

Abdominal Compartment Syndrome in the Trauma Patient Who Received Kings Airway in the Pre-Hospital Setting

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ABSTRACT

Background: The Kings Laryngeal Tube is a popular prehospital device used in the difficult airway. Since its introduction in 1999, the literature has cited a “first-pass rate” as high as 100% in some studies. Complication rates reported in the literature most cite low morbidity events such as aspiration and mucosal injury. Risk of dislodgement is seldom described in the literature and is likely underreported.

Objective: Discuss the unique presentation, diagnosis, and management of a patient who suffered from abdominal compartment syndrome secondary to dislodged Kings LT and severe gastric distention.

Introduction:

In the pre-hospital setting, airway management is a vital part of EMS practice and critical for the patient’s care and survival. There are a wide variety of techniques to secure a patient’s airway, ranging from the use of facial mask devices to more interventional methods such as endotracheal intubation. In the difficult airway, a supraglottic airway known as the King Laryngeal Tube has garnered a lot of attention given its ease of placement and high success rate. Since its introduction in 1999, some studies have reported a “first-pass rate” as high as 100% [1]. Complications reported in the literature are rare and mostly cite low morbidity events such as aspiration and mucosal injury [2,3]. We discuss a case of abdominal compartment syndrome secondary to tracheal misplacement of the Kings LT Tube in the pre-hospital setting. Our patient is a 60-year-old Male brought in via ALS with c-collar after being thrown several feet by a large SUV. EMS reported that patient was altered in the field and experiencing significant hematemesis that compromised his airway necessitating intubation. Initial attempts were made with an ETT however were unsuccessful, and subsequently a King LT was placed instead. Upon initial evaluation in our trauma bay, he had significant facial trauma, active hematemesis, and abdominal distention. Ventilation with the King LT was continued for some time, however his SpO₂ never improved above 90%. ETT intubation was attempted with Glidescope however was unsuccessful given his injuries. OGT insertion was also attempted unsuccessfully.

Upon obtaining a successful airway via tracheotomy, patient’s saturations did not improve despite positive color change on capnography and breath sounds heard on both sides. Given extent of injuries, decision was made to place bilateral chest tubes, however saturations continued to be unsatisfactory, ranging from 60-70% and he was becoming hemodynamically unstable. At this time, the patient’s abdominal distention was noted to be much worse, and his chest rise was poor bilaterally. Clinically, he demonstrated classic signs of abdominal compartment syndrome.

Discussion:

The literature on complications from supraglottic airways such as the Kings LT Tube includes aspiration of gastric contents, compression of adjacent vascular structure, local trauma, nerve injury, and most commonly mucosal injury [3]. Misplacement leading to abdominal compartment syndrome is not described. Given the ease of insertion and effectiveness compared to other forms of supra-glottic airways, the King LT offers an advantage in the pre-hospital setting especially for inexperienced personnel. However, the risk of tracheal misplacement is likely underreported [4]. This is likely for two reasons. The amount of time a supraglottic airway is in place may be appropriately positioned initially, but its long-term efficacy is difficult to measure because it’s removed shortly after arriving to the hospital. Secondly, its anatomic placement is not routinely confirmed by radiologic imaging.

Conclusion: Severe gastric distention and abdominal compartment syndrome secondary to tracheal dislodgement in a King’s Laryngeal Tube is a rare entity that should be considered as one of the potential complications of insertion.

Keywords: Pre-hospital device; Aspiration; Gastric distention; Compartment syndrome.