

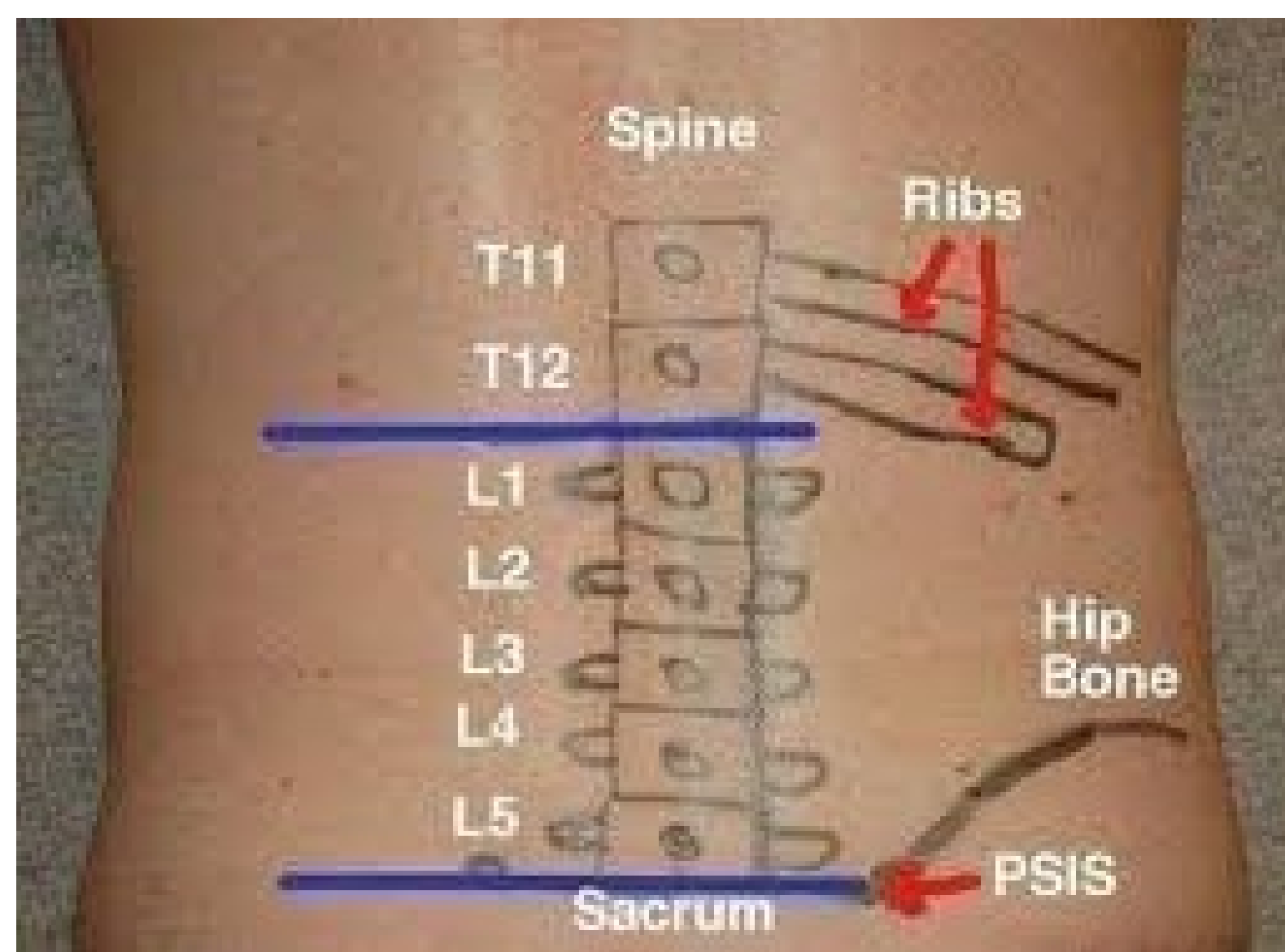
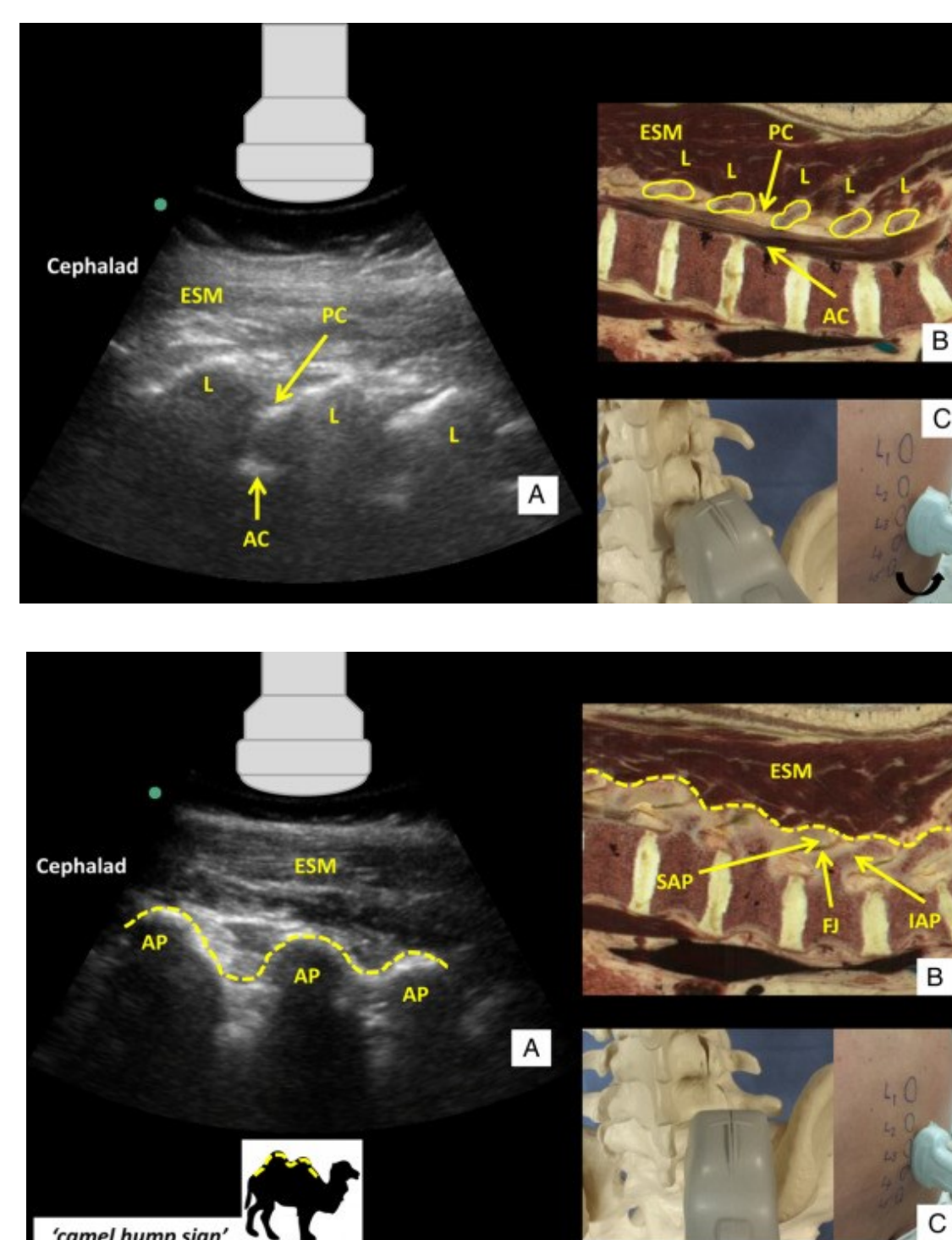


