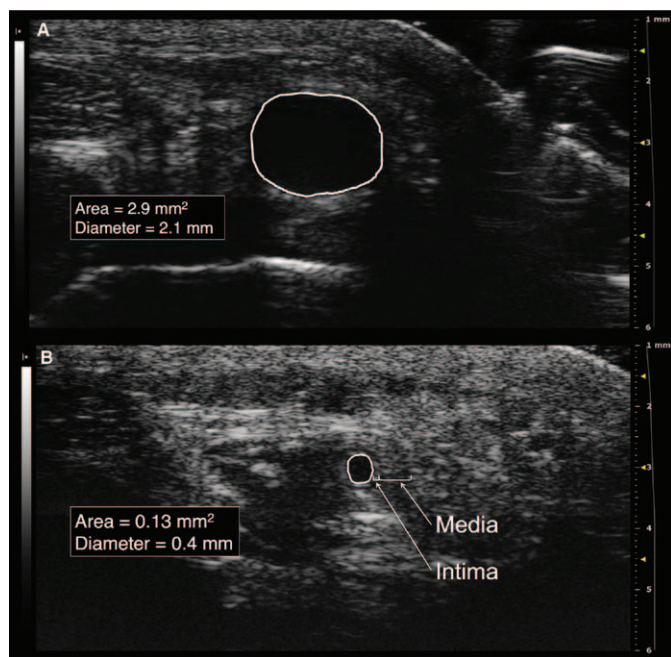


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Images in Anesthesiology: Radial Artery Spasm in an Infant as Documented by High-frequency Micro-ultrasound

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HIGH-FREQUENCY micro-ultrasound is a new, preclinical technology that utilizes higher frequencies compared to conventional ultrasound. During a feasibility trial using high-frequency micro-ultrasound for vascular access in children, radial artery spasm in an 8-month-old male child was uniquely documented with a 50-MHz probe. The intraluminal diameter before attempted cannulation was 2.1 mm (fig. A) and was 0.4 mm afterward (fig. B), which explains why the 0.38-mm diameter guide-wire could not be advanced into the vessel in spasm.

The radial artery contains a high density of α -1 adrenoceptors and is more susceptible to spasm compared to many other arteries.¹ The occurrence of spasm after successful cannulation can be directly treated with intraarterial administration of a vasodilator, such as nitroglycerine or verapamil.² However, when arterial spasm occurs before successful cannulation of the artery, subsequent cannulation may be impossible, as our picture shows. When this occurs, three choices remain: choose a new site for cannulation, wait for the spasm to resolve if access is required in that artery, or treat the arteriospasm. Treatment of arteriospasm

to facilitate cannulation of the segment in spasm is not well studied.³ Reported treatment options include systemic administration of a vasodilator, with the risk of systemic hypotension, and subcutaneous periarterial administration of nitroglycerin, with or without local anesthetic.³ Subcutaneous nitroglycerine can be effective in rapidly reestablishing a palpable radial pulse,³ and ultrasound may aid in evaluating the extent of vessel in spasm and relaxation of spasm after treatment.

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Competing Interests

The authors declare no competing interests.

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