In three cases, only one or two elements of the brachial plexus were coloured, and the combination was considered insufficient to have constituted a successful block. In four additional cases, there was no coloration, despite adequate spread of the LAS around the axillary artery. In these four cases, most of the staining solution was found in the thoraco-scapular space, limited laterally by the subscapularis muscle and medially by the serratus anterior muscle (Fig. 1). In these four cases, block failure was likely due to the spread of the solution into this space. We propose that this could be an anatomical explanation for the failure of certain ICB, whether ultrasound-guided or not.

The infraclavicular region is divided into a superficial and deep compartment (Fig. 1). The deep compartment contains the large subclavian vessels and the three cords of the brachial plexus, and has a proximal, a distal, and a dorsomedial extension. The distal extension is in the deep axillary space covered by the deep axillary fascia. In the deep axillary space, the cords split into the large nerves to innervate the upper limb. Cords and nerves can be separated from each other by variably developed dense connective tissue layers. The dorsomedial continuation of the deep infraclavicular compartment and of the deep axillary space is the thoraco-scapular gliding space, which is filled with soft connective tissue to provide the movements of the scapula along the thorax. This space reaches its limit at the medial border of the scapula, with the insertion of the serratus anterior muscle.

In four failed blocks observed in our study, the entire volume of injected LAS leaked into this little-known anatomical space, away from the structures targeted by the injection. We believe that this could provide an anatomical mechanism of action to explain unsuccessful US-ICB.

Declaration of interest
Sonosite® (Villebon sur Yvette, France) laboratory kindly provided the equipment used for the study.

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Ultrasound-guided cannulation of the great saphenous vein at the ankle in infants

Editor—We read with interest the paper by Triffterer and colleagues regarding ultrasound-guided cannulation of the great saphenous vein at the level of the medial malleolus in infants and congratulate them on the application of

Fig 1 Transfixion technique for cannulating the great saphenous vein in a 5 kg infant.

Non compressed vein before cannulation

Needle compressing vein and tissue

The tip is seen at the 12 o’clock position followed by a short rapid “stab”. Needle is then slowly withdrawn until flashback or aspiration confirms intravascular position.
a scientific approach to a technique popular in our institution. We agree that as a consequence of the occasionally deep position of the vein, it may sometimes be difficult to cannulate the vessel directly; hence, the ultrasound-guided technique described is valuable. In our experience, we find that it is sometimes difficult to fix/steady the vessel and the cannula tends to pass to the side of the vessel (even if the tip is seen to be at 12 o’clock position in a correct trajectory) (Fig. 1). We therefore advocate a transfixion technique with a short, fast advancement of the needle to avoid this (invariably puncturing the posterior wall).

The authors mention the use of a jelly pad to improve the image quality and reduce the applied probe pressure, but what we find to be the problem is the pressure from the advancing cannula. We assume that the needle is not placed through the jelly pad (as shown in Fig. 3 in the original article), and thus the vein is at no greater depth to the needle, only to the probe.

As we are not familiar with the use of jelly pads, we would be interested to know the authors’ experience regarding vessel compression caused by the needle and their opinion on techniques to reduce it or their thoughts on transfixion.

We also use our technique in acute situations (having access to hand-held portable ultrasound) but only if it does not cause delay to resuscitation efforts, when intraosseous access may be more appropriate.

**Declaration of interest**

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