Cutaneous fluid leak from the epidural puncture site after insertion of a thoracic epidural catheter: A unusual cause

Epidural catheter occlusion, kinking are common complications encountered while placing epidural causing failure of administering the drug through it.[1] However, leakage due to the kinking of the catheter is uncommon. We encountered such a problem during the use of an epidural catheter set for perioperative analgesia. A 26-year-old American Society of Anesthesiologists (ASA)-II female with a bodyweight of 40 kg was diagnosed with Atrial Septal Defect Ostium Secundum. She was electively posted for Atrial septal defect repair through median sternotomy. General anesthesia with a thoracic epidural was planned. Under a full aseptic condition in an awake, sitting position, the skin was locally infiltrated with 3 mL of 2% lignocaine hydrochloride. Then, a Romsons Epi Kit® 18G Touhy needle 80 mm length was advanced at T₆–T₇ intervertebral space by midline approach. The epidural space was identified by loss of resistance to air technique at 4 cm. The catheter was advanced without resistance and fixed at 9 cm to skin level. There was a negative aspiration to air technique at 4 cm. The catheter was advanced without resistance and fixed at 9 cm to skin level. There was a negative aspiration to cerebral spinal fluid (CSF) and blood. So, the epidural test dose was injected with 3 mL of 2% lignocaine hydrochloride and adrenaline (1:200000).

During injecting the test dose, we noticed continuous flow leakage of clear fluid from the catheter insertion site. [Figure 1a] It was dripping down and stopped while withholding the drug administration. The catheter was left in situ. We decided not to use the epidural catheter intraoperatively, and the case was managed with opioid-based multimodal analgesia. The surgery lasted for 180 min, and the entire intraoperative course was uneventful. The patient was then shifted to the postoperative care unit for close monitoring. On postoperative day 1, with continuous gentle traction, the intact catheter was removed. We noticed multiple kinks at a regular interval of 0.5 cm from the catheter tip on inspection. The consecutive kink points were opposite to each other. [Figure 1b] Upon interrogation, we suspected that after getting a loss of resistance while threading the catheter through the needle, 20 cm marking was inserted till the base of the needle before taking the needle out of the skin. The Romsons Epi Kit® catheter is made up of plasticizer-free polymer with the flexible and atraumatic soft tip with three lateral eyes. Although it is flexible, it might have kinked within the epidural space during insertion causing the inadequate length of the catheter within it as well as each turn at kinking points would have provided extra space through which the test drug may extravasate out at the insertion point. In such a case, administered drugs would have leaked causing the ineffectiveness of epidural. This problem would have been attributed to various other factors viz. port configuration, depth of insertion, method of catheter fixation to the skin, however, the materials used to manufacture catheter also remain the implicated cause.[1,2] Previously, cerebro spinal fluid (CSF)-cutaneous fistulae have been reported, and it’s being associated with a variety of clinical situations such as postneurosurgery, lumbar spinal drains, trauma, tumor, infection.[3] The interstitial cutaneous fluid leak from the puncture epidural site after catheter removal is being reported in the literature.[4] However, in our case, the fluid was neither CSF nor interstitial fluid leak because leaking was associated with pushing the test dose, and it disappeared after withholding. Hence, we should consider the possibility of catheter site leak even in case of negative aspiration to CSF/blood and causing the loss of administered drug.

Informed consent
Informed consent was taken from the patient.

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Conflicts of interest
There are no conflicts of interest.

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References

1. Toledano RD, Tsen LC. Epidural catheter design: History, innovations, and clinical implications. Anesthesiology 2014;121:9-17.
2. Reena, Vikram A. Fracture of epidural catheter: A case report and review of the literature. Saudi J Anaesth 2017;11:108-10.
3. Ennis M, Brock-Utne JG. Delayed cutaneous fluid leak from the puncture hole after removal of an epidural catheter. Anesthesia 1993;48:317–8.
4. Dalal KS, Shrividya C. Cutaneous fluid leakage after epidural catheter removal. J Anaesthesiol Clin Pharmacol 2015;31:133-4.