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Lumbar abscess associated with a retained neuraxial needle fragment two years after cesarean delivery

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ABSTRACT

Background: Fracture and retention of a spinal needle are uncommon complications of neuraxial anesthesia. Published obstetric cases generally describe recognition during the procedure or presentation in the early postoperative period. Delayed focal lumbar symptoms accompanied by a skin lesion warrant consideration of a retained foreign body.

Case presentation: A 27-year-old woman with no known medical history presented with low back pain and a localized lumbar abscess approximately two years after cesarean delivery under spinal anesthesia. A metallic needle fragment protruded through a small cutaneous lesion. Lumbar computed tomography demonstrated a linear metallic foreign body in the posterior soft tissues. Neurological examination was normal. The fragment was removed under local anesthesia. Purulent material yielded *Staphylococcus aureus* susceptible to amoxicillin-clavulanate. The subsequent clinical course was favorable.

Discussion: This presentation illustrates the diagnostic relevance of a remote neuraxial procedure in a patient with focal lumbar inflammation. The association of delayed recognition, cutaneous protrusion and microbiologically documented infection distinguishes this observation from early presentations described in the literature. Anatomical localization, neurological assessment and microbiological sampling help characterize the complication and guide management.

Conclusion: A retained needle fragment should be considered when focal lumbar pain and a persistent inflammatory skin lesion occur after neuraxial anesthesia, even after a prolonged interval. Anatomical localization and documented treatment and follow-up are essential components of the case assessment.

KEYWORDS

Anesthetics, intravenous; cost analysis; drug costs; medical waste; operating rooms; sustainability

MAIN ARTICLE

INTRODUCTION

Spinal anesthesia is widely used for cesarean delivery. Needle fracture is an unusual device-related complication for which the incidence is not reliably established. The published literature consists predominantly of case reports and small series, limiting estimates of risk and comparisons between treatment strategies. Technical difficulty, repeated needle manipulation and interaction with an introducer have been described in obstetric cases [1,2]. A retained fragment can create a diagnostic challenge when the original event was not recognized or is no longer linked to the presenting complaint. We describe delayed discovery of a lumbar needle fragment in a young woman presenting with low back pain and localized abscess formation approximately two years after cesarean delivery under spinal anesthesia. The association of a prolonged interval and visible cutaneous protrusion provides the principal educational interest of this observation.

CASE PRESENTATION

A 27-year-old woman with no known medical comorbidities presented with low back pain associated with localized abscess formation over the lumbar region. Her history included cesarean delivery under spinal anesthesia approximately two years earlier.

Examination revealed a small raised lesion over the lower lumbar midline with a slender metallic segment protruding through the skin (Figure 1). Purulent material was present. Neurological examination was unremarkable.

Lumbar computed tomography (CT), documented by sagittal and three-dimensional reconstructions, demonstrated an elongated metallic foreign body in the posterior lumbar soft tissues. On the sagittal image, the object extended through the posterior soft tissues toward the skin surface (Figure 2). These findings were consistent with the retained needle fragment identified during evaluation.

The needle fragment was removed under local anesthesia. Microbiological culture of the purulent material grew *Staphylococcus aureus*, with susceptibility testing demonstrating sensitivity to amoxicillin–clavulanate.

The clinical course following removal was favorable.

DISCUSSION

This focused narrative review considers obstetric reports of retained spinal needles or introducers and related paraspinal infection. Reports were selected for their relevance to delayed presentation, localization, and retrieval. No pooled incidence or claim of a first reported case is made.

Kaboré et al. described needle fracture during difficult spinal anesthesia for emergency cesarean delivery and emphasized repeated attempts and introducer-related technique [2]. Alsharif et al. reported a patient who returned with back pain three weeks after cesarean delivery; CT localized the fragment near the T12–L1 foramen, and fluoroscopy guided surgical retrieval [3]. Sobot Novakovic et al. described back pain seven days after cesarean delivery associated with a retained spinal introducer, highlighting that the retained device need not be the spinal needle itself [4].

A 2026 series described three obstetric needle fractures occurring during redirection of a fine needle through a stationary introducer. CT was used for localization and the fragments were surgically removed [5]. These early presentations differ from the approximately two-year interval reported in the present patient. Huang et al. reported a paraspinal abscess after spinal anesthesia and postoperative epidural analgesia, diagnosed after purulent discharge developed; no retained needle was reported in that case [6]. It provides a relevant infectious differential rather than direct evidence of infection caused by a broken needle.

The combination of focal pain, an inflammatory skin lesion, and a metallic foreign body links a remote neuraxial procedure to the current diagnostic assessment. The approximately two-year interval denotes delayed discovery; it does not establish continuous symptoms or progressive migration throughout that period.

The history and imaging support retention of a needle component after the previous neuraxial procedure.

Purulence and isolation of *Staphylococcus aureus* establish a bacterial component to the lumbar lesion in this patient. The culture result strengthens the interpretation of an infected lesion associated with the retained foreign body rather than an exclusively sterile inflammatory reaction. Susceptibility testing demonstrated sensitivity to amoxicillin–clavulanate. The timing and route of bacterial inoculation remain uncertain: the two-year interval does not establish continuous infection since the initial spinal anesthetic.

CT defines the fragment trajectory and its proximity to neural structures; fluoroscopy can assist retrieval when localization is difficult [3,5]. The removal strategy should reflect the

whole trajectory rather than the visibility of a superficial end. A normal neurological examination is reassuring but does not exclude proximity to the spinal canal.

In this patient, removal under local anesthesia was followed by a favorable clinical course. This outcome documents successful retrieval using local anesthesia in the circumstances of this case; it does not establish the suitability of the same approach for deeply situated fragments. The normal neurological examination is clinically reassuring but does not independently define the fragment's anatomical relationship to the spinal canal.

Microbiological susceptibility describes the isolated organism and should be distinguished from the antimicrobial regimen actually administered.

The obstetric literature emphasizes avoiding forceful manipulation, reassessing repeated unsuccessful attempts and recognizing possible mechanical stress at the introducer interface [2,5]. When breakage is suspected, documentation of the device, retained length, imaging findings and neurological assessment supports subsequent management. The current observation cannot determine operator error or a manufacturing defect, and neither explanation should be asserted without procedural or device evidence.

CONCLUSION

A retained neuraxial needle fragment may be discovered long after the original neuraxial procedure in a patient with focal lumbar pain, abscess formation and cutaneous protrusion. In this 27-year-old woman, the neurological examination was normal, purulent material grew *Staphylococcus aureus*, and removal under local anesthesia was followed by a favorable clinical course. The observation highlights the importance of considering a retained foreign body when a persistent lumbar skin lesion accompanies back pain after remote spinal anesthesia.

FIGURE

Figure 1



Clinical appearance of the lumbar lesion showing a metallic needle fragment protruding through a small raised cutaneous lesion. Purulent material from the lesion grew *Staphylococcus aureus*.

Figure 2



Sagittal lumbar CT reconstruction showing a linear hyperattenuating foreign body in the posterior soft tissues extending toward the skin surface.

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