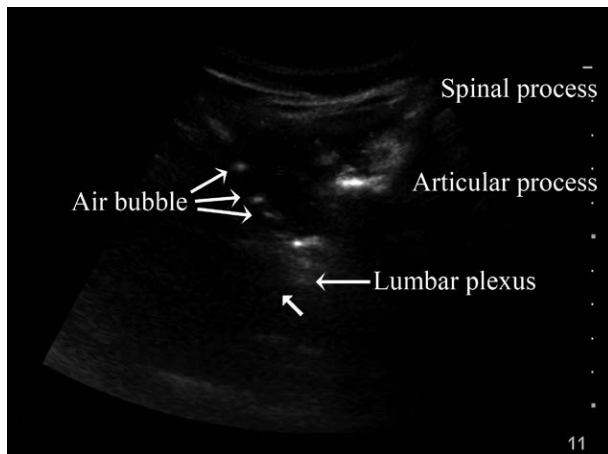


Enhanced Needle Visibility by Micro Air Bubble Contrast in Ultrasound-guided Nerve Block

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ENSURING optimal needle visualization is paramount for safe and successful ultrasound-guided nerve block.¹ Although a variety of technologies have been tried to increase needle visibility during puncture, it is still a challenge to clearly visualize the needle at steep insertion angles, even for experienced practitioners.²

Air bubble contrast has been safely used for echocardiography, transcranial Doppler, and perineural catheter placement.³ The authors propose a simple method, using air bubbles to enhance needle visibility for performing nerve block. Air bubbles (0.1 ~ 0.2 ml) are introduced into the needle. When advancing the needle, the air bubble can be imaged as a significantly hyperechoic dot on the screen, which is helpful for identifying the needle shaft, as seen in the image. In addition, the plunger can be pulled and pushed repeatedly. Con-

sequently, hyperechoic dots can be seen rolling back and forth on the screen (Supplemental Digital Content, <http://links.lww.com/ALN/B613>). The oscillating hyperechoic dots clearly demonstrate the needle shaft. We call this *micro bubble contrast*.

The authors use this technique for ultrasound-guided nerve blocks and believe it to be a simple and reliable method for visualizing the needle. The technique is especially useful for deep nerve blocks at steep needle insertion angles. However, intravascular and intraplexus/sheath air injection are potential complications. Color Doppler and needle aspiration are two important means of preventing intravascular injection, especially intraarterial injection. In addition, nitrous oxide must be avoided when air bubbles are introduced. The effect of these amounts of air on the structure and function of nerves needs further investigation.

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Competing Interests

The authors declare no competing interests.

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