TRAPPING OF THE EPIDURAL CATHETER BETWEEN LUMBAR FACET JOINTS: IDENTIFICATION BY CT AND A SIMPLE REMOVAL TECHNIQUE

Case Report

EPIDURAL KATETERIN LOMBER FASET EKLEMLERI ARASINDA SIKIŞMASI: BT ILE TANI VE BASIT BIR KATETER ÇEKME TEKNIĞI

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ABSTRACT

We report a removal difficulty of a stuck epidural catheter between the lomber vertebral facets. An epidural catheter was inserted for perioperative pain management before general anesthesia to a woman undergoing laparatomy for oopherectomy. A lomber epidural catheterization was performed with 18-gauge needle using midline approach in left lateral position. Following a test dose general anesthesia was commenced. After extubation, patient has reported a severe abdominal pain which revealed an incomplete epidural analgesia. Therefore removal of the epidural catheter was decided. As all the removal attempts were failed, a CT scan evaluation which revealed catheter stuck between the left interfacet junctions of the L2-L3 vertebrae, was performed. This is an uncommon cause of catheter stuck. None of the recommended maneuvers worked in this stuck catheter case. Therefore iv midazolam and removal attempt in right lateral position with the legs flexed and vertebra flexed and rotated contralaterally, was decided. This approach was successful for the removal of the catheter.

Key words: *Epidural catheter; epidural anesthesia; computerized tomography.*

ÖZET

Bu olguda lomber vertebral fasetler arasında sıkışan epidural kateterin çıkarılmasındaki güçlüğü sunulmaktadır. Ooferektomi nedeniyle laparatomi planlana hastaya perioperatif ağrı yönetimi için genel anestezi öncesinde lomber epidural kateter yerleştirildi.Lomber epidural kateterizasyon (L2-3) sol lateral pozisyonda orta hat yaklaşımla 18 G epidural iğne kullanılarak yapıldı. Test dozunu takiben, genel anestezi başladı. Ekstübasyon sonrasında hasta ağrı tarif edince yetersiz epidural analjeziye karar verildi ve epidural kateterin çekilmesi kararlaştırıldı. Tüm kateter çıkarma

denemeleri başarısızlıkla sonuçlandığından, BT ile görüntülemeye karar verildi.BT' de kateterin L2-3 vertebraları arasındakisol taraf fasetlerine sıkıştığı görüldü. Bu durum nadir bir kateter sıkışması olgusu olup, önerilen manevralar kateteri çıkarmada başarısız olmuştur. Bu nedenle hasta sağ lateral pozisyonda bacaklara fleksiyon, vertebraya fleksiyon ve aksi yöne rotasyon verilirken, iv midazolam uygulaması yapıldı. Bu yaklaşım ile kateter başarıyla çıkarıldı.

Anahtar Kelimeler : *Epidural kateter; epidural anestezi; bilgisayarlı tomografi.*

INTRODUCTION

Difficult removal of epidural catheters due to malposition may be occasionally encountered. Knotting, breakage or anterior epidural position of the epidural catheter was reported previously (1, 2, 3). In this article, wereport a patient with astuck epidural catheter between the two lumbar vertebral facets. We havereviewed this rare condition and discussed possible removal options. We have also discussed some previously defined removal techniques in case of catheter stuck.

CASE REPORT

An epidural catheter was inserted for perioperative pain management before general anesthesia to a 30 year-old, ASA I (1.60 cm, 55 kg) woman undergoing laparatomy for oopherectomy. The epidural catheter was placed into the epidural space at L_2–L_3 intervertebral space in left lateral position, by using a 18 gauge Touhy needle and loss-of-resistance technique with saline. The epidural catheter (20-gauge) was inserted 4-5cm beyond the tip of the needle in a presumed cranial direction (BBraun, Perifix®, Germany). Following a 3 mL of a test dose of 1% lidocaine with epinephrine to rule out the spinal anesthesia or intravenous injection, general anesthesia was commenced with propofol, fentanyl and atracurium. Throughout the surgery epidural bupivacaine (0.01%) and fentanyl 2 μg $ml^{-1}$was infused at a constant rate of 6 $mL.hr^{-1}$. After extubation patient has reported a severe abdominal pain which revealed an incomplete epidural analgesia. Therefore an intravenous patient controlled analgesia and removal of the epidural catheter was decided.

First removal attempt, performed in left lateral position, was failed. As the patient was anxious and complained of pain, another removal attempt was made after 40 mg iv meperidine in left lateral position with her legs and spine flexed. This attempt was also failed. We have evaluated the patient with a computerized tomography (CT) to find out the exact place of the catheter stuck. We have noticed that the catheter was not directly in the midline and it was placed laterally (**Figures 1,2,3**).

