"G-CUT": Impact Of Ultrasound Training Session On Identification Of Cricothyroid Membrane In A High BMI Subject: User Confidence And Preference

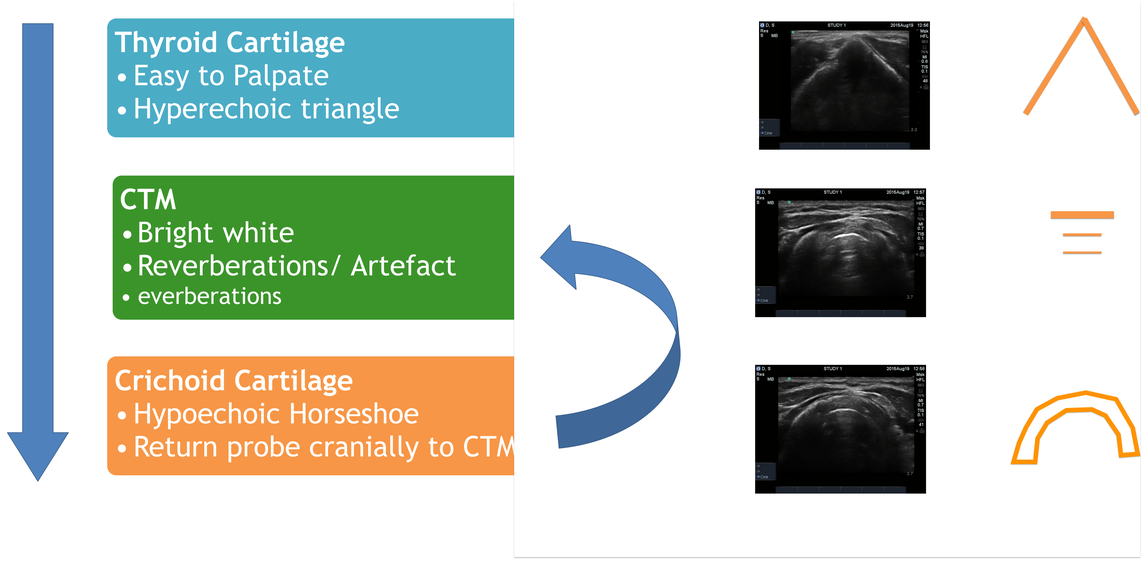
Gosavi, S; Beverly, A; Foxall, G; Patel, B. Royal Surrey County Hospital

Background:

- Cricothyroid membrane identification is frequently inaccurate with landmark technique[1]. Faster power-up times and increasing availability of portable US mean ultrasound is joining the arsenal of airway rescue technologies available for elective and emergency settings [2,3,4,5].
- We analysed usefulness and acceptability of a 3-step US technique teaching bundle "Guildford Cricothyroid membrane Ultrasound Technique (G-CUT)" to senior anaesthetists (ST5+).

Methods: Local R&D approval was gained; participants read and signed consent forms.

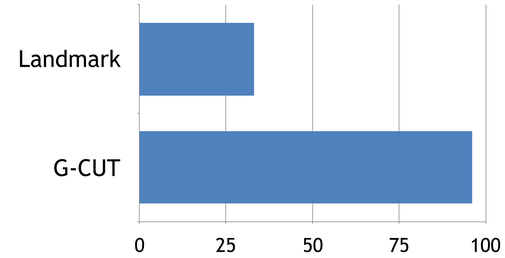
- CTM of an NHS staff member (BMI 32) was marked with invisible UV pen and covered a with Tegaderm™.
- Participants marked CTM needle puncture site with pen; 1st using landmark technique, 2nd US assisted (untrained), 3rd with US (post "G-CUT" training).
- Training (10 minutes) focussed on pattern recognition: rapid stepwise identification of 3 key midline structures cepahalad to caudal using transverse US.
- Anaesthetists graded confidence, ease of CTM identification and preferred method, completing an anonymous questionnaire between each of the attempts in the cycle.

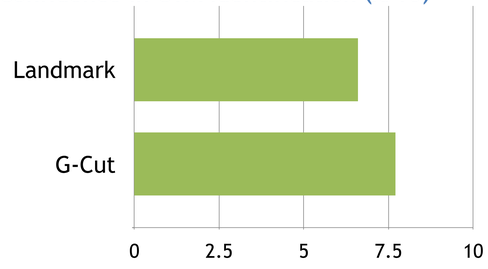


Results:

- 27 anaesthetists (8 ST5-7s, 3 SAS and 16 Cons)
- 33% correctly identified CTM with landmark technique. Average self rated confidence and ability was 6.6/10
- (range 2-9).
- 96% correctly identified CTM with US after "G-CUT" training. Average self rated confidence and ability was 7.7/10 (range 4-10). P<0.001

Figure 1i) Successful Identification of CTM (%) ii) Confidence in CTM identification (x/10)





- Average ease of use of rating for "G-CUT" was 7.6/10 (0 = very difficult, 10 = very easy)
- Median increases in self rated ability from 7 to 8/10 was significant. (P= 0.009)
- ST5-7s reported greater *increases* in confidence (+1.4) vs SAS (+1.3) or Consultants (+0.97).
- Participants would "definitely (55%)" or "may (44%)" consider using "G-CUT" method.

Conclusions:

- Despite small study numbers, this training method pilot demonstrated a positive impact in a short timeframe and resulted in high user preference.
- "G-CUT" could help improve success in elective or emergency cricothyroidotomy.

References: 1. Can J Anesth/J Can Anesth DOI 10.1007/s12630-015-0326-y
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SPACeR group
Surrey Peri-operative, Anaesthesia & Critical Care Collaborative Research Group

Royal Surrey County Hospital NHS
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- Ultrasound availability and power up times improving- on standby for difficult airways?
- Simple, effective training program developed for Guildford Cricothyroid membrane Ultrasound Technique (G-CUT)
- Improvement in success rate of CTM identification demonstrated
- Improvement in confidence of CTM identification demonstrated, particularly for ST5-7s
- High user acceptability rate across all grades (96% definitely preferred or would consider using)