

A Case of Epidural Lipomatosis in Pregnancy: Management during Labour and Caesarean Section



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Abstract

Background: Spinal epidural lipomatosis (SEL) is a rare condition of adipose tissue accumulation in the epidural space. As a result of excess adipose tissue, neuraxial anaesthesia has been reported to behave unpredictably in patients with this condition.

Case: A 36-year-old woman had worsening postural headaches during pregnancy. MRI revealed SEL involving the thecal sac between L3/L4 and L5/S1. She had induction of labour but ultimately required a CS for delivery. Her anaesthesia was managed with an epidural inserted at L3/4. She developed a high block with relative sacral sparing.

Conclusion: Although neuraxial anaesthesia was thought to be contraindicated in patients with SEL, it can be done safely. Care must be taken to provide slow epidural titration to avoid high sensory block in patients with this condition.

Elle a subi un déclenchement du travail, mais a ensuite eu besoin d'une césarienne. Son anesthésie a été obtenue au moyen d'une péridurale insérée à L3-L4, qui a résulté en un bloc de haut niveau avec une préservation relative dans les segments sacrés.

Conclusion : Bien que l'anesthésie neuraxiale soit considérée comme étant contre-indiquée pour les patients atteints de lipomatose épidurale, elle peut être administrée de façon sécuritaire. Il faut toutefois faire attention de fournir une titration péridurale lente pour éviter un bloc sensoriel de haut niveau.

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Résumé

Contexte : La lipomatose épidurale est une affection rare caractérisée par une accumulation de tissus adipeux dans l'espace épidural. En raison de l'excès de tissus adipeux, l'anesthésie neuraxiale peut avoir des résultats imprévisibles chez les patients touchés.

Cas : Une femme de 36 ans avait des céphalées posturales s'aggravant au fil de sa grossesse. Une IRM a révélé une lipomatose épidurale touchant le sac thécal entre L3-L4 et L5-S1.

Key Words: Pregnancy, MRI, spinal epidural lipomatosis, anaesthesia

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INTRODUCTION

Spinal epidural lipomatosis (SEL) is a rare condition of adipose tissue accumulation in the epidural space. SEL can be found incidentally on MRI or can be symptomatic, causing sensory or motor compromise due to nerve compression.¹ SEL has been associated with chronic steroid use, obesity, and endocrinopathies, such as Cushing's disease.² SEL has also been described in several HIV-positive patients after starting protease inhibitors,^{3,4} including one pregnant patient.⁵ Although the pathogenesis of SEL is unknown, it often occurs secondary to conditions that cause changes in adipose tissue distribution.

As a result of excess adipose tissue and decreased compliance of the epidural space, epidural and spinal anaesthesia have been reported to behave unpredictably.⁶ In a few reported cases, epidural anaesthesia has failed due to irregular

spread or difficulty placing the epidural. Thus, SEL is a relative contraindication to neuraxial anaesthesia. We present a case of SEL diagnosed in pregnancy and subsequent anaesthetic management.

CASE

A 36-year-old woman, gravida 2 para 0, was referred to the Department of Obstetrics and Gynaecology at St. Michael's Hospital in Toronto, ON, for prenatal care. She had hypothyroidism treated with synthroid and chronic migraine headaches treated with amitriptyline (30 mg) from 9 weeks GA. She had no prior surgical or anaesthetic history. Her pre-pregnancy BMI was 28.6 kg/m². By the time of delivery, her weight and height were 102.1 kg and 167.6 cm, respectively, with a BMI of 36.6 kg/m².

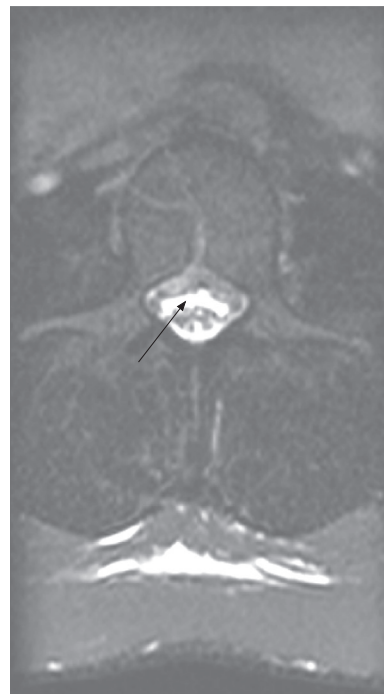
Initially, the patient's headaches responded well to amitriptyline; however, in her second trimester, she began experiencing worsening headaches during Valsalva maneuvers and bending over. There were no other motor or sensory abnormalities. An MRI was arranged to rule out the possibility of intracranial hypotension.

At 29 weeks' GA, MRI revealed spinal epidural lipomatosis (Figures 1 and 2). The thecal sac between L3/L4 and L5/S1 was narrowed and compressed extrinsically by extensive epidural lipomatosis. The spinal canal in the sacrum was entirely filled with fat, but there was no lipoma of the filum terminalis. There was no evidence of intracranial hypotension. These MRI findings were thought to have the potential to make lumbar puncture and epidural injections more challenging, and there was concern about the unpredictability of dosage or spread of medications. As such, the patient was referred to the anaesthesia service at 36 weeks of gestation. The consultant anaesthesiologist proposed that in the event of an epidural, placement be attempted at L2/L3, above the epidural fat. The risks were predicted to be only slightly elevated compared to a routine labour epidural. However, no further risk quantification could be given due to the rarity of the patient's condition.

The patient presented to labour and delivery at 37 weeks and 2 days of gestation with a severe persistent headache and gestational hypertension. Induction of labour was suggested. After two subsequent dinoprostone vaginal inserts, the cervix was unchanged, her blood pressure stabilized, and her headaches improved. As such, the induction was cancelled, and she was discharged home.

Five days postdischarge, the patient returned with term premature rupture of membranes. As the cervix remained unfavourable, a dinoprostone vaginal insert was placed,

Figure 1. T2 MRI at L3. This image is an axial T2 MRI at approximately L3 that demonstrates the high-intensity signal of the epidural fat leading to narrowing of the dural sac.



followed by oxytocin induction. At this time, she elected for epidural analgesia. After an unsuccessful attempt at placing the epidural catheter at L2/3, it was placed by clinical determination of the interspace at L3/4. The patient had relatively good pain control with the standard loading dose of 10 mL 0.125% bupivacaine. Initially, she reported using patient-controlled epidural analgesia boluses (5 mL 0.08% bupivacaine with 50 mg fentanyl, 10-minute lockout) every 10 minutes to treat sacral-mediated pain. With this frequent usage, she experienced a sensory blockade up to C4 but no hypotension or respiratory distress. This sensory block receded with less frequent patient-controlled epidural analgesia usage.

Approximately 21 hours after epidural insertion, the patient requested further analgesia due to "pressure in the tailbone area." The anaesthesiologist administered an additional dose of 4 mL bupivacaine 0.125% and 50 mg of fentanyl. Cervical dilatation progressed to fully dilated. She began pushing 26 hours after insertion of the epidural. She pushed for 1 hour with minimal descent of the head. Fetal tachycardia with occasional variable decelerations developed, and after a discussion with the obstetrician, the patient opted for CS.

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