

Airway Obstruction with Sellick's Maneuver, Part I

Since the introduction of the technique by Sellick, cricoid pressure has been used to prevent the reflux of gastric contents during induction and tracheal intubation. Case reports have implicated this maneuver as a possible cause of the "can't intubate, can't ventilate" predicament and have called into question the recommended pressure of 10 pounds (44 newtons). These authors sought to identify possible airway obstruction at different pressures applied to the cricoid cartilage in a convenience sample of 30 patients who were in American Society of Anesthesiologists class I or II and were presenting for elective surgery.

After induction and insertion of a laryngeal mask airway (LMA) in each patient, the investigators placed on the external cricoid cartilage a padded yoke designed to apply and measure force in newtons. While pressure was applied, they visualized the cricoid cartilage with a fiberscope and graded any deformation. At a force of 44 N, 27 patients (90%) suffered some deformation and 15 (50%) had cricoid occlusion, defined as complete loss of the anteroposterior diameter. Occlusion occurred in 43% of patients at 30 N and 23% at 20 N. Associated difficult ventilation was more common at higher forces (80% at 44 N vs. 50% at 20 N). Cricoid occlusion and difficult ventilation were independently associated with female sex.

Comment: The presence of a supraglottic LMA, the absence of paralytics in several patients, and the use of a rigid yoke instead of the human hand are significant variations from typical rapid sequence intubation conditions. However, this is one of the first in vivo studies of Sellick's maneuver, and the amount of cricoid deformation observed is surprising and concerning, particularly when associated with difficulties in ventilation.

— *RJ Vissers*

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