Portex Cricothyroidotomy Kit Unsafe for Inexperienced Operators


The PCK had a significantly lower success rate and higher complication rate than the standard surgical technique.

The Portex Cricothyroidotomy Kit (PCK) is designed to make cricothyroidotomies easier and safer. After the vertical skin incision, the device can be inserted in a single step. A spring-loaded locator needle with a red flag indicator is designed to prevent damage to posterior structures during insertion of the device. To determine the performance characteristics of this device, researchers randomized each of 30 first-year emergency medicine residents in Germany to perform one cricothyroidotomy using either the standard surgical approach or the PCK on a human cadaver. Cricothyroidotomy tube placement and complications were identified by anatomical dissection.

The surgical technique had a higher success rate than the PCK (100% vs. 67%). Time to successful tube insertion was similar with the two methods (about 100 seconds). The surgical technique had a lower complication rate (13% vs. 67%). The two complications in the surgical group were minor injuries to small thyroid vessels. In the PCK group, complications included injuries to the posterior tracheal wall (8), thyroid and/or cricoid cartilage (5), and esophagus (4) and placement into the esophagus (4) or paratracheal area (1).

Comment: For novice operators, the standard surgical cricothyroidotomy technique outperformed the Portex Cricothyroidotomy Kit with a higher success rate and lower complication rate. Based on this single study, the Portex Cricothyroidotomy Kit is unsafe for inexperienced operators and should not be used by them.

Citation(s): Helm M et al. Emergency cricothyroidotomy performed by inexperienced clinicians — surgical technique versus indicator-guided puncture technique. Emerg Med J 2013 Aug; 30:646. (http://dx.doi.org/10.1136/emergmed-2012-201493)

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