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Spine sono-intervention warning & safety recommendations

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The spinal cord is a long, thin, tubular bundle of nervous tissue and support cells that extends from the medulla oblongata in the brainstem to the lumbar region of the vertebral column. The brain and spinal cord together make up the central nervous system. The spinal cord is the main pathway for information connecting the brain and peripheral nervous system. The spinal cord (and brain) are protected by three layers of tissue or membranes called meninges, that surround the canal. And spinal injection is done therapeutically between some of these layers, although injection in others cause complication. Ultrasound is a valuable modality for close monitoring of these spaces to prevent injection directly on epidural space and prevent unwanted injury to spinal cord and nerve root. The major contribution to the arterial blood supply of the spinal cord below the cervical region comes from the radially arranged posterior and anterior radicular arteries, which run into the spinal cord alongside the dorsal and ventral nerve roots. In humans, the largest of the anterior radicular arteries is known as the artery of Adamkiewicz, or anterior radicularis magna (ARM) artery, which usually arises between L1 and L2, but can arise anywhere from T9 to L5. Impaired blood flow through these critical radicular arteries, especially during spinal intervention that involve abrupt disruption of blood flow can result in spinal cord infarction and paraplegia. Although Doppler ultrasound is useful for scanning of blood vessel, but because of the risk of intra-arterial injection, insoluble corticosteroids must not be used when real-time contrast dye injection with fluoroscopy and/ or digital subtraction angiography is not used.

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