An Artery Inside the Sciatic Nerve

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The popliteal sciatic nerve block is commonly performed under ultrasound guidance.

The use of ultrasound imaging facilitates the identification of the sub-paraneural spread by circular expansion after gaining needle access to the sub-paraneural compartment, where the paraneural sheath covers the tibial and the common peroneal nerves. When administering local anesthetics, the insertion of the needle within the sheath is essential for effective nerve block.

Figure 1 shows a small blood vessel inside the sciatic nerve sheath. Color Doppler confirmed the blood vessel as an artery. There have been no reports about the small artery inside the sciatic nerve. The artery exists in the sciatic nerve in about 10 cm proximal from the popliteal fossa to the bifurcation of the sciatic nerve (Video 1). Connection to the outside artery was not identified. Because the anomalous artery hindered the path anterior to the lateral division at the bifurcation, the pre-planned needle trajectory toward the septum between the divisions should be re-planned under such circumstances. If the circular expansion of the paraneural sheath proves difficult from puncturing outside, considering both safety and in-time onset for regional anesthesia, blocking the divisions individually after the bifurcation will also speed up the onset as with circular expansion at the bifurcation. The ultrasound guidance enabled the needle insertion and the injection of local anesthetics without contacting the artery and bleeding.

One of the complications of peripheral nerve blocks is bleeding, which occurs as a result of injury to the artery by the needle tip. Therefore, evaluating the blood vessels in the path of the needle insertion using ultrasound before the procedure has been emphasized. Although the development of a hematoma after a sciatic nerve block has not been reported, the formation of a hematoma inside the nerve sheath could result in nerve injuries. We would like to emphasize that evaluating for the presence of a vessel inside the sciatic nerve is also important to avoid unexpected nerve injury.

Conflict of Interest

The authors declare no competing interest.

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References


Video 1. The Ultrasound Movie of the Artery Inside the Sciatic Nerve Sheath