



Preventing and Managing **Corneal Abrasions** as a Complication of Anesthesia

Keywords: perioperative complications, anesthesia safety, patient safety, PACU

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Disclosure: The author declares that they have no relevant or material financial interests.

Submitted
September 22, 2026

Accepted
September 22, 2026

Published
October 28, 2026

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Sanchez CE. Preventing and Managing Corneal Abrasions as a Complication of Anesthesia. *Patient Safety*. 2026;8(2):172773. doi:10.33940/001c.172773

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Few things are more surprising to patients than waking from non-ocular surgery with sudden eye pain, yet this quiet complication is far more common than most expect. Corneal abrasion is the most common cause of postoperative visual complaints associated with non-ocular surgery performed under anesthesia.¹ While usually minor, this complication can cause significant discomfort, pain, blurred vision, tearing, and redness in the eye. This complication could also be alarming to patients who wake up from a procedure with unexpected symptoms in their eye. In addition to patient safety concerns, corneal abrasion as a complication of anesthesia can lead to increased cost due to additional medications,² consultations, increased length of stay,³ and medical malpractice claims and settlements.⁴

The cornea is one of the most densely innervated tissues in the body, so even a small, superficial injury can be quite painful. Fortunately, most abrasions that result from anesthesia are minor and heal within 48–72 hours without long-term complications.¹ During general anesthesia, the eyelids may not close completely; protective blink and tearing reflexes are suppressed; and the eyes can be exposed to friction from surgical drapes, masks, or inadvertent contact by staff.^{1,5} Longer procedures, prone or lateral positioning, and preexisting dry eye disease can increase patients' risk of corneal abrasions while under anesthesia.

A recent publication⁶ from the Anesthesia Patient Safety Foundation (APSF) highlighted that perioperative corneal abrasion is the most common ocular complication of non-ocular surgery under anesthesia and can often be safely managed through structured, anesthesia-led triage pathways. This prompted a review of reports recently submitted to the Pennsylvania Patient Safety Reporting System (PA-PSRS) describing corneal abrasions identified after non-ocular surgery. Reported consequences included the need for prescription antibiotic eye drops or ointment, ophthalmology referrals for follow-up, and placement of bandage contact lenses.

These events highlight the value of a consistent, evidence-based approach across the perioperative period, from preventing abrasions in the operating room to recognizing them early in recovery and managing them appropriately once identified. Implementation of a standardized corneal abrasion prevention, treatment, and diagnosis plan has also been shown to reduce the occurrence or severity of perioperative corneal abrasion.^{7,8}

Prevention

Understanding perioperative risk factors can help identify patients at higher risk of corneal abrasion. Patient-related risks include advanced age, dry eye disease, recurrent corneal erosion, previous ocular trauma, contact lens use,⁸ and prominent eyes.⁷ Procedural risks include general anesthesia^{6,8}; procedures longer than 60–90 minutes; and operations performed in the prone,⁸ lateral,⁸ or Trendelenburg positions.⁶ Dependent-eye exposure,⁶ external globe pressure,⁶ and head and neck surgeries⁸ also carry a greater risk. Corneal abrasions can also occur from oxygen mask trauma, lack of eye protection, postoperative eye rubbing, or inadequate eyelid closure.¹

In addition to understanding risk factors, prevention strategies include:

- Ask patients to remove contact lenses, eye makeup, and/or fake eyelashes prior to anesthesia⁷
- Place pulse oximeter on patient's fourth or fifth digit⁷
- Ensure complete eyelid closure with tape¹ or lubricating ointment⁷
- Avoid direct contact between the eyes and surgical drapes, masks, ID badges, or other equipment⁵
- Use protective eyewear or shields⁸ for prone, lateral, or Trendelenburg positioning and for procedures near the face and head, and check eye protection during the procedure as part of routine intraoperative monitoring^{1,7}

Patient preparation

An important part of the process to prepare patients for any procedure is reviewing potential risks, including those of anesthesia.⁷ Preparing patients who are at average and higher risk of corneal abrasion by informing them of the possibility of developing a corneal abrasion can help reduce the emotional impact that may occur if they emerge from

anesthesia experiencing related symptoms. Awareness of this risk can also encourage patients to promptly report any symptoms⁷ to their postoperative care team, supporting timely diagnosis, ophthalmology referral if needed, and appropriate treatment.

Diagnosis and management

When a patient reports eye pain or blurry vision postoperatively, prompt evaluation is important to distinguish between a minor abrasion and one that may require an ophthalmologic consultation.⁶ In addition to pain and blurry vision, patients with a corneal abrasion may experience photophobia and/or a sensation of a foreign body in the eye.⁹ Historically, topical analgesics or nonsteroidal anti-inflammatory agents were used routinely for pain control; however, more recent evidence has shown that these pain relief agents can delay healing¹⁰ and hinder identification of worsening symptoms.^{11,12} As a result, routine use of these medications for perioperative corneal abrasion pain is no longer recommended.^{11,12}

Uncomplicated perioperative corneal abrasions can often be managed without ophthalmologic consult. To ensure appropriate diagnosis and treatment, some facilities and professional organizations recommend an anesthesia-led, antibiotic-based protocol⁶ or other standardized protocol¹² with clear criteria for when ophthalmologic evaluation is required. Clinicians should refer patients to an ophthalmologist if they observe any of the following symptoms:

- Significantly reduced visual acuity⁹ or persistent visual disturbance⁶
- Pain that does not improve or worsens after 24 hours^{6,12}
- Persistent pain¹² lasting longer than 48 hours⁶
- Failure to achieve epithelial healing by 72 hours⁶
- Corneal ulceration or infiltrate, or suspected corneal infection⁶
- Irregular, fixed, or dilated pupil⁶
- Suspected penetrating injury or foreign body in the eye⁶
- Corneal defect involving stroma⁶
- Dendritic fluorescein staining⁶

Combining intraoperative prevention strategies with clear identification and treatment processes can enhance patient safety and reduce costs associated with this complication by minimizing its occurrence and ensuring prompt, appropriate management of perioperative corneal abrasions.

Note

Artificial intelligence (Copilot Chat) was used only to improve sentence clarity. No AI was used for generation of original content. The author takes full responsibility for the accuracy and integrity of the article.

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