

Anesthesia Malpractice Claims Associated with Eye Surgery and Eye Injury: *Highlights From the Anesthesia Closed Claims Project Data Request Service*

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The Anesthesia Closed Claims Project database of more than 10,000 anesthesia malpractice claims can provide answers to ASA member questions through our Data Request service www.asaclosedclaims.org. Members have requested data on a wide variety of patient safety and liability questions. A recent theme among these requests has been eye injuries and eye surgery:

- What is the injury and liability profile of anesthesia claims for eye surgery?
- Have you seen claims for movement during eye surgery? Were these during emergence?
- What is the profile of corneal abrasion claims?

This article will provide an update on liability associated with anesthesia for eye surgery and trends in claims for eye injuries, combining answers to multiple ASA member data requests in one comprehensive report.

Claims Associated With Anesthesia for Eye Surgery

The Anesthesia Closed Claims Project database contains 7,351 surgical anesthesia claims. The remainder of the 10,093 claims in the database were associated with obstetric anesthesia, acute pain and chronic pain management. Eye surgery represents approximately 4-5 percent of all surgical anesthesia claims in the database, with a downward trend from 5-6 percent of surgical anesthesia claims in the 1970s-80s to 4 percent of surgical anesthesia claims in the 1990s and 2000s. We focused our analysis on surgical anesthesia claims from 1990 to 2012, comparing 184 anesthesia claims associated with eye surgery to 4,128 anesthesia claims for other surgical procedures.



Patients in eye surgery claims were similar to other surgical anesthesia patients in many of their characteristics, including female gender (54 percent), adult (96 percent) and generally healthy (48 percent ASA Physical Status 1-2), but they were significantly older (mean 58 years vs. 48 years, respectively, $p < 0.01$). Eye surgery claims were more likely to be associated with elective procedures (94 percent) than other surgical anesthesia claims (85 percent, $p < 0.01$) and were more likely to be performed on an outpatient basis (83 percent vs. 28 percent, $p < 0.01$, Figure 1). Claims for anesthesia associated with eye surgery were more likely to involve regional anesthesia (35 percent) or monitored anesthesia care (32 percent) than other surgical anesthesia claims (78 percent general anesthesia, $p < 0.01$).

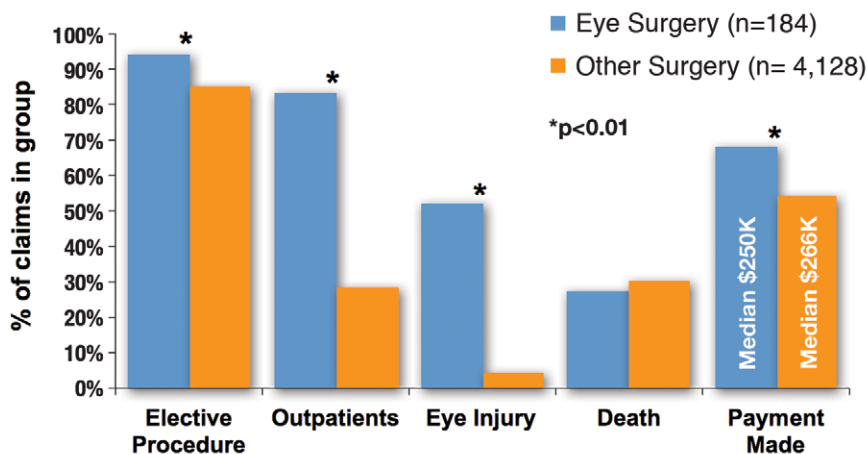


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Figure 1: Anesthesia Claims Associated With Eye Surgery 1990-2012



Eye surgery claims were more likely to be elective outpatient procedures, commonly resulting in eye injury. Payments were more commonly made for eye surgery claims. When a payment was made, the size of the payment was similar to other surgical anesthesia claims. Median payment is indicated in 2012 inflation adjusted dollars.

Among the 184 eye surgery claims for events in 1990-2012, injury to the eye was the complaint in 52 percent (Figure 1). Death occurred in 27 percent of eye surgery claims, which is similar to the proportion of deaths in other surgical anesthesia claims during this time period (Figure 1). The remaining eye surgery claims included a wide variety of injuries, including airway injury (4 percent), severe permanent brain damage (3 percent), nerve injury (3 percent) and aspiration (2 percent).

The most common events related to injury in eye surgery claims were needle trauma to the globe during administration of an eye block (29 percent) and movement during the procedure (13 percent). Movement during eye surgery most often occurred during general anesthesia (59 percent of movement claims) but also occurred during monitored anesthesia care (33 percent) and regional anesthesia (9 percent). None of the patient movement claims were associated with emergence from anesthesia. Nearly all (97 percent) claims associated with movement during eye surgery resulted in vision loss.

Claims for needle trauma to the globe have been decreasing over time, representing 37 percent of eye surgery claims in the 1990s, but only 13 percent in 2000-12. This decline may be related to the increased use of topical anesthetic instead of nerve blocks for cataract surgery.¹ Other adverse events in eye surgery claims were similar to other surgical anesthesia claims, including respiratory events such as difficult intubation (5 percent) or inadequate ventilation (5 percent) and cardiovascular events such as MI (3 percent). In 3 percent of eye surgery claims from 1990 or later, the procedure was conducted on the wrong eye.

There were no claims for procedures conducted on the wrong eye since 2002.

While the proportion of deaths in eye surgery claims did not differ from other surgical anesthesia claims in 1990-2012, the proportion of permanent disabling injuries (mostly eye injury) was higher in eye surgery claims (45 percent) than other surgical anesthesia claims (22 percent, $p<0.01$). Eye surgery claims were more likely to result in payment to the plaintiff (68 percent) than other surgical anesthesia claims (54 percent, $p<0.01$, Figure 1), but the size of payments was similar between groups, with a median payment of \$205,000 in eye surgery claims (Figure 1).

Anesthesia Claims Associated With Eye Injuries

When claims associated with eye blocks are excluded, eye injuries (including any injury to the visual pathway) have remained fairly constant at 4 percent of surgical and

obstetric anesthesia claims from 1980-2011.² We examined trends in eye injuries over two time periods, 1980-1994 and 1995-2011. The pattern of injuries in this subset of claims changed significantly over time, with a larger proportion associated with spinal fusion surgery from 1995-2011, when the number of these surgical procedures more than doubled.^{3,4}

Most claims for eye injuries in 1995-2011 were permanent and significant (73 percent) compared to approximately half (49 percent) of the eye injury claims from 1980-94 ($p<0.01$, Figure 2). The most common eye injury in 1995-2011 was optic nerve injury (38 percent, Figure 2, page 33), of which the majority (71 percent) were associated with spine surgery. This increase in optic nerve injuries most likely explains the increased severity of injury observed in claims for eye injuries in 1995-2011 compared to earlier claims. Overall, eye injury claims resulted in payment in slightly more than half of the claims in both time periods. Consistent with the increase in high-severity injuries, median payments (from 1980-94) averaged \$129,400, while more recent payments (1995-2011) averaged \$429,000 (median amount in 2013 inflation-adjusted dollars). This noticeable increase in high-severity eye injuries prompted ASA to establish the ASA Postoperative Visual Loss Registry in 1999 and to develop the ASA Practice Advisory for Perioperative Visual Loss Associated with Spine Surgery in 2006.^{5,6}

In contrast, corneal abrasions decreased by almost half, from 31 percent of eye injury claims in 1980-94 to 18 percent in

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1995-2011 ($p < 0.01$, Figure 2). A similar trend was observed in claims for retinal tear, vitreous expulsion, and retrobulbar or vitreous hemorrhage, which as a group have decreased from 29 percent of eye injury claims in 1980-94 to 13 percent in 1995-2011 (Figure 2). While corneal abrasions have been decreasing as a proportion of eye injuries, they remain of clinical interest. There are currently 41 claims for corneal abrasion in the database that occurred in 1990 or later. Nearly all of these corneal abrasions were associated with general anesthesia (39 of 41), and no causative event could be identified in 58 percent of these claims. Half of these 41 claims resulted in a payment to the patient, with a median payment of \$12,000 (interquartile range \$2,000-\$35,000). Many institutions have developed clinical protocols or guidelines for the prevention of corneal abrasions, which typically include taping the eyes closed immediately after induction and other prophylactic measures.⁷

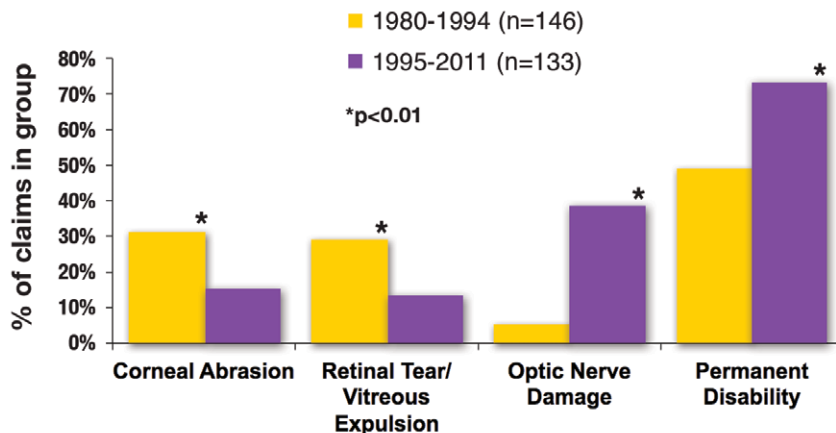
Closed Claims Project Data Requests

The information in this article is more extensive than typical data request reports, as it represents answers to multiple requests related to themes of anesthesia for eye surgery and eye injury claims. Information on the Anesthesia Closed Claim Project data request service is available on the website www.asaclosedclaims.org, which includes guidelines regarding limitations on data queries and data utilization. More information on the data request service as well as collaboration is available in the *ASA NEWSLETTER*.⁸

ASA members may request no-cost custom data queries through our online data request form depts.washington.edu/asaccp/resources/data-requests. An email or telephone call explaining the question and purpose motivating the request is usually helpful. For data requests, contact Karen Posner at: posner@uw.edu or call (206) 616-2630. For collaboration on more extensive research using the Closed Claims Project Database, contact Karen Domino at kdomino@uw.edu.

The Anesthesia Closed Claims Project is conducted under the auspices of the Anesthesia Quality Institute.

Figure 2: Trends in Anesthesia Claims Associated With Eye Injuries



Claims associated with eye blocks for eye surgery were excluded from this analysis. Permanent injury and claims for optic nerve injury have increased over time while claims for corneal abrasion and retinal tear or vitreous expulsion have decreased.

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