Ultrasound guided neuraxial anaesthesia: improving the anaesthetists' confidence in scanning the lumbar spine

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Introduction

- Central neuraxial blockade (CNB) is traditionally performed using a landmark technique. This can be difficult in some patients, resulting in multiple attempts, failure, or risk of complications such as dural puncture.
- In 2008, NICE¹ recommended the routine use of ultrasound (US) for epidural insertion. A pre-puncture scan is used to locate midline, the level of the intervertebral space, and the depth of the epidural space¹.
- RCTs have shown a significant decrease in puncture attempts for pregnant women undergoing epidurals using a pre-procedure scan compared to no scan at all.^{2,3}
- US guided CNB is uncommon in our department – when surveyed, anaesthetists cited lack of experience and lack of training as primary barriers.



Methods

- A preliminary survey was sent to all anaesthetic doctors in the trust to establish current practice, confidence with US, and perceived barriers to use.
- A teaching session was delivered, combining lecture-based learning with hands-on scanning experience, followed by small group workshops.
- Post workshop surveys were sent to assess perceived changes in scanning ability and confidence.

Teaching implemented

- Tutorial based: evidence for current practice, theory and tips for trouble shooting followed by hands on practice
- Workshops: small group workshops to practice skills

Pre-teaching survey results

- 56% had never used lumbar US for CNB with 23% only using it for patients with known difficulty.
- Perceived barriers included lack of expertise with US and lack of time, and 10% believed that it was unnecessary.
- Training in lumbar US was requested by 87%.

Post-teaching survey results

- 100% of respondents felt more confident following the workshops.
- Participants reported finding it easy (50%) or very easy (50%) to identify the spinal level with US
- Identifying the ligamentum flavum and measuring the depth to the space was more difficult.
- All participants left feeling more confident in using lumbar US for CNB, with targets to perform the technique on average once per week (75%) or once per month (25%).

Discussion

- Our quality improvement project pointed to an underutilisation of US scanning for CNB in our department. Survey responses identified a lack of training as a primary barrier to US scanning.
- Our training programme proved popular, with a universal increase in confidence and success identifying key landmarks in all attendees, such that they were willing to incorporate it into their routine practice.
- The main limitations encountered were to embed this into routine practice for the “easy back” to help improve pattern recognition and trouble shooting when encountering the difficult back.

References

- <https://www.nice.org.uk/guidance/ipg249/chapter/2-the-procedure>
- Grau T, Leipold RW, Conradi R et al. (2002) Efficacy of ultrasound imaging in obstetric epidural anesthesia. Journal of Clinical Anesthesia 14: 169–75.
- Grau T, Leipold RW, Conradi R et al. (2001) Ultrasound control for presumed difficult epidural puncture. Acta Anaesthesiologica Scandinavica 45: 766–71.