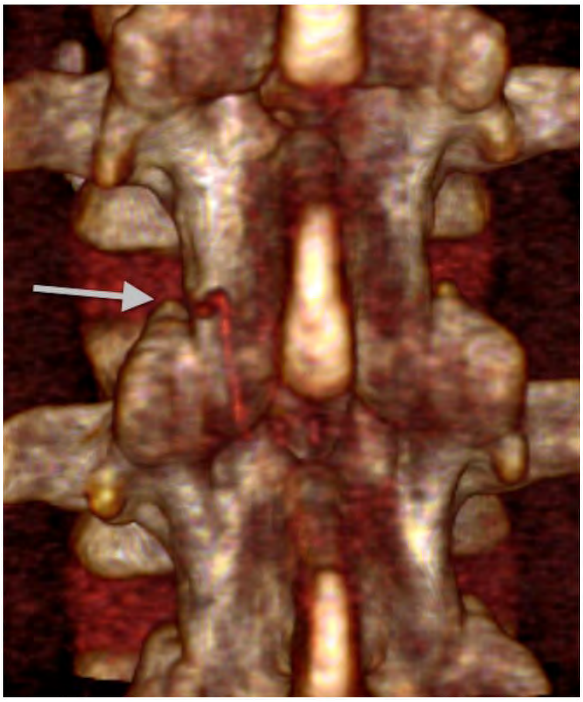
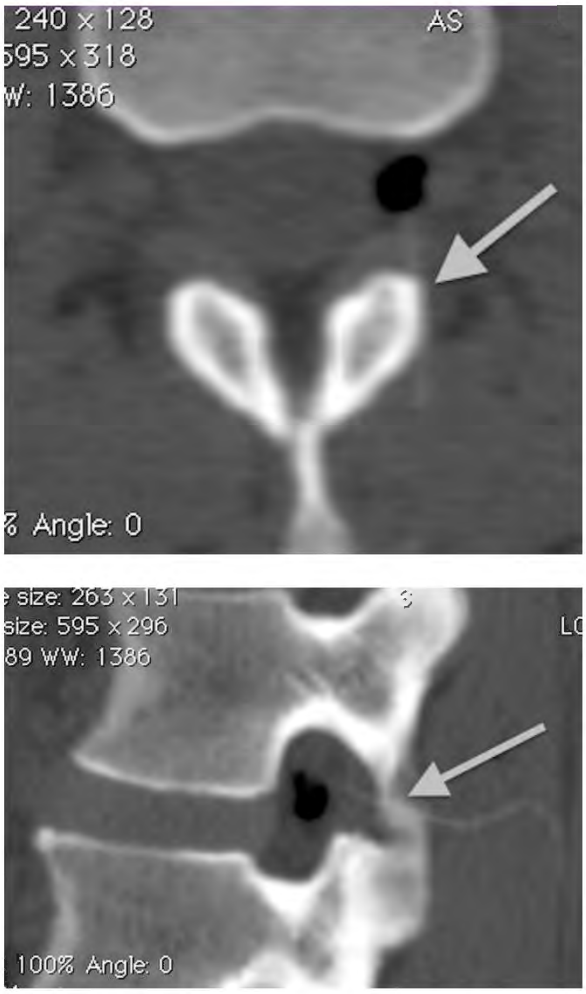


Figure 1a, 1b: *Computerized tomography of the lumbar spine. Axial (a), and Sagittal (b) images of the L2-3 intervertebral junction demonstrating the epidural catheter stuck between L2 inferior and L3 superior articular facets. Arrow shows the stuck epidural catheter.*

Figure 2: *Three-dimensional reconstruction of the Computerized tomography of the lumbar spine.*

Epidural catheter stuck between L2 inferior and L3 superior articular facets. Arrow shows the stuck epidural catheter.

CT-scan evaluation revealed a catheter stuck between the left inferior facet of L2 and left superior facet ofL3 vertebrae (**figure 1**).



This is an uncommon cause of epidural catheter stuck. Therefore we have decided to give the patient right lateral decubitusposition with legs and spine flexed and with a minimal spinal rotation along with intravenous midazolam sedation. After this maneuver the epidural catheter was successfully removed at once.

DISCUSSION

The commonly reported reasons for the difficult epidural catheter removal are knotting or breakage, or anterior epidural positioning of the catheter.However report of a stuck catheter between the facets of two vertebral bodies in English literature is scarce; we only found one case reporting the issue.In that case, after several failed attempts, air injection through the epidural catheter with a tuberculin syringe and left lateral flexed positioning provided a successful removal. In our case it was not possible to inject neither saline nor air through the catheter. In our review we have encountered some techniques for the stuck epidural catheters (1,4,5): Slow, steady traction to the catheter to avoid disruption; using the same position with the catheter insertion; the lateral decubitus position to reduce the force required for catheter removal compared to flexed sitting position (1,2); and injection of 3 mL of normal saline may facilitate removal (3).The muscle relaxation has been reported to facilitate the catheter removal (4). Another way to remove the stuck catheter was allow the patient to relax for some hours and extract the catheter later (5).

CT scan in 2mm slices very delicately showed the place of catheter stuck in our case. CT has revealed that the epidural catheter was stuck between the left facets of the L2-3 vertebra. Therefore we decided to give right lateral position with a minimal rotationand sedation with midazolam. We do not recommenda CT evaluation in every case but in cases with real difficulty or risk of catheter disruption CT may be very helpful.We recommend some maneuvers like rotation of the spine during flexion in the lateral decubitus position. This maneuver may open the inter facet joint and this may also facilitate catheter removal.When all the aforementioned attempts fail, we recommend evaluating the location of the catheter with a CT scan of the lumbar spine.

Epidural catheter stuck between intervertebral facets is a rare condition. For a successful removal predetermined measures defined for the difficult removal of the epidural catheters may be used. CT and new maneuvers in patient positioning may be used depending on the place of the catheter stuck.

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