

Thoracic Epidural Catheter Misplacement In Pleural Cavity: An Uncommon Complication

S Mishra, S Bhatnagar

Citation

S Mishra, S Bhatnagar. *Thoracic Epidural Catheter Misplacement In Pleural Cavity: An Uncommon Complication*. The Internet Journal of Anesthesiology. 2005 Volume 10 Number 2.

Abstract

Epidural analgesia failure because of misplaced epidural catheter rate is as high as 8% even in expert hands. Complications related to epidural catheter placement range from non fatal to fatal complications. We report an uncommon complication of thoracic epidural analgesia i.e. accidental pleural puncture by an thoracic epidural catheter in a patient with a carcinoma of the lower third of esophagus undergoing trans thoracic resection and gastric pull-through.

INTRODUCTION

Thoracic epidural catheters are placed to provide perioperative analgesia in a variety of surgeries like thoracotomies for pulmonary resections, esophageal procedures and cardiac surgery. This procedure, like all blind procedures, is not without its complications. Various complications are reported in literature like dural puncture with high spinal block, intravascular placement of catheter, knotting and transaction of the epidural catheter etc ¹. Pleural puncture by epidural needle or the catheter is an uncommon and a life threatening complication ^{2, 3, 4}. We present a case of inadvertent placement of thoracic epidural catheter in the pleural space in a patient undergoing esophageal resection for esophageal carcinoma.

CASE REPORT

A 43-year-old with 55 kg weight, female patient with carcinoma of the lower third of esophagus was posted for transthoracic resection and gastric pull up. Her pre-anaesthetic work up revealed no past history of any medical disease or surgical intervention. Her general physical and systemic examination revealed no abnormalities. There were no spinal deformities present. Biochemical, haematologic parameters and ECG and chest X- ray were normal.

She was fasted overnight and pre-medicated with oral diazepam 10mg at night and intramuscular morphine 5 mg, glycopyrrolate 0.2 ug and phenargan 50 mg. Insertion of epidural catheter was explained to her and consent was taken on pre-anaesthetic visit.

On the operating table, peripheral intravenous access was obtained and all standard monitoring attached to the patient- ECG, pulse oximeter, non-invasive automatic blood pressure set at 5-minute intervals. She was placed in left lateral position with thighs and neck flexed. After painting and draping her back thoracic interspace between 6 th and 7 th vertebral spines was well felt. After infiltrating 2% lignocaine to raise a skin wheal an 18 g touhy needle (Portex) was inserted with initial puncture 45° to the skin, upto 2 cms depth. The stylet was removed. Using loss of resistance technique with air filled glass syringe. Needle was directed in a cephalad direction, intermittently advancing few mms at a time. At 3 cm the needle hit transverse process and hence it was slightly withdrawn and redirected at a more acute angle to the skin. Loss of resistance was then felt at a distance of 5 cm from the skin. The epidural catheter was inserted upto 12 cms mark at the skin and needle removed over the catheter. After securing the catheter, 3 ml of 2% lignocaine with 1 in 200000 units adrenaline was given after aspiration for blood and CSF. No ECG changes and no spinal anaesthesia were seen at the end of 3 minutes.

The patient had no complaints. She was turned supine and general anaesthesia was induced 10 minutes with thiopental, morphine and vecuronium bromide was done. After induction 0.25% of bupivacaine was administered through the epidural catheter after careful aspiration for perioperative analgesia.

One and a half hours after right thoracotomy incision, the surgeon-detected 3cms of the epidural catheter tip in the right pleural space. The epidural catheter was removed. The

operative procedure was continued. The entire perioperative period was uneventful.

DISCUSSION

Thoracic epidural anaesthesia is frequently used in combination with general anaesthesia to provide excellent perioperative analgesia in patients undergoing upper abdominal and thoracic surgery. But there are numerous complications has been reported varying from minor complication to life threatening complication like tension pneumothorax .Hence this procedure need expertise in it. But even in skilled hands failure rate of epidural analgesia is as high as 8% .Puncture of the pleura by an epidural catheter is uncommon ^{1,5}. In most of the cases paramedian approach was used and had some or other technical problem were present .Only one case report was found where even in midline approach there was misplacement of epidural catheter in pleural cavity in obese patient with poor landmarks. The paramedian approach to thoracic epidural space is thought to have lesser technical problems but higher complications rate as compared to midline approach .In our case we did not encounter any difficulty in identifying epidural space and there were no sign or symptoms of epidural catheter misplacement. Hence our case report showed that even in midline approach without encountered any technical problem in during thoracic epidural catheter placement still catheter misplacement can occur in pleural cavity .

Misplacement of epidural catheter may occur because of

various reasons related to patients factors like spinal deformity, ossified ligaments, poor positioning, poor landmarks and various other technical problems and needs expertise in performing thoracic epidural catheter placement. But still taking care of the all factors still misplacement of catheter occurs. We conclude that preoperative sensory level of analgesia should be assessed for confirmation of correct placement of epidural catheter as from a clinical point of view misplaced catheter may manifest itself by poorly effective or ineffective analgesia which is reported to be fairly common even in the expert hands.

CORRESPONDENCE TO

Dr. Seema Mishra HIG, House No. 1097, Sector 23,
Housing Board Colony, Faridabad. Pin -121005 Haryana,
INDIA E-mail: mseema17@yahoo.co.in

References

1. Zaugg M, Stoehr S, Weder W, Zollinger A. Accidental pleural puncture by a thoracic epidural catheter .*Anaesthesia* 1998;53:69-71.
2. Patt RB, Reddy S, Wu CI, Catania JA. Pneumothorax as a consequence of thoracic subarachnoid block ,*anaesthesia* 1994;78:160-162.
3. Furuya A, Takashi M, Ozaki M, Kumazawa T .Interpleural misplacement of an epidural catheter .*J Clin Anaesthesia* 1998;10:425-426.
4. Grieve PP, Whitta RKS .Pleural puncture : an unusual complication of a thoracic epidural .*Anaesthesia Intensive Care* 2004;32:113-116.
5. Kouch J, Nielson JU .Rare misplacement of epidural catheters .*Anesthesiology* .1986;65:556-557.
6. Dawkins CJ .An analysis of the complications of extradural and caudal lock. *Anaesthesia* 1969;24:554-563.

Author Information

Seema Mishra, M.D.

Assistant Professor, Unit of Anesthesiology, Institute Rotary Cancer Hospital, All India Institute of Medical Sciences

Sushma Bhatnagar, M.D.

Associate Professor, Unit of Anesthesiology, Institute Rotary Cancer Hospital, All India Institute of Medical Sciences