Alignment of the Cricoid Cartilage and Esophagus in Children

Lateral displacement of the esophagus is more common in children younger than 8 years than in older children.

Effectiveness of the Sellick maneuver can be compromised by lateral displacement of the esophagus from the trachea, which has been reported to occur in 49% of adults. In a retrospective study, two pediatric radiologists independently measured the degree of esophageal displacement from the trachea (mm off center) at the level of the cricoid cartilage in 120 children (age range, 0–17 years) who underwent cervical spine or neck computed tomography scans at a single U.S. children’s hospital. Patients were excluded if they had nasal tubes or oral gastric tubes, tracheal tubes, space-occupying lesions at the level of the cricoid cartilage, history of cervical radiation or neck surgery, or if the esophagus was not identified. The researchers compared alignment in 60 children who were younger than 8 years and 60 children who were age 8 years and older (airway anatomy becomes more adult like at about age 8).

Overall, 30% of children had lateral esophageal displacement, and in all cases displacement was to the left of the airway. Contrary to the investigators’ hypothesis that younger patients would have less displacement than older children, the prevalence of esophageal displacement was significantly greater in the younger group (45% vs. 15%). However, the mean distance of displacement was significantly greater in the older group (2.42 mm vs. 1.81 mm), although the difference is not likely to be clinically significant.

Comment: This study shows that in children, as in adults, the airway is often not aligned with the esophagus. The authors correctly question use of the standard Sellick maneuver (JW Emerg Med Dec 11 2009) and recommend directing cricoid pressure downward and to the left. Physicians should still use Sellick maneuver to prevent gastric insufflation during bag-valve-mask ventilation but should consider it optional when performing intubation.

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