



AB099. 7. Ultrasound guided mapping of the cricothyroid membrane in relation to the suprasternal notch

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Background: A vertical incision is recommended for cricothyroidotomy when anatomy is indistinct but no evidence-based guideline exists regarding optimum site or length. The difficult airway society (DAS) guidelines, which are based on expert opinion, recommend an 80–100 mm vertical caudal to cephalad incision. However the guidelines do not advise the point from where one should commence this incision.

Methods: The distance between the suprasternal notch and the cricothyroid membrane (CTM) was measured using ultrasound in both neutral and extended positions. We assessed ‘capture’ of the CTM within theoretical incisions of 0–100 mm in length made at 10 mm intervals above the

suprasternal notch. Our aim was to determine the optimum length of incision and the point from which the incision should commence.

Results: There were 80 patients included in this study, 40 males and 40 females. In total 160 CTM assessments were performed across both patient groups. There was a large variation in the location of the CTM in relation to the suprasternal notch across all patients and head positions (27–105 mm). There was also a large variation in the direction and movement of the CTM on transition from the neutral to extended head positions (42 mm; –15 to 27 mm).

Conclusions: The maximum distance between the most caudal and cephalad CTM location was 78 mm. Using 10 mm intervals above the suprasternal notch an incision size of 90 mm commencing 20 mm above the suprasternal notch would capture all CTM locations in all male and female patients in both neutral and extended head positions. Our data thus validates the DAS guidelines.

Keywords: Airway management; cricothyroid membrane (CTM); cricothyroidotomy; difficult airway society guidelines (DAS guidelines)

doi: 10.21037/map.2018.AB099

Cite this article as: Fennessy P, Drew T, Husarova V, McCaul C. Ultrasound guided mapping of the cricothyroid membrane in relation to the suprasternal notch. *Mesentery Peritoneum* 2018;2:AB099. doi: 10.21037/map.2018.AB099