

A portable ultrasound transducer stabilization device for ultrasound-guided nerve blocks

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Received: 30 June 2011 / Accepted: 12 November 2012 / Published online: 25 November 2012
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To the Editor:

During ultrasound-guided nerve blocks, physicians generally hold the ultrasound transducer in one hand while inserting the nerve block needle with the other. However, since it is sometimes difficult for the anesthesiologist to single-handedly manipulate the ultrasonographic transducer for simultaneous visualization of the nerve and the tip of the needle, anesthesiologists who perform ultrasound-guided nerve blocks usually require an assistant for local anesthetic injection and catheter insertion.

A guideline for ultrasound-guided nerve blocks, jointly published by the American Society of Regional Anesthesia (ASRA) and European Society of Regional Anesthesia (ESRA) in 2009 [1], points out that for safety purposes, continuous visualization of the needle tip during advancement is important. On the other hand, Site et al. [2] reported that visualization of the needle tip is not easy. Several ultrasound transducer stabilization devices are already available to overcome the previously mentioned issues in clinical practice. These stabilizers are secured to the skin surface as desired by the physician. However, they lack portability. For example, the weight of one of the available stabilizers, ultraStand™ (Wellan Medical, Inc., NH, USA), is 7 kg. In addition, to the best of our knowledge, although the structures and characteristics of these devices have been described in brochures, they have not been described in any independent research papers. Hence, to improve the portability of the stabilizer, we developed a

portable, lightweight (1.45 kg) ultrasound transducer stabilization device that can freely move in any direction and allow easier adherence of the transducer to the skin surface of the patient, as desired by the physician. Our unique patented device (patent number 2008-317507 in Japan) is more compact and portable than the devices currently available (Fig. 1). It was designed to accompany the infusion stands available in every operation room and outpatient pain clinic in Japan, unlike transducer stabilization devices, which require their own special stands. The device consists of both transducer and infusion stand holders (Fig. 2) and attaches to either linear- or convex-type transducers. Figure 3 demonstrates the use of the stabilization device to attach the linear-type transducer to the left neck for interscalene nerve block. Figure 4 demonstrates how it also enables continuous and unassisted catheter insertion for right interscalene nerve block in a patient with complex regional pain syndrome.

In conclusion, our new portable ultrasound transducer stabilization device might facilitate unassisted local anesthetic injection and catheter insertion during ultrasound-guided nerve blocks.

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Fig. 1 Our compact ultrasound transducer stabilization device



Fig. 3 Use with a linear-type transducer

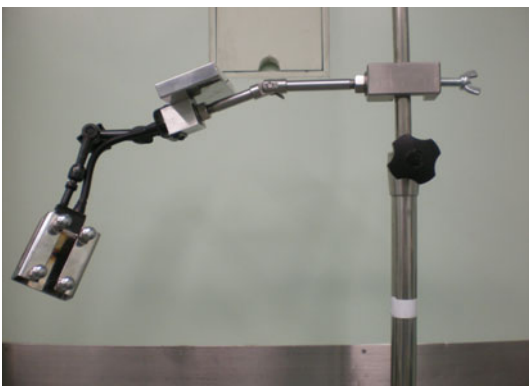


Fig. 2 Our device connected to an infusion stand holder



Fig. 4 Continuous and unassisted catheter insertion