

Rigid Eye Shields: A Critical Gap in the Individual First Aid Kit Commentary

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The article by Brunstetter and colleagues clearly highlights the importance of eye injuries in current combat operations. As an eye surgeon and oculoplastic/orbital subspecialist, my personal view is that we must constantly educate our Soldiers to prevent eye injuries when possible and manage them when necessary.

Recent *Journal of Special Operations Medicine* articles have detailed the clinical examination and management of the two critical vision-threatening wounds: orbital compartment syndrome (OCS) and open globe.^{1,2} We have also presented lectures and skills transfers labs at recent SOMA annual meetings that include performance of lateral canthotomy/cantholysis and demonstration of rigid or “Fox” shield placement as well as the basics of ophthalmic examination techniques. For the Army, attendance at the Tactical Combat Medical Care (TCMC) course at Fort Sam Houston, TX, is required of all conventional force medical providers (physicians, physician assistants [PAs], registered nurses, etc.) before deployment. This course is staffed by many former 18Ds who are now PAs. My personal experience in May 2013 was outstanding. The cadre provided excellent instruction both for the use of rigid eye shields and in skills for canthotomy/cantholysis. SOF medics and flight medics routinely include rigid shields in their packs, and newer shields have an adhesive base similar to that of chest seals (e.g., Combat Eye Shield, H&H Medical Corporation; <http://www.gohandh.com/combateyeshield/>). Based on current training Service-wide doctrine (including TCCC for SOFMED and TCMC), mandatory courses, literature, and specialty/subspecialty meetings, it can safely be said that SOF personnel and conventional medical providers are well instructed and aware of ocular trauma identification and management until definitive vision saving care can be rendered at role III and above facilities. The case to be considered is this: Should a rigid eye shield be part of the individual first aid kits (IFAK) for all Soldiers?

Recognition of both open globe and OCS is not easy in civilian trauma practice for less specialized providers. Obviously care under fire complicates the process.

In training ophthalmology resident and oculoplastic surgery fellows, we stress a low threshold for intervention. When performed correctly, canthotomy/cantholysis is very safe, and later oculoplastic repair is usually complication free—and vision is saved. High clinical acumen is needed to assess the risk of open globe from facial injuries that may include blunt force/fractures, penetrating trauma, thermal or chemical burn, and laceration to the adnexal structures. There is certainly risk from manipulating ocular and periocular structures in an attempt to examine the globe, and this would be more difficult in combat situations. Even simply applying a rigid shield, including the self-adhesive type, poses challenges. Adhesive may not adhere to a field contaminated with blood and debris, yet attempts to clean the surface may disrupt the tissue we desire to protect. Slight pressure on a true open globe can lead to vision-devastating expulsion of intraocular contents. In a setting of massive facial edema, hemorrhage, and deep lacerations with proptosis, one must ask, “Is this OCS or is there an underlying open globe?” The answer will direct treatment. Factor in that the injured Soldier will be in pain, may have an associated brain injury and be unable/unwilling to cooperate with an eye exam, and may have other more serious injuries. Given the complex nature of these injuries, it may not be reasonable for each and every warfighter to develop the skills within self/buddy aid to assess and manage open globe and OCS. As current doctrine stresses the four main preventable causes of death (compressible hemorrhage, airway compromise, tension pneumothorax, and hypothermia), the eyes should not be assessed until the injured Soldier has been moved to a safer location during care under fire. In fact, the dramatic nature of facial injuries can be a distraction from assessing and treating the “big four.” No provider of any military occupational specialties should examine the eyes until the preventive causes of death are addressed after returning fire and moving the casualty to safety.

The authors have well documented the incidence of eye injuries in modern warfare, making an excellent case for increased awareness. Personal bias supports increased presence of rigid shields in the battle space for use by

qualified personnel, and they should be available to all who wish to carry them given their low cost and minimal weight. However, the complexities described here ultimately limit who can and should be managing these injuries and at what point in the postcasualty timeline. While placement of a shield in the IFAK would potentially improve access for the medical provider and the savvy nonmedical soldier, there is no question that the best way to decrease eye injuries is to improve compliance with eye protection strategies including the wearing of ballistic goggles and shields.

Further Reading

- Cho RI, Savitsky E. Ocular trauma. In: Savitsky E, Eastridge B, eds. *Combat Casualty Care: Lessons Learned From OEF and OIF*. Fort Sam Houston, TX/Borden Institute, Fort Detrick, MD: Office of the Surgeon General, Department of the Army, USA, AMEDD Center & School; 2012: 299–342.
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Disclosure

The author has nothing to disclose.

References

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2. Calvano CJ, Enzenauer RW. Field diagnosis and treatment of ophthalmic trauma. *J Spec Oper Med*. 2012;12:58–64.

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