AN UNUSUAL COMPLICATION OF EXTRADURAL CATHETERIZATION
IN OBSTETRIC ANAESTHESIA

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SUMMARY

An extradural catheter was inserted at the third lumbar interspace for relief of pain during labour in a 21-year-old gravida patient. Attempts to withdraw the catheter met with resistance and produced severe pain in the distribution of the second left lumbar nerve. Radiography revealed an acutely angled loop of the catheter over the L2–3 nerve root.

Since the introduction of continuous extradural anaesthesia by Curbelo (1949), the technique has been used widely during labour and parturition. Complications from the insertion of such catheters include malposition (Bridenbaugh et al., 1968), venous cannulation (Youngman, 1956), subarachnoid (Kalas and Hehre, 1972) and, occasionally, subdural placement (Boys and Norman, 1975). Rarely, the catheter may become knotted within the extradural space (Nicholson, 1965; Chun and Karp, 1966). The following case report describes a parturient in whom an extradural catheter became curled around a nerve root, causing severe pain on traction and difficulty in removal.

CASE REPORT

A 21-year-old woman, gravida II para 0, was admitted to the delivery suite in active labour. On her admission, mild pre-eclampsia was diagnosed and magnesium sulphate therapy was started. When the cervix had dilated to 4 cm extradural analgesia was administered with the patient in the sitting position. Bony landmarks were difficult to define because of lumbo-sacral oedema. After an unsuccessful attempt at the 4th lumbar intervertebral space, the 17-gauge Tuohy needle was inserted at the 3rd lumbar intervertebral space and the extradural space was identified by the loss of resistance to air. The needle was rotated to bring its bevel cephalad and a 19-gauge Teflon (Deseret) catheter was advanced into the extradural space.

After removal of the needle, an attempt was made to withdraw the catheter slightly. Upon doing so, the patient experienced severe pain in the portion of the left thigh corresponding to the distribution of the 2nd lumbar nerve. When traction was released, the pain disappeared. The catheter was then secured, and satisfactory analgesia was produced by the injection of 2% 2-chloroprocaine.

Approximately 2 h later, Caesarean section became necessary because of failure to progress. Following a 2-ml test dose, 16 ml of 0.75% bupivacaine was injected and produced sensory blockade up to the 4th thoracic dermatome. The operation proceeded uneventfully and a male infant, with Apgar scores of 9 at 1 and 5 min, was delivered.

A further attempt to remove the catheter was made 4 h later when the mother had recovered fully from the extradural blockade. Gentle traction to the catheter met with firm resistance and resulted in recurrence of the pain in her left thigh.

Radiographs (anteroposterior and lateral views) of the lumbar spine were taken after injecting 0.5–1.0 ml of mitrizamide contrast (220 mg ml⁻¹) through the catheter. The opacified catheter was seen to form a loop with an acute angle at the level of the L2–3 nerve root (fig. 1). There was no knot. The length of catheter threaded within the extradural space itself was estimated from radiographs by a radiologist to be 8.1 cm.

The patient was informed of the radiographic findings and of the methods available for removal of the catheter. In spite of the risk of damage to the nerve root during attempts at non-surgical removal, she refused to consider an operative approach.

Continuous, gentle traction was applied to the catheter with the patient slowly flexing her back and
FIG. 1. Anteroposterior x-ray of the lumbar spine. The extradural catheter entered the skin at the white arrow, passed cephalad and deviated to the right of the film. At the black arrow it curved downwards and towards the midline.

maintaining the lateral recumbent position. This was repeated in the sitting and standing positions. The catheter was finally removed intact, while the patient was sitting with her back slightly flexed. The postoperative course was uneventful; there was no residual motor or sensory loss.

DISCUSSION

This report describes an unusual technical complication of continuous extradural anaesthesia. Reports of difficulty in removing the catheter have been rare. Kaufman and Reynolds (1976) experienced difficulty in removing a catheter because of compression by osteoarthritic lumbar spines. Four instances of knotted catheters have been reported (Nicholson, 1965; Chun and Karp, 1966; Blass, Roberts and Wiley, 1981). In one, successful removal of the knotted catheter was accomplished by gentle manual traction (Nicholson, 1965) while in the other three (Chun and Karp, 1966; Blass, Roberts and Wiley, 1981), the catheter broke and the knotted piece had to be removed surgically.

It has been suggested that no more than 3–4 cm of the catheter should be left in the extradural space (Ilke, 1952), since the extra length may curl up or pass outwards through an intervertebral foramen into the paravertebral space. Muneyuki, Shirai and Inamoto (1970), in a radiographic analysis of the position of catheters inserted into the extradural spaces of 151 patients, found that almost 50% curled or doubled back on themselves. The mean length of catheter inserted was 5.9 cm with soft polyethylene catheters and 7.7 cm with hard polyvinyl catheters. It is probable that the length of catheter in the extradural space (8.1 cm) was responsible for the loop formation around the nerve root in our patient.

Bromage (1978) recommended x-ray visualization of the area if pain was caused by traction to the catheter. Our patient complained of pain and paresthesia in the left 2nd lumbar dermatome when the catheter was pulled and there was radiographic evidence of an acutely angled loop at the corresponding vertebral level.

Several courses of action can be taken if difficulty is encountered during the attempted removal of an extradural catheter:
(1) All efforts should be abandoned until the patient has recovered fully from the motor and sensory blockade.
(2) Radio-opaque dye equal to the volume of the catheter should be injected, and the appropriate radiographs taken to locate the catheter and rule out knot formation.
(3) Gentle, constant traction may be applied to the catheter while the patient is placed in different positions with the back slightly flexed but, should pain persist, the possibility of nerve root avulsion should be considered. Under these circumstances, it is probably wise to extract the catheter surgically.

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REFERENCES


UNE COMPLICATION INHABITUELLE DU CATHETERISME PERIDURAL EN ANALGESIE OBSTETRICALE

RESUME

Un cathéter péridural avait été mis en place dans le troisième espace lombaire pour soulager les douleurs du travail chez une femme enceinte de 21 ans. Les tentatives d’ablation du cathéter ont rencontré une résistance et produit une violente douleur dans le territoire de la deuxième racine nerveuse lombaire gauche. Un cliché radiographique a révélé l’existence d’une boucle à angle aigu du cathéter au niveau de la racine nerveuse L2–L3.

EINE UNÜBLICHE KOMPLIKATION BEI DER PERIDURALEN KATHETERISIERUNG IN DER GEBURTSHILF LICHEN ANÄSTHESIE

ZUSAMMENFASSUNG


UNA COMPLICACIÓN INHABITUAL EN EL CATETERISMO EXTRADURAL DURANTE ANESTESIA OBSTÉTRICA

SUMARIO

Se insertó una sonda extradural en el tercer intersticio lumbar para aliviar el dolor durante el parto de una mujer gravida de 21 años de edad. Las tentativas tendientes a retirar la sonda se toparon con una resistencia y produjeron dolores agudos en la distribución del segundo nervio lumbar izquierdo. La radiografía reveló un lazo con ángulo agudo de la sonda encima de la raíz del nervio L2–3.