuses on the inadvertent administration of this compound and management guidelines for primary care physicians. In contrast to the accidental spillage reported here, clinical adhesive use is also performed under meticulous conditions and with controlled clinical follow-up care. Accidental instillation of cyanoacrylate in the eye remains a source of

potentially serious vision loss and ocular morbidity that should be easily prevented. Patient education combined with physician awareness can prevent complicating sequelae of this type of accident. The case reported here serve to illustrate the key teaching points in understanding the cause and management of accidental cyanoacrylate exposure in the eye.

First, and foremost, this case demonstrates the need for close parental supervision of children who use these adhesives. Accidental instillation does not necessarily occur by direct deposition into the eye but can be the result

of finger to eye inoculation. Primary care physicians, emergency department physicians, and ophthalmologists should consider child abuse as a cause when children with a history suggestive of abuse or an unusual constellation of physical findings are examined.

Secondly, with a known injury to the cornea and fragments of polymerized glue, it is important to perform a complete eye examination quickly especially the fornix for hidden particles. This examination necessitates prompt removal of the cyanoacrylate fragments. Complications of retained adhesive fragments include infectious keratitis (7), giant papillary conjunctivitis (8), cataracts (9) and granulomatous keratitis (10). A careful history of potential trauma to the affected eye is crucial.

It is our recommendation, therefore, that in the face of corneal injury or the possibility of retained or adherent glue fragments, appropriate steps be taken to ensure a complete ophthalmic examination in a timely manner and abrasions treated in a routine fashion with broad-spectrum antibiotic drops along a pressure patch. Patient should be frequently followed up until healing is complete. Each case should be tailored on an individual basis according to the patient profile and the clinical setting of the injury. If complications are observed during the initial assessment, refer the patient for immediate subspecialty consultation.

4. Conclusion

The immediate management with copious irrigation of lid margins with normal saline and removal of as much as glue either by trimming of eyelashes and mechanical removal of glue with forceps prevents further complications. Health education and increased awareness of eye care plays a pivotal role in prevention such type of accidents.

Statement of Ethics

This study adhered to the tenets of the Declaration of Helsinki. Written informed consent was obtained from the patient for publication of this case report and any accompanying pictures.

Conflict of Interest Statement

The authors have no conflicts of interest for this study.

Funding Sources

No financial support was provided.

References

- [1] Desai SP, Tegghalli BC, Bhola R. Superglue mistaken for eye drops. Arch Dis Child. 2005 Nov; 90(11):1193.
- [2] Jijelava K, Le H, Parker J, Yee J. Getting hooked: a simple technique for the treatment of adhesive injuries to the eyelids. J Emerg Med. 2017 Jan; 52(1):74–6.
- [3] Yusuf IH, Patel CK. A sticky sight: cyanoacrylate 'superglue' injuries of the eye. BMJ Case Rep. 2010; 2010:bcr11.2009.2435.
- [4] Hirst LW, Stark VJ, Jensen AD. Tissue adhesives: new perspectives in corneal perforations. Ophthalmic Surg 1979; 10(3):58-64.
- [5] Fogle JA, Kenyon KR, Foster CS. Tissue adhesive arrests stromal melting in the human cornea. Am J Ophthalmol 1980; 89:795-802.
- [6] Awan KJ, Spaeth PG. Use of isobutyl-2-cyanoacrylate tissue adhesive in the repair of conjunctival fistula in filtering procedures for glaucoma. Ann Ophthalmol 1974; 6:851-3.
- [7] Leahey AB, Gottsch JD, Stark WJ. Clinical experience with N-butyl cyanoacrylate (Nexacryl) tissue adhesive. Ophthalmology. 1993 Feb; 100(2):173-80.
- [8] Carlson AN, Wilhelmus KR. Giant papillary conjunctivitis associated with cyanoacrylate glue. Am J Ophthalmol 1987; 104:437-8.
- [9] Gudas PP, Altman B, Nicholson DH, Green WR. Corneal perforations in Sjogren syndrome. Arch Ophthalmol 1973; 90:470-2.
- [10] Ferry AP, Barnert AH. Granulomatous keratitis resulting from use of cyanoacrylate adhesive for closure of perforated corneal ulcer. Am J Ophthalmol 1971; 72:538-41.