Percutaneous Cricothyroidotomy: Cut First, Poke Later

An incision-first modification is faster than and as accurate as the needle-first approach.

In a randomized crossover study, researchers compared an incision-first modification of the percutaneous Seldinger technique for cricothyroidotomy to the conventional needle-first approach. Thirty attending and resident emergency medicine physicians in Canada each performed the procedures three times using validated, high-fidelity, simulated trachea models consisting of porcine tracheas covered by full-thickness skin and subcutaneous tissue. The needle-first technique involved inserting a needle into the cricoid membrane while aspirating for air, feeding a wire through the needle, then following the remaining steps of the Seldinger technique to insert the tube. The incision-first model involved a 2 cm vertical incision deep enough to expose the cricoid membrane and palpation of the cricoid membrane; all subsequent steps were the same as for the needle-first technique.

The incision-first technique was significantly faster than the needle-first technique (median time, 53 vs. 90 seconds). Rates of intratracheal insertion on the first attempt were similar in the two groups (93% and 90%). Participants rated the incision-first approach easier to perform.

Comment: The fact that emergency cricothyrotomy is performed so infrequently and under stressful circumstances necessitates use of a method that is easy to remember, rapid, and accurate. This simple incision-first modification of the percutaneous Seldinger technique for cricothyroidotomy is speedier than the traditional needle-first approach and gets the job done.

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