



## CASE REPORT: BROKEN EPIDURAL CATHETER; A RARE COMPLICATION

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**ABSTRACT** Breakage of epidural catheter is a rare and worrisome complication. However, if this happens, the presence of retained epidural catheter fragment should be properly documented and should also be informed to the surgical team as well as to the patient. Visualization of retained catheter is difficult even with modern radiological imaging techniques and active surgical intervention should be reserved only for symptomatic cases. The usual guidelines and precautions for insertion and removal of catheter should strictly be followed on a routine basis to avoid such complication. Here we report a case with such complication in which catheter broke during insertion, the reason of which could be attributed to multiple causes.

**KEYWORDS :** Epidural, Catheter, Breakage, Retained.

**INTRODUCTION:**

Epidural catheterization is a commonly performed procedure in anaesthesia. The breakage of an epidural catheter within a patient is rare (1). Sequestered catheter fragment is generally considered to be inert and should not produce a foreign body reaction. Therefore, in most cases the current standard of management is to leave them alone. (2)

**CASE REPORT:**

A 61-year-old male was admitted with a fracture of the distal right femur and was planned for distal femur locking plate insertion under combined spinal epidural anesthesia considering the fact that his chest condition was not ideal for general anaesthesia and the surgery could go on well beyond the effect of a single shot neuraxial anaesthesia. An 18 Gauge, 80 mm Touhooy needle (Romson's EPI-KIT) was used to access the epidural space in L3-L4 intervertebral space with loss of resistance technique in the sitting position. The epidural space was encountered 5 cm from skin and and 22 Gauge radio-opaque multihole epidural catheter advanced up to 20 cm after which a resistance was felt. Withdrawal of the needle, leaving the catheter in situ was tried but resistance was encountered. Unable to remove the needle alone, both needle and catheter were simultaneously withdrawn with gentle traction. In this process the catheter sheared off at approximately 18 cm from the tip. The distal part of catheter was removed with the needle. The patient was then taken for magnetic resonance imaging, hoping to locate the catheter, but in vain. The patient was then operated in general anaesthesia. The patient was premedicated with injection Ondansetron 4 mg and injection Glycopyrrolate 0.2 mg intravenous. Inducing agent used was injection Thiopentone sodium 300 mg intravenous along with injection Succinyl choline 100 mg intravenous. Anaesthesia was maintained with intermediate acting muscle relaxant injection Vecuronium intravenous along with the inhalational agent Sevoflurane. The surgery took four hours and the patient was extubated after reversing the muscle relaxation by injection Neostigmine 2.5 mg intravenous along with injection Glycopyrrolate 0.4 mg intravenous. Patient remained asymptomatic in the post-operative. No abnormality was detected on daily neurological examination till the day of discharge. The digital X-ray of lumbar spine both in antero-posterior and lateral position was unable to detect the retained catheter. The patient was well informed and counselled regarding the complication. He was kept on regular follow up with advice to report in event of any adverse symptom. He remained well at a follow up of six months.

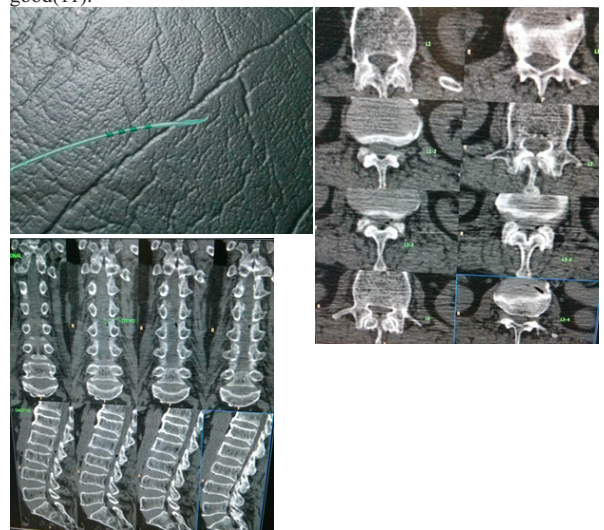
**DISCUSSION:**

In general, epidural catheterization is a safe procedure (3). They have been known to break while removal, leaving a fragment in the epidural space. However, in our case breakage took place during insertion of catheter. The possible causes can be shearing while withdrawing a catheter through Touhooy needle, slicing the catheter into two pieces. The catheter may also tear as it catches the barbs of an unsharpened needle by application of undue force in an attempt to withdraw the catheter through the introducer needle. It can be due to weakness of the catheter produced by imperfections in manufacturing (4). A catheter can get looped or knotted by resistance encountered by anatomical obstacles on its path. A catheter can become entangled with nerve roots, vessels, fascia, posterior vertebral arches, vertebral processes and facet joint (5). Excessive catheter threading may increase the

likelihood of entanglement. Kinking and twisting of epidural catheter can occur anywhere between the skin and the epidural space (6). Radiological imaging tests are not very helpful in locating the catheter even though the catheter is lined with a radio opaque line. This may be because of the small thickness of the epidural catheter and the surrounding tissue being highly radio dense. Sequestered temporary epidural catheter pieces are generally considered to be inert and should not produce a foreign body reaction. The broken fragment usually becomes walled off by fibrous tissue after remaining within the epidural space for about 3 weeks (7). Symptoms can arise when the catheter impinges a nerve or causes traction on it or a superimposed infection occurs. Rare complication of foraminal stenosis presenting with low back ache has also been reported (8). In such cases a surgical intervention for the removal of catheter is a must. Symptoms can also arise when the catheter fragment is sitting partially intrathecally and is acting as a wick which allows persistent CSF leakage(9)(10).

**CONCLUSION:**

The insertion and removal of epidural catheter should be done with utmost caution following the usual guidelines. If it happens then presence of a retained catheter fragment should be documented and imaging of spine to find out the level of involvement and early surgical intervention to retrieve the retained fragment is advocated. In most cases the current standard of care application to the retained segments of a temporary epidural catheter is to leave them alone unless symptomatic because surgical removal can produce more harm than good(11).

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