

Letter to Editor

Ultrasound-guided Epidurals in Obese Patients: Our First Experience

The 'blind nature' of the landmark-guided technique results in most of the complications of epidural and spinal anaesthesia. In morbidly obese patients, these landmarks become obscure and therefore performing epidural/spinal which becomes more challenging and unpredictable.¹ Ultrasound has been recently used to provide reliable information for labour epidurals.²

We describe the placement of an epidural block with the help of ultrasound in a morbidly obese patient weighing 120 kg with a BSA of 41.5 posted for nephrectomy surgery. The spinous processes of lumbar vertebrae with the patient in sitting position were not palpable on account of thick subcutaneous fat. We have been making the use of ultrasound for procedures, such as peripheral nerve blocks and vascular access, for sometime and acknowledged that applying this experience to neuraxial blocks through the means of a pre-puncture scan would be very helpful. We used 2 to 5 MHz curvilinear ultrasound probe for scanning.

Our first priority was to determine the midline of the spine which was done by using the "transverse approach".² Spinous processes of lumbar vertebrae appeared as "hyperechoic signals" underneath the skin which continued as long, "hypoechoic shadows". These hypoechoic shadows helped us to determine the midline of the spine. The upper and lower hypoechoic shadows were marked on the skin surface which corresponded to the upper and lower spinous processes respectively. The probe was now positioned in between these marking and positioned to produce a "flying bat" pattern containing the ultrasound images of the articular process, ligamentum flavum-dura complex, transverse process and vertebral body.³ The position of the ultrasound probe was marked on both sides of the probe as well as in the midline. A horizontal line was drawn joining two lateral marks and a vertical line was drawn from the midline mark. The puncture site was determined by the intersection of the vertical and horizontal lines. The distance of the skin from the ligamentum flavum-dura complex was 8.4 cm on transverse ultrasound scan. As this was our first experience, we did not try to assess the angle of epidural needle trajectory. With this pre-procedural assessment of the lumbar sonoanatomy, an epidural needle was advanced in the epidural space. We could reach the epidural space with ease in first attempt.

We now routinely scan the lumbar spine of all the obese patients coming to our institute who are to receive either epidural/spinal anaesthesia. Ultrasound scan for epidural/spinal anaesthesia in morbidly obese patients aids in finding the precise location of spinous processes of vertebrae, measuring the distance of ligamentum flavum-dura complex from skin, and also gives an indication regarding the angle of insertion of the epidural needle. We therefore feel that routine scanning of the spine with ultrasound should be done in all obese patients who are planned for epidural/spinal anaesthesia.

REFERENCES

1. Broadbent CR, Maxwell WB, Ferrie R, Wilson DJ, Gawne-Cain M, Russell R. Ability of anaesthetists to identify a marked lumbar interspace. *Anaesthesia* 2000;55:1122-26.
2. Arzola C, Davies S, Rofaeel A, Carvalho JC. Ultrasound using the transverse approach to the lumbar spine provides reliable landmarks for labor epidurals. *Anesth Analg* 2007;104:1188-92.
3. Carvalho JC. Ultrasound-facilitated epidurals and spinal in obstetrics. *Anesthesiol Clin* 2008;26:145-58.

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