

LETTERS TO THE EDITOR

VASCULAR UPTAKE OF CONTRAST DESPITE NEGATIVE ASPIRATION IN INTERLAMINAR CERVICAL EPIDURAL INJECTION

To the Editor:

We report a case of intravascular uptake of contrast during interlaminar cervical epidural steroid injection (ESI) despite absence of spontaneous blood backflow through the needle hub and negative aspiration for blood.

A 67-year-old female patient with neck pain and radiation of pain into her right shoulder and upper arm was referred to our pain clinic for cervical ESI. After obtaining informed written consent, the patient was placed in the prone position. The neck was cleaned and draped in a sterile fashion. The C6-C7 interspace was identified and confirmed using fluoroscopy in the anteroposterior view. After skin infiltration with 1% lidocaine, an 18-Gauge Tuohy needle was used to locate the epidural space by the hanging drop method. There was no spontaneous blood flow back into the needle hub. Aspiration was negative for cerebrospinal fluid or blood. Contrast was injected under real-time fluoroscopy and vascular uptake was demonstrated. The Tuohy needle was retracted, cleared of blood and repositioned. Epidural space was located again using the hanging drop method. There was no backflow of blood and aspiration was negative for blood. Vascular uptake was again observed with repeat injection of contrast. The Tuohy needle was removed and injection was performed at the C7-T1 interspace. There was no backflow of blood into the needle hub and aspiration was negative. Contrast was injected and confirmed epidural space location. Triamcinolone 40mg in 4 ml of normal saline was injected without complications. The patient tolerated the procedure well.

Cervical epidural injections (ESIs) are performed for treatment of neck pain or upper limb radicular pain secondary to cervical disc pathology. Interlaminar

and transforaminal approaches to the epidural space have been described. The transforaminal approach to the cervical epidural space can be associated with a higher risk of intravascular injection because of critical arteries located in the posterior aspect of the intervertebral foramen (1). Injury to the vertebral artery is also a possible complication (2). An intravascular injection rate of 19.4% has been reported with transforaminal cervical ESI (3). The intravascular injection rate for interlaminar cervical ESI is unknown. Observation of backflow of blood into the needle hub or positive aspiration of blood was less than 50% sensitive (3). Low venous pressures in the epidural venous plexus may not generate enough pressure to cause backflow through the needle. Aspiration may result in collapse of the epidural veins and therefore prevent withdrawal of blood through the needle.

The vertebral venous plexus is located in the posterolateral aspect of the epidural space. An interlaminar midline approach to the epidural space may reduce the risk of intravascular injection. For this reason, we wish to highlight that intravascular injection can still occur with the purportedly safer interlaminar approach. There are physicians who routinely perform such procedures without fluoroscopy or contrast to confirm extravascular needle placement in the epidural space. The epidural space is misidentified about 25-30% of the time even by experienced anesthesiologists without the aid of fluoroscopy (4). If a cervical ESI had been performed without fluoroscopy in our patient, intravascular injection would have occurred because negative aspiration for blood and absence of backflow of blood were not sensitive tests. Complications such as cardiorespiratory arrest, spinal

cord infarction, paraplegia and cortical blindness have been reported with intravascular injection of local anesthetic, particulate matter in steroid, contrast or a combination of these (2,5-7).

An interlaminar approach to the cervical epidural space may be associated with a lower rate of intravascular injection than the transforaminal approach (8). However, it will not be risk free as observed in this case. We do not recommend performing cervical ESIs without fluoroscopic guidance and contrast confirmation to exclude vascular uptake. Catastrophic consequences can occur with intravascular injection of local anesthetic or particulate steroids.

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APPEARANCE OF PLICA MEDIANA DORSALIS DURING EPIDUROGRAPHY

To the Editor:

The plica mediana dorsalis (PMD) is thought to be a band of connective tissue, which divides the epidural space at the dorsal midline. Existence of the PMD has been controversial since its first description in 1963 (1). The PMD has been regarded as a potential cause for unilateral epidural blockade (2, 3). For purpose of discussion, we present a case of a patient who presented for an interlaminar lumbar epidural steroid injection. Under epidurography, a structure similar in appearance to a PMD was identified, but it did not interfere with bilateral contrast flow.

The patient was a 47-year-old male, 114 Kg in weight and 1.83 m tall, with symptoms consistent with left L5 radiculitis. MRI scan performed two months prior to presentation showed previous L4-5 right hemilaminectomy, and left-sided L4-5 disc herniation. He was scheduled for an interlaminar epidural steroid injection at the left side of the L5-S1 interspace. After informed consent was obtained and a "time-out" was conducted, the patient was placed in the prone position. The L5-S1 interspace was optimized under anterior-posterior (AP) view with fluoroscopy. Skin prep and drape were performed. Local anesthetic infiltration was performed with 1% lidocaine [AstraZeneca LP, Wilmington DE], an 18 g 9 cm Tuohy needle was directed toward the left side of the L5-S1 interspace using AP (Fig. 1) and lateral fluoroscopic images. A 5 cc ground glass syringe containing 3 cc normal saline and a 1 cc air bubble was used for loss of resistance

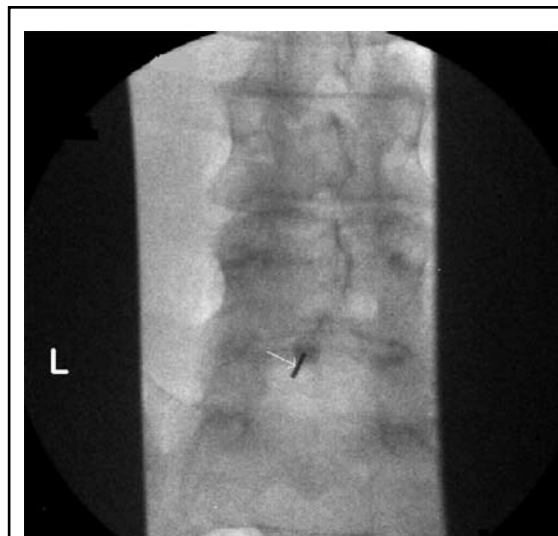


Fig. 1: Precontrast anterior-posterior fluoroscopy image of lumbosacral spine during epidural needle placement at L5/S1. Epidural needle (white arrow) enters far left side of L5/S1 interspace.

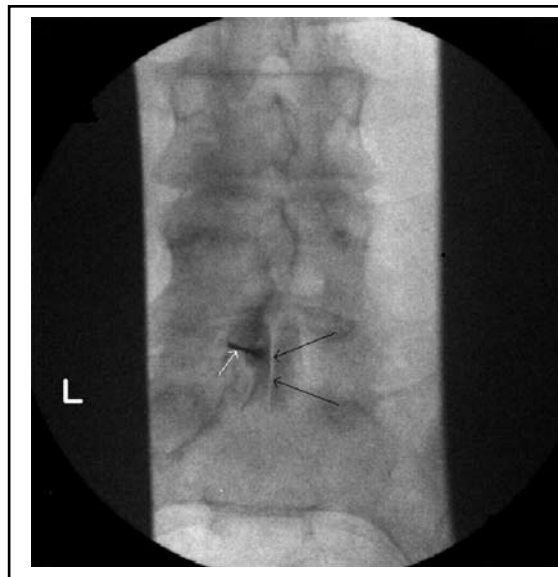


Fig. 2: Epidurogram showing plica mediana dorsalis. Epidural needle (white arrow) enters far left side of L5-S1 interspace. Contrast flows from left to right, with non-filling sagittal white line (black arrows) showing the presence of a plica mediana dorsalis.