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A Broken Epidural Catheter

Case Report

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Ein defekter Epidural-Katheter. Fallbericht

Zusammenfassung. Ein Fall eines gebrochenen Epidural Katheters wird besprochen. Von entscheidender Bedeutung ist die Korrektur der Lendenlordose des Patienten beim Entfernen des Katheters.

Summary. A case is reported of a broken epidural catheter. The importance of the flexed position of the patient's back during the removal of the catheter is discussed.

The use of a catheter during a continuous epidural anaesthetic can cause several complications [3] and breakage of the catheter is one of these. This may be due to imperfections in the material used, external damage, or because the Tuohy needle cuts off a part of the catheter [2]. The catheter can also be crushed between two spinous processes [4] and break. The following case report illustrates the last possibility.

Case Report

A healthy 24 year old man had a continuous epidural anaesthetic for meniscectomy of the right knee. The premedication consisted of diazepam 10 mg orally one hour before the operation. The epidural was performed at the L3-L4 interspace with the patient in the sitting position. The catheter was inserted 4 cm caudally and bupivacaine 1% 18 cc + adrenaline 1:200,000 was injected. The patient was placed supine. After 30 minutes analgesia was obtained to Th₁–₂ and the operation was performed uneventfully. Postoperatively an additional dose of bupivacaine was given. With the patient in the lateral decubitus position and his back straight, the catheter was removed. There was some difficulty, as the patient tensed his back muscles.

On inspection it was discovered that the tip of the catheter was missing and the end was frayed (fig. 1). After checking the measurements it appeared that more than one centimeter was missing. This piece was not visible on the X-ray of the lumbar vertebrae. The patient has had no problems from this piece of catheter and

Discussion

It has been shown that catheters in the epidural space can curl up [1, 7] and even tie themselves in knots [6]. Because of this Dawkins advises not to insert the catheter more than 5 cm and Bromage [2] believes that 4 cm is enough. Theoretically, malposition of the catheter in the above patient is a possibility but as the catheter was introduced only 4 cm, the chance that loops or knots could be formed was small.

Kaufman and Reynolds [4] described a patient with an epidural catheter that was passed in the lateral decubitus position with the back well flexed, but when the patient was turned supine the catheter became completely blocked. This block was reversible. A lumbar spine X-ray showed that the block was caused by crushing the catheter between the spinous processes. This also may have occurred in our case.

It is usual with epidural and spinal puncture to
curve the patient’s back to a maximum, so that the greatest space is achieved between the spinous processes. In this case it is possible that lack of adequate spinal flexion during removal of the catheter caused its constriction. By pulling too hard, the tip of the catheter was broken off. If the patient had curved his back more, the catheter may loosened itself without problems.

Maruyama [5] and Yoshida [8] have recently described 4 patients where difficulties arose during the removal of epidural catheters. These authors also emphasize the importance of the position of the patient. If a catheter is difficult to remove, a maximum curve of the back is required to open the interspaces. As a general rule the catheter should be removed with the patient in the same position as during insertion and a strong force should not be exerted.

References