Case Report/Caso Clínico

Epidural abscess: an unusual cause of postpartum fever
Abcesso epidural: uma causa rara de febre puerperal

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Abstract
Epidural analgesia is frequently used for labour analgesia, and major complications are rare. This article illustrates a case of a healthy woman submitted to a caesarean section under epidural anaesthesia, which developed postpartum fever, worsening abdominal and lumbar pain and neurologic deficits. Lumbar magnetic resonance confirmed the epidural abscess with spinal compression, demanding urgent laminectomy and surgical drainage, along with prolonged antibiotic therapy.

Epidural abscess, although a rare complication, can have an important impact on neurologic integrity. The clinical manifestations are unspecific, and timely diagnosis and treatment are crucial to prevent permanent neurologic damage and death.

Keywords: Epidural abscess; Postpartum period; Fever.

INTRODUCTION

Epidural analgesia is frequently used for labour analgesia, usually without complications. Epidural abscess is a rare but potentially devastating complication, that can result in important neurological morbidity and death¹. Its incidence is unknown, but low. In a series of 17,372 epidural catheter insertions, 9 cases were reported (incidence of 0.052%)². Evidence on this topic is sparse, with very few published cases in the last years. In this article, a postpartum epidural abscess is described, and the need of timely diagnosis and treatment to prevent permanent neurologic damage and death is emphasized.

An informed consent was obtained from the patient prior to the elaboration of this article.

CLINICAL CASE

A healthy 30-year-old woman was submitted to a cae-
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which exerted an important mass effect on the dural sac (Figure 1). Given the spinal cord compression and cauda equina syndrome, the patient was submitted to an urgent laminectomy and abscess drainage.

There were no complications in the post-operative period.

In the following hours, the patient presented with sustained fever and lumbar pain under analgesia, and posteriorly developed urinary retention needing catheterization, defecatory difficulty and limited gait caused by diminished left lower limb strength.

The lumbar MR confirmed a 3 cm epidural abscess, podense L3-L4 lesion, with a probable epidural location and dural sac deformation, which could represent a hematoma or an abscess, requiring better characterization by magnetic resonance (MR).

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The lumbar MR confirmed a 3 cm epidural abscess, which exerted an important mass effect on the dural sac (Figure 1). Given the spinal cord compression and cauda equina syndrome, the patient was submitted to an urgent laminectomy and abscess drainage.

She completed 15 days of intravenous antibiotic therapy, initially empiric with ceftriaxone and vancomycin and posteriorly changed to flucloxacillin after methicillin-sensitive *Staphylococcus aureus* (MSSA) isolation.

There were no complications in the post-operative period.

**FIGURE 1.** Median sagittal view on MRI (T1-weighted on the left and T2-weighted on the right) showed a 27 mm fluid collection at disc level L3-L4, compressing the dural sac (white arrow).
period. The patient was apyretic and without sensitive or motor function deficits. A follow-up lumbar RM a week later showed little inflammation signs compatible with the post-operative period. She was discharged 15 days after surgery and completed two additional weeks of antibiotic therapy with oral flucloxacillin. A follow-up lumbar MR a year later showed complete resolution and the patient is without neurologic deficits to date.

**DISCUSSION**

The incidence of epidural abscess in the postpartum period is unknown, but extremely low, according to the available evidence. A 2015 review article about bacterial infection after epidural catheterization included only 5 cases of epidural abscess in the postpartum period. Studies suggest that the risk of infectious complications after epidural catheterization is variable, depending on the presence of predisposing factors, namely the duration of the catheterization, with a period higher than 3 days being considered a risk factor. In the Xue et al. review mentioned before, the duration of catheterization varied between 6 and 48 hours. There was just one case, described in 2004 by Schroeder et al. where the epidural catheter was kept by a short period (6h), the only one less than 24 hours. The catheterization technique itself, along with correct skin disinfection and aseptic conditions are also factors that could influence the rate of infection.

Other risk factors, such as advanced age, immunodepression, diabetes mellitus or oncological disease could raise the risk. In the present case, the patient was healthy and the epidural catheter was in place for about 30 hours.

Epidural space infection is specially associated to the catheter insertion moment. The most commonly isolated microorganisms are *Staphylococcus aureus* and *epidermis*, in about 2/3 of the cases, followed by *Streptococcus* and gram-negative bacteria, in a lower percentage. In up to 15% of abscesses, it is not possible to identify the causative microorganism. In the presented case, a methicillin sensitive *Staphylococcus aureus* was isolated.

Lumbar pain is the most frequent reported symptom, in up to 90% of cases. In the Xue et al. review, all patients reported this symptom. The same happened with our patient. However, the lumbar pain incidence in the postpartum period is high, regardless of the type of labour analgesia that was used. Therefore, without other associated symptoms, namely neurological deficits or fever, it is extremely difficult to diagnose an epidural abscess. Our patient presented with lumbar pain for several days, and fever and the progressive neurological deficits, along with infection markers, appeared only 10 days after the caesarean section, and these symptoms were not present on admission to the emergency room.

Imaging is crucial to the confirmation of the diagnosis, the MRI being the most sensible imaging technique, as it was in the presented case, given the CT scan did not allow a definitive diagnosis. The conservative treatment can be considered when there are no neurologic deficits. In the Xue et al. review, only 2 out of 5 patients needed surgical intervention. If neurologic damage is suspected, with spinal cord compression, as in the presented case, the risk of permanent damage or eventually death is high, therefore urgent surgical treatment with decompression and drainage is inevitable.

In all cases, antibiotic therapy is imperative. It should be started as soon as the diagnosis is suspected, initially empiric and posteriorly adjusted to the causative agent. Although there are not randomized controlled trials evaluating antibiotic regimens for the treatment of epidural abscess, the recommended empiric regimens include antibiotics active against the most commonly isolated pathogens (exposed before in this article), being the first line vancomycin plus ceftriaxone or cefotaxime. Other cephalosporins such as cefepime or ceftazidime, or meropenem could be options in the suspicion of *Pseudomonas aeruginosa*, or in patients in the intensive care unit or risk factors such as diabetes mellitus. In the presented case, the patient (who did not present additional comorbidities) was prescribed therapy with vancomycin plus ceftriaxone until the identification of the causal agent. Once this is isolated, the treatment should be simplified and directed to the specific pathogen. For methicillin-resistant *Staphylococcus aureus* infections, vancomycin should be continued; on the contrary, for MSSA infections, the therapy should be changed to narrow-spectrum beta-lactam antibiotics such as oxacillin. In this case, therapy was changed to flucloxacillin, according to the antibiotic sensitivity tests and Infectious Diseases’ orientations. The appropriate duration of antimicrobial therapy is not known, but is generally recommended 4 to 6 weeks. Our patient completed a total 4 weeks of antibiotic therapy, 2 of which after hospital
discharge¹.

A follow-up imaging technique (MR) must be done 4 to 6 weeks to show complete resolution if the patient is improving¹. Our patient was submitted to a post-operative MR only one week after surgery, which might have been precocious, since it can show some inflammatory alterations in result of the recent surgical procedure.

In conclusion, epidural abscess is a major complication of epidural anaesthesia, and although rare, can have an important impact on neurologic integrity. The clinical manifestations are unspecific, turning the diagnosis a challenge, particularly in healthy patients with no additional risk factors or comorbidities. Therefore, it is necessary to have a high degree of suspicion and consider every possibility, including complications of recent medical interventions, since timely diagnosis and treatment are crucial to prevent permanent neurologic damage and death.

REFERENCES