CORRESPONDENCE

Eyelid injury after use of 3M Durapore™ tape during general anesthesia

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To the Editor,

Anesthesia providers commonly apply adhesive tape over the eyelids of patients during general anesthesia. While this practice may decrease the risk of corneal abrasion and keratitis from inadvertent exposure to chlorhexidine,^{1,2} patients may experience varying degrees of cutaneous irritation from the adhesive. We report the case of a patient who had a full-thickness epidermal skin loss with purpura over the left eyelid after removal of 3M Durapore™ adhesive tape (3M, St. Paul, MN, USA) at the end of general anesthesia. She gave consent to publication of this report.

The patient was a 44-yr-old non-smoking female with a history of renal mass scheduled for radical robot-assisted laparoscopic nephrectomy. She had previously undergone appendectomy, fibroidectomy, and repair of umbilical hernia, all without any anesthetic complications. The patient was otherwise healthy and not taking any medications.

After induction of general anesthesia and uneventful intubation, 3M Durapore adhesive tape was placed over each of patient's eyelids. At the end of the three-hour surgery, the tape was removed and a full-thickness epidermal skin loss with purpura was noted on the medial left upper eyelid approximately 25 mm × 5 mm in size (see Figure). The skin flap was found on the adhesive side of the removed tape. Ptosis of the right eyelid was noted in the recovery room. The patient was started on topical antibiotic and steroid ointment to prevent scar

formation per ophthalmologic recommendations. She was also started on apraclonidine ophthalmic drops for the right eye ptosis. Six months after the anesthetic, a scar remains over the left eyelid (see Figure). This case highlights that while tape with maximal adhesive properties may hold the eye closed during surgery, such adhesion between the skin and the tape may be stronger than the adhesive forces of skin cells, resulting in skin separation and injury when the tape is removed.

While eye injuries during non-ophthalmologic surgery are rare, they are an important determinant of anesthesia liability. In 1992, Gild *et al.* reported that 71 out of 2,046 claims studied as part of the American Society of Anesthesiologists Closed Claims Project were against anesthesiologists for eye injuries.³ Corneal abrasions were the most common, comprising 25 of the 71 eye injury claims. Given these findings, the use of adhesive tape to keep the eyes shut during surgery is important to decrease the risk of such eye injuries.

Eyelid injury has also been reported in retrospective studies of anesthesia-related injuries.⁴ While the suspected etiology of eyelid injury is the adhesive,² there has been very little scientific investigation into the risk of cutaneous injury with the use of different adhesive tapes. In the only double-blind, randomized trial, which compares two different kinds of adhesive tape for securing eyes during anesthesia, patients were randomized to standard acrylate tape (3M Medipore™ tape) vs 3M™ Kind Removal™ silicone tape. Patients were more likely (37% vs 3%) to have skin denudation with standard acrylate tape vs silicone tape as evaluated by the anesthesiologist.² Furthermore, patient satisfaction with the condition of the skin over the eyelids on postoperative day 1 was significantly higher with silicone tape.²

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Figure Panel A shows full-thickness epidermal skin loss with purpura on the medial left upper eyelid on postoperative day 1. Panel B shows scar formation on the left eyelid six months later

In an era where patient satisfaction is being used as a quality metric,⁵ minimizing the risk of eyelid injury is an important determinant of quality. Currently, the scientific body of literature concerning this topic is too small, so we would advocate for randomized controlled trials to better understand which adhesive tape offers the smallest risk and the highest quality of care to our patients. The ideal adhesive tape would have minimal corneal abrasion and minimal skin eyelid injury.

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