

Retained And Broken Epidural Catheter: A Case Report.

Payal shah¹, Shelly Rana², Monika Mahajan^{3*}, Usha K Chaudhary⁴,
Vrinda Chauhan⁵, Ajay Verma⁶

1 Medical Officer, Zonal Hospital Dharmashala. H.P

2,3,5,6, Department Of Anaesthesia, Dr. R.P.G.M.C, Kangra at Tanda. H.P

4 Department Of Anaesthesia, I.G.M.C, Shimla.H.P

Corresponding author: Dr. Monika Mahajan

Abstract: Placement of an epidural catheter in epidural space is a routine practice for providing anaesthesia & or analgesia in various surgical procedures. Breakage of epidural catheter though rare is a well-known but worrisome complication. The presence of a retained epidural catheter fragment tip must be addressed and communicated both to the surgeon and the patient

Date of Submission: 01-07-2019

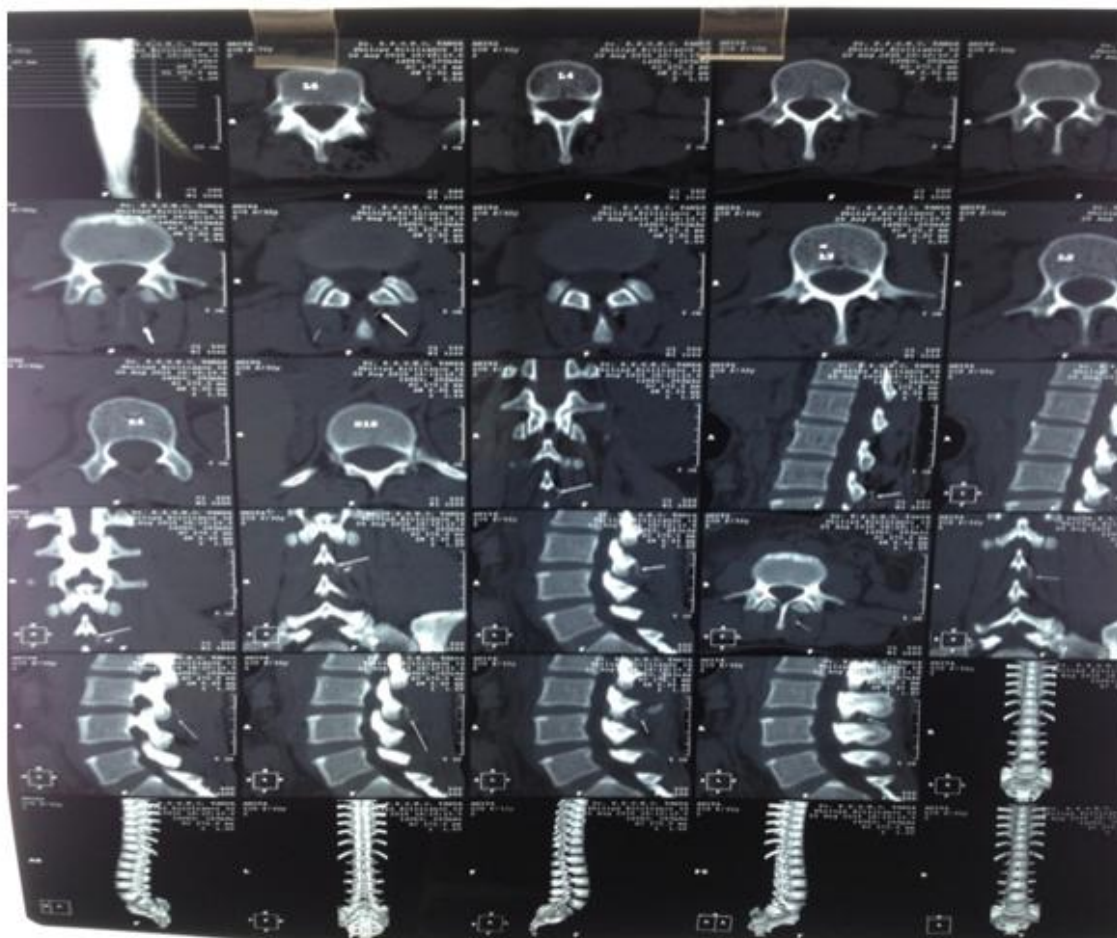
Date of acceptance: 16-07-2019

I. Introduction

Epidural anesthesia is a safe procedure and is routinely performed by the anaesthesiologists. Breakage of an epidural catheter, though rare, is a well-known complication. Though the insertion of a spinal or epidural catheter is usually safe, there have been incidences of its breakage during removal as well as during insertion, leaving a segment lodged in patient's back.¹ Since surgical removal of a broken catheter is not recommended, it is left in the patient permanently.²

II. Case report

A 39 years old female ASA 1 with a symptomatic fibroid uterus was planned for elective transabdominal hysterectomy. After preanesthetic check up patient was taken into operation theatre (OT). Anaesthesia plan was combined spinal epidural (CSE) for total abdominal hysterectomy. A lumbar epidural anaesthesia was planned and using the loss-of-resistance technique with saline 18-gauge Portex® epidural catheter (Smiths Medical International Ltd, Kent, UK) was inserted through an 18G Tuohy needle into the epidural space at L3 – L4 interspinous space in sitting position. The epidural space was encountered at 4.5 cm from skin and catheter was advanced cephalad upto 11cm. Epidural test dose with 3 ml of 1.5% Xylocaine with adrenaline 1:200,000 was given, no resistance was felt. Intravascular as well as intrathecal placement was ruled out. After epidural anesthesia subarachnoid block (SAB) was given with 26G Quincke-Babcock needle in same space and 15 mg of 0.5% bupivacaine heavy was injected. After that patient was made supine & checked for the effect of SAB. The level of sensory blockade was at T10, so we decided to activate epidural & gave 10cc of 2% lignocaine with adrenaline. There was no effect of epidural after 20 min & the case was converted to general anaesthesia. Intraoperatively patient remain stable. After extubation patient was shifted to post anaesthetic care unit (PACU). As there was no effect of epidural we decided to remove the catheter in PACU. At the time of removal, part of the catheter came out without any stretching. After informing the surgeon and the patient's attendants, MRI and CT scan were done in order to locate the remaining part of the catheter. In MRI we didn't find any catheter.



CT report showed that a hyperdense foreign body (200-300HZ) ,of length about 5 cm in paravertebral muscles, mainly erector spinae at L3 & L4, just lateral to spinous process of L4 seen.

The patient was assured & counselled on how to recognise symptoms and signs of neurological complications prior to discharge. She was advised to present immediately to hospital if these symptoms occur.

III. Discussion

A fragment of broken epidural catheter left in a patient is a rare event. Bonica et al (1957), audited 3637 cases of epidurals anesthesia/analgesia and found only 2 incidents of epidural catheter breakage.³ Approximately 30 cases of retained broken epidural catheter have been reported till date.⁴ The etiology of breakage is thought to be trauma during insertion as well as during removal. There is variation in the susceptibility of different types of catheters to breakage. The tensile strength of those materials were evaluated, and they concluded that nylon or polyurethane catheters were more resistant than Teflon or polyethylene catheters.⁵ Additionally, assessment of the effect of two types of trauma (needle bevel or surgical blade) unsurprisingly showed all catheter types to be more susceptible to breakage after trauma. In our case there was direct trauma to the epidural catheter by Quincke - Babcock spinal needle during insertion. Images of lumbar spine are essential not only to confirm the retained catheter, but also to identify its location, length, and course. The MRI is an excellent imaging technique to visualize soft tissues; however, it is not good to visualize a foreign body. The MRI, in our case did not show the broken catheter. However, the CT scan usually delineates the course. We believe when a foreign body (such as a fragmented catheter) is in question, CT scan is the best method. As in our case catheter was located in CT Scan. Management options for a broken and retained catheter are determined by the potential for infection and local injury. Sequestered temporary epidural catheter pieces are generally considered to be inert and do not produce foreign body reaction. However, Staats et al reported the formation of a reactive epidural mass (1.5cm) around the catheter fragment resulting in lumbar spinal stenosis.⁶ However, there are 3 situations where a policy of non-interference or reassurance does not apply:

- 1) Where infection or symptoms supervene
- 2) If the spinal catheter fragment is sitting partially intrathecally and is acting as a wick which allows persistent CSF leakage.
- 3) If the proximal end of the segment is located at or just beneath the skin.

Exploratory laminectomy should be done if the patient develops neurologic changes⁷, or if the catheter is in the subarachnoid space.⁸ Ethical and legal issues could also emerge with a broken catheter incident. Though we obtained informed consent and did talk to the patient about the rare possibilities of serious neurological complications, we did not explicitly mention the possibility of catheter breakage & retention. However, following this incident, we believe that we fulfilled our ethical responsibility by consulting the surgeon with radiological investigations, counselling the patient, documenting all details in the patient file, and finally arranging patient follow-up. Retrospectively, we believe, the overall management was satisfactory and there was no malpractice.

IV. Conclusion

In case of failed epidural, there should be high level of suspicion of epidural catheter breakage. The presence of retained epidural catheter fragment should be properly documented and should also be informed to the surgical team and the patient. The patient must be counseled and given reassurance. Radiological imaging should be done at the earliest. Surgical intervention should be done if the patient develops neurologic changes, or if the catheter is in the subarachnoid space. Patients should be followed routinely as symptoms can occur even months or years later.

References

- [1]. Tio T, Macmurdo S, McKenzie R. Mishap with an epidural catheter. *Anesthesiology* 1979; 50:260-62.
- [2]. DeVera H, Ries M. Complication of continuous spinal microcatheter: should we seek their removal if sheared? *Anesthesiology* 1991; 74:794
- [3]. Bonica JJ, Backup PH, Anderson CE, Hadfield D, Crepps WF, Monk BF. Peridural block: analysis of 3,637 cases and a review *Anesthesiology* 1957; 18: 723-784.
- [4]. Hobaika ABS. Breakage of epidural catheters: etiology, prevention, and management. *Rev Bras Anesthesiol* 2008; 58: 227-233.
- [5]. Nishio I, Sekiguchi M, Aoyama Y et al. – Decreased tensile strength of an epidural catheter during its removal by grasping with a hemostat. *Anesth Analg*, 2001;93:210-212
- [6]. Staats PS, Stinson MS, Lee R. Lumbar stenosis complicating retained epidural catheter tip. *Anesthesiology* 1995;83:1115-18.
- [7]. Bonica JJ, Backup PH, Anderson CE et al. – Peridural block: analysis of 3,637 cases and a review. *Anesthesiology*, 1957; 18:723-784.
- [8]. Ubgoma S, Au-Truong X, Kranzler LI et al. – The breaking of an intrathecally-placed epidural catheter during extraction. *Anesth Analg*, 2002;95:1087-1089.

Dr. Monika Mahajan. “Retained And Broken Epidural Catheter: A Case Report..” *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 18, no. 7, 2019, pp 70-72.