American Journal of Emergency Medicine xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

Does delayed repair of eyelid lacerations compromise outcome?

Elizabeth Chiang, MD, PhD, Carson Bee, MD, Gerald J. Harris, MD, Timothy S. Wells, MD *

Department of Ophthalmology, Medical College of Wisconsin, Milwaukee, WI, United States

ARTICLE INFO

Article history:
Received 23 March 2017
Received in revised form 25 April 2017
Accepted 26 April 2017
Available online xxxx

Keywords:
Eyelid laceration
Canalicular laceration
Lid laceration
Laceration
Eyelid trauma

We designed a study to determine if the repair of traumatic eyelid lacerations can be delayed to allow for the most appropriate setting and surgeon without increasing complications. We conducted a retrospective chart review of all eyelid lacerations treated by the Ophthalmology service at the Medical College of Wisconsin over a 38-month period and identified 143 patients. Of these, 92 (64.3%) were adults and 51 (35.7%) were children under 18 years of age. Males accounted for 92 of 143 patients (64.3%). One hundred eight cases (75.5%) were repaired in an operating room. Seventy-seven cases (53.8%) had canalicular system involvement. The median time from injury-to-repair was 16.5 h (mean, 33.1 h; range, 2–584 h). Ninety-five patients (66.4%) underwent repair <24 h after injury; 48 (33.6%) were repaired after 24 h. Patients repaired <24 h after injury were more likely to be younger (24.5 years vs. 32.0 years, $p = 0.02$), children under the age of 18 (45.2% vs. 16.7%, $p < 0.01$), less likely to have canalicular involvement (36.8% vs. 87.5%, $p < 0.01$) and less likely to be repaired in the operating room (64.2% vs. 98.0%, $p < 0.01$).

There were 9 complications noted in follow up care, with 6 occurring in patients repaired within 24 h of injury (6.3%) and 3 occurring in patients repaired after 24 h (2.0%), which did not reach the level of statistical significance ($p = 0.14$). Complications included: ptosis (4), lid retraction (2), epithelial cyst (1), pyogenic granuloma (1) and eyelid deformity (1). No patient developed infection, chronic epiphora, or slit canaliculus. Three of the 4 cases of ptosis and the 2 cases of eyelid retraction involved the most extensive lacerations, when measured in millimeters. None of the 8 pediatric cases that had their eyelid lacerations repaired after 24 h suffered a complication. One hundred-seven patients (74.8%) completed follow-up prior to being discharged from the care of their treating ophthalmologist.

Reasons for delayed repair included severe COPD exacerbation precluding safe administration of anesthesia (1), delay >24 h in seeking care after injury (16), and missed diagnosis in a patient referred for orbital fracture repair two weeks after injury.

Eyelid lacerations present variably and the method and timing of repair should be tailored to each patient. Lacerations requiring repair in the operating room typically include those affecting children, those involving the canalicular system or deeper tissue planes, and complex lacerations requiring extensive reconstruction and/or exploration. Variables affecting the interval between injury and repair include delayed presentation, availability of the operating room and staff, and concomitant injuries or comorbidities that may supersede ophthalmologic concerns or preclude safe administration of anesthesia. Often, other members of a multidisciplinary treatment team may advocate for emergent repair when surgeon and support staff availability may be suboptimal, such as overnight. In our study, we reviewed eyelid laceration repairs performed within and after 24 h to determine if a delay in care was associated with any increased risk of post-operative complications. No statistical difference in complication rate was found in those lacerations repaired within or >24 h.

Furthermore, upon review of the cases with complications noted in follow-up, a majority were among the most extensive

* Corresponding author at: Medical College of Wisconsin Eye Institute, 925 N. 87th Street, Milwaukee, WI 53226, United States.
E-mail addresses: gjharris@mcw.edu (G.J. Harris), twells@mcw.edu (T.S. Wells).

http://dx.doi.org/10.1016/j.ajem.2017.04.062
0735-6757/

and complex eyelid injuries sustained in our study. We hypothesize that compared to less severe eyelid injuries, patients with extensive eyelid lacerations are more likely to seek immediate care and as a result, more likely to undergo repair within 24 h. The fact that these lacerations subsequently demonstrated post-operative complications may be more closely related to severity of injury rather than timing of repair. In addition, the robust vascular supply of the eyelids may contribute to a more forgiving healing environment after delayed repair. It is also standard protocol at our institution that all eyelid lacerations undergo thorough irrigation with normal saline upon presentation in the emergency room whether repair is immediate or delayed, thus minimizing post-traumatic infection.

There are several limitations to our study. Repairs were performed by varying providers in different levels of training, ranging from ophthalmology residents to attending oculoplastic surgeons. There were 36 patients (25.2%) lost to follow up before being discharged from ophthalmic care. Finally, the retrospective nature of this study and dependence on proper coding in the emergency room setting may have not have captured all lacerations evaluated and repaired by the ophthalmology service in the study interval.

With these considerations in mind, there is no evidence to suggest that repair of eyelid lacerations after 24 h increases the risk of complications, including infection. Laceration repair may be safely and reasonably delayed if other circumstances preclude immediate intervention.

Financial support

None.

Financial disclosures

The authors have no financial or conflicts of interest to disclose.

Please cite this article as: Chiang E, et al, Does delayed repair of eyelid lacerations compromise outcome?, American Journal of Emergency Medicine (2017), http://dx.doi.org/10.1016/j.ajem.2017.04.062