

Bilateral Heel Numbness due to External Compression during Obstetric Epidural Analgesia

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Key Words

Neuropathy · Heel numbness · Spinal analgesia · Vaginal delivery

Abstract

We describe the case of a 32-year-old woman who developed bilateral heel numbness after obstetric epidural analgesia. We diagnosed her with bilateral neuropathy of the medial calcaneal nerve, most likely due to longstanding pressure on both heels. Risk factors for the development of this neuropathy were prolonged labour with spinal analgesia and a continuation of analgesia during episiotomy. Padded footrests decrease pressure and can possibly prevent this neuropathy.

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Introduction

With an incidence rate of 0.92%, maternal puerperal lower extremity nerve injuries are rare. Lateral femoral cutaneous neuropathy (meralgia paraesthetica) is the most common, followed by femoral neuropathy [1]. Nerve injuries are more likely to occur in nulliparae, in cases of prolonged stages of labour and assisted vaginal deliveries [1].

The presented case involved a 32-year-old woman with bilateral heel numbness due to bilateral neuropathy of the medial calcaneal nerve due to external compression during vaginal delivery. Epidural analgesia was used.

Case Report

A 32-year-old woman presented to our neurology outpatient clinic with tingling and numbness in both heels. She continuously complained about these sensations ever since she had given vaginal birth to her first child 3 months earlier in a hospital. Spinal analgesia (lumbar level, bupivacaine/sufentanyl bolus, followed by a continuous administration of 8 ml/h) was used during labour. The spinal analgesia procedure was uncomplicated. The first stage of labour was prolonged, and because of fetal compromise during the expulsion phase, a vacuum delivery system (Palmpump Kiwi®), together with episiotomy, was used for fetal extraction. After delivery, the epidural analgesia was continued during the closure of the episiotomy with sutures. The patient did not use any other medication and had no history of neurological disorders or risk factors for neuropathy (diabetes, hypothyroidism or hereditary liability to nerve pressure palsy). On examination, she had hypoaesthesia in the area of both heels. The strength of both the leg and foot muscles was normal, and so were the deep tendon reflexes. A straight leg raise test was negative. No other neurological deficits were present. An MRI of her lumbar spine showed no signs of lumbar root compression. Electromyography showed normal sensory nerve conduction of the sural nerve. Due to its invasiveness, a near-nerve needle conduction study of the medial calcaneal nerve was not performed. A diagnosis of bilateral neuropathy of the medial calcaneal nerve, most likely due to longstanding pressure on both heels with epidural analgesia as a predisposing factor, was made. The epidural analgesia was the predisposing factor masking the signs of neural damage. Three months after presentation (6 months after delivery), her numbness had diminished, but had not completely disappeared.

Discussion

Bilateral neuropathy of the medial calcaneal nerve due to external compression during delivery using epidural analgesia is very rare. Only 1 patient with numb heels has been reported in a large study [2], describing 2,615 women who received epidural anaