CASE REPORT

Postoperative epidural abscess after spinal anaesthesia for a circumcision necessitated by phimosis

Sjaak Pouwels,^{1,2} Darryl M Coll,^{3,4} Alexander G J van Marle^{1,2}

¹Department of Surgery, Franciscus Vlietland, Schiedam
²Department of Surgery, Franciscus Gasthuis, Rotterdam
³Department of Anesthesiology, Franciscus Gasthuis, Rotterdam
⁴Department of Anesthesiology, Franciscus Vlietland, Schiedam

Correspondence to
 Dr Sjaak Pouwels,
 sjaakpwl@gmail.com

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SUMMARY

A 70-year-old man was admitted to our hospital for a penile circumcision due to phimosis using continuous dose spinal anaesthesia. On postoperative day 10 he came to the emergency department with a superficial abscess localised at the injection site of the spinal catheter. He was treated with intravenous antibiotics for 10 days, and the superficial abscess was incised and drained. Ten days later, the patient was readmitted to the emergency department with complaints of back pain and fever. A repeat MRI scan of his lumbar sacral area was done and showed epidural abscesses without any compression of the medulla or the myelum. The patient did not have any signs of spinal cord or nerve root compression at that time. He was treated with intravenous antibiotics with resolution of symptoms.

BACKGROUND

Epidural abscess is a very rare complication after spinal anaesthesia and is usually associated with a coexisting infection elsewhere in the body.^{1,2} Epidural abscesses have been often reported

in patients with Crohn's disease, sepsis, cancer and after epidural catheterisation.¹⁻³

We present a case of multiple epidural abscesses after spinal anaesthesia in a patient who underwent a circumcision without obvious pre-existing risk factors.

CASE PRESENTATION

A 70-year-old man was admitted to our hospital for a circumcision of the penis. His medical history was significant for hypertension, deep venous thrombosis on two separate occasions, and a post-thrombotic syndrome of the femoral vein and common iliac veins, which was treated with placement of a stent in both veins. Also in the past he had a laparotomy because of an ileus caused by adhesions and an intra-abdominal abscess. During initial hospitalisation the patient underwent a phimosis circumcision using spinal anaesthesia. This was continuous dose spinal anaesthesia. Chlorhexidine 70% was used to disinfect the back of the patient; the operator worked under aseptic conditions, and wore sterile gloves, a hat and a mask. A 25G Pencan 88 mm needle was used and placed at the L2/L3 level. After placement a continuous dose of bupivacaine was given. The placement of the needle was difficult; multiple attempts were done, and after four attempts adequate analgesia could be given.

The same day he developed a bleeding resulting in a penile haematoma, necessitating a surgical debridement. The patient was discharged on postoperative day 1 in stable condition.

On postoperative day 10 he presented to the emergency department of our hospital with a superficial abscess localised at the injection site of the spinal catheter. A lumbar MRI scan (figure 1) was done to rule out suspected spinal pathology. No abscesses were seen on the MRI scan. Therefore he was treated with intravenous antibiotics for 10 days, and the superficial abscess was incised and drained. Wound and blood cultures showed *Staphylococcus aureus* sensitive to penicillin (flucloxacillin).

Exactly 10 days later (after the initial antibiotics were stopped), the patient was readmitted to the emergency department with complaints of back pain and fever. On physical exam he had a local wound infection at the injection site of the spinal catheter. A repeat lumbar MRI was done and showed multiple epidural abscesses without

Figure 1 MRI scan 10 days after the initial surgery, when the patient presented with a superficial abscess. No epidural abscesses or other abnormalities were seen.

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Figure 2 MRI scan 24 days after the initial surgery, when the patient presented himself for the second time. Epidural abscesses were present.

any compression of the medulla or the myelum (figure 2). Our patient did not have any neurological complaints at that time. He was therefore treated with intravenous antibiotics. This time the patient was treated with intravenous flucloxacillin 2 g six times a day for 8 weeks.

OUTCOME AND FOLLOW-UP

A neurosurgeon was consulted concerning possible surgical debridement of the epidural abscesses. Surgical debridement of the abscesses was felt to be unnecessary because of the lack of neurological complaints; therefore, we continued treatment with intravenous antibiotics. After 10 days, the patient showed significant clinical improvement (no additional fevers and felt significantly better) and was discharged from the hospital.

DISCUSSION

Epidural abscesses are an uncommon complication of regional anaesthesia; if no other causes of postoperative illness can be identified (spondylodiscitis or neurological infections), we should question whether there were any problems during placement of the spinal catheter. The overall incidence of epidural abscesses after regional anaesthesia lies between 1: 100 000 and 1:400 000.^{1 2 4 5} The early signs and symptoms of an epidural abscess are fever, back pain, elevated inflammation parameters (erythrocyte sedimentation rate or C reactive protein), and localised paravertebral and paraspinal tenderness.⁴⁻⁶ Late symptoms (>96 hours) can vary between abnormal reflexes, nerve root weakness and paraplegia.¹⁻⁶

In the current literature, there might be an association between the clinical manifestation of epidural abscesses and

Learning points

- ▶ Epidural abscess is a very rare complication after spinal anaesthesia.
- ▶ Even when adequate (sterile) precautions were taken with spinal placement, infections can occur.
- ▶ Due to subtle presentation, a high index of suspicion is needed.
- ▶ Epidural abscess is usually associated with a coexisting infection elsewhere in the body, but can occur without pre-existing conditions or even spontaneously.
- ▶ Without neurological symptoms, intravenous antibiotics is the treatment of choice.
- ▶ Careful observation for subsequent development of neurological involvement is indicated.

diabetes mellitus. However, our patient did not have diabetes mellitus. It is important to know that 13% of patients with epidural abscesses without prior spinal injections also had diabetes mellitus.^{1 4 5} However, this serves to reinforce the belief that these kinds of infections seed in the epidural space through regional anaesthesia.

Early diagnosis and treatment of these conditions are very important. MRI scan remains the cornerstone to diagnose epidural abscesses and has a clearly demonstrated specificity.^{4 5} In terms of treatment intravenous antibiotic is indicated when there are no neurological symptoms, and surgical debridement is indicated when neurological abnormalities occur.⁴⁻⁶

In our case, there was an unclear causal relationship between the regional anaesthetic technique and the subsequent delayed infection. In this specific case, it is difficult to determine whether the puncture seeded the epidural space. However, this only underlines the statement that these kinds of infections can occur with a significant amount of delay after the initial puncture.

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