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Liability and Risk Factors Associated with Aspiration: Closed Claims Analysis

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Background: Recent debate over the use of classic rapid sequence induction (RSI) techniques has thrust the risks of aspiration back into the forefront of our anesthetic concerns.¹⁻³ With this debate in mind, we utilized the ASA Closed Claims database to investigate factors associated with aspiration of gastric contents in liability claims.

Methods: We reviewed 129 claims from 1990 and later for aspiration of gastric contents, and compared to all other claims (excluding acute and chronic pain claims) in the same time period. Payments were adjusted to 2008 dollar amounts. Findings were compared by chi square analysis, Fisher's exact test, and Kolmogorov-Smirnov test.

Results: Compared to other claims, patients in aspiration claims were older ($p < 0.017$), sicker (ASA 3-5, $p < 0.001$), and had more abdominal and emergency procedures ($p < 0.001$, Figure 1). Although an increased proportion of aspiration cases occurred during general anesthesia ($p < 0.001$, Figure 1), 12% of aspiration cases occurred during regional or monitored anesthesia care. Aspiration occurred during induction in 60% of claims, intraoperatively in 19%, and post-procedure in 12%. Aspiration claims had a higher proportion of death than other claims ($p < 0.001$, Figure 1). Of the 15 claims with permanent disabling injuries, 10 patients had severe brain damage and 5 had permanent decreased respiratory function. Of the 41 claims with temporary injuries, 36 (88%) developed aspiration pneumonitis, 7 (17%) developed respiratory distress syndrome, and 8 (20%) required temporary but prolonged ventilator support. Cricoid pressure was used in 45% of 74 claims in which aspiration of gastric contents occurred during induction. In the presence of risk factors for aspiration, anesthesia care was more often judged as substandard if cricoid pressure was not used on induction (72% vs. 28% with cricoid pressure, $p < 0.001$), and payments to the plaintiff tended to be greater (\$513,125 vs. \$211,500 with cricoid pressure). [figure1] **Conclusions:** Patients who experienced aspiration were older, sicker, and more often had risk factors for aspiration of gastric contents, e.g., emergency and abdominal procedures. Aspiration claims had twice the proportion of death as other claims in the database. Aspiration occurred on induction of anesthesia despite the use of RSI with cricoid pressure in almost half of the claims, raising the question of its effectiveness.¹⁻³ However, in the presence of risk factors for aspiration, anesthesia care was more likely to be judged as substandard when cricoid pressure was not used.

1. Lerman J: *Anesth Analg* 2009;109(5):1363-6.
2. Ovassapian A, Salem MR: *Anesth Analg* 2009;109(5):1360-2.
3. Rice MJ et al.: *Anesth Analg* 2009;109(5):1546-52.

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Figure 1

Characteristics of Aspiration Claims with Other Claims

