

Intra-arterial regional anesthesia for pain associated with arteriovenous malformations sclerotherapy

Dear Editor,

Ethanol sclerotherapy is an effective way of managing arteriovenous malformation (AVM) cases. This intervention

requires injection of alcohol in the affected vessel, which is associated with severe pain. Thus, this procedure is routinely performed under general anesthesia or nerve blocks.^[1] This article demonstrates the use of intra-arterial preservative-free lignocaine as a sole agent for pain associated with sclerotherapy of AVM of the left upper limb.

A 27-year-old male patient, the American Society of Anesthesiologists (ASA) physical status class I, was posted for ethanol sclerotherapy of left upper extremity vessels for AVM. Clinical examination and Doppler



Figure 1: Catheter angiogram demonstrating final catheter position and contrast picture of AV malformation

ultrasound (USG) of the left hand confirmed the diagnosis. After explaining the procedure, an informed written consent was obtained, and the patient was shifted to the digital subtraction angiography (DSA) suite. In the procedure room, standard monitors were applied, and the patient was positioned in the supine position with the arms abducted over the armrest. Following skin infiltration with 1% lignocaine, the right femoral arterial line was secured under ultrasound-guided (USG) assistance. Thereafter, under continuous fluoroscopic guidance, an arterial microcatheter was threaded through the femoral artery over a guidewire until its tip reached the left brachial artery. Finally, the left posterior interosseous artery was identified as the feeding vessel using the intermittent injection of contrast material. Once the feeding vessel was confirmed, the catheter was further advanced into the left posterior interosseous artery just proximal to AVM [Figure 1]. An adult size blood pressure (BP) cuff was applied to the left forearm just proximal to the tip of the microcatheter, and the final position of the catheter was confirmed utilizing post-contrast fluoroscopy [Figure 2]. The cuff was inflated above the systolic blood pressure, and intra-arterial preservative-free 40 mg of 2% lignocaine was injected through the microcatheter. After 90 s, 2 mL of ethyl alcohol was injected through the microcatheter. Assessment of pain was done via numerical rating scale (NRS), which remained between 2 and 3 during and after the injection of ethyl alcohol. Throughout the injection procedure, the blood pressure cuff was kept inflated, which prevented the backflow of the injectate. The cuff was deflated 15 min after the alcohol administration. Post-procedure fluoroscopy revealed shrinkage of vessels involved in AVM formation. The entire procedure was uneventful, and the patient vitals

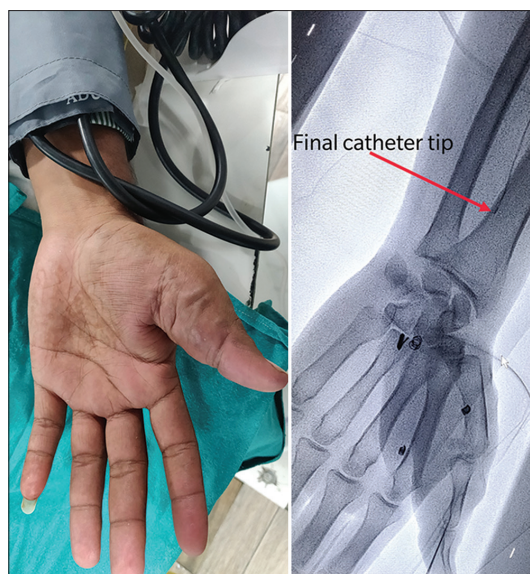


Figure 2: Position of blood pressure cuff in relation to final catheter tip position

remained stable throughout the procedure. No additional analgesics were administered during the entire procedure. The patient was monitored in the recovery room for 2 h after the procedure. He remained pain-free with stable hemodynamic and was discharged on the same evening.

In the past, intravenous lignocaine has been effectively used in managing propofol injection-induced pain,^[2] etomidate-induced myoclonus,^[3] and providing lower bispectral index (BIS) values.^[4] Recently, intra-arterial injection of lignocaine in the uterine artery was found to be effective in managing postprocedural pain following uterine artery embolization.^[5] Although intravascular absorption of local anesthetics can lead to systemic toxicity, our patient underwent alcohol sclerotherapy of AVM under lignocaine anesthesia without any of the disabling complications or side effects.

Therefore, we suggest that judicious use of intra-arterial lignocaine could prove to be an effective anesthetic tool for procedures like AVM sclerotherapy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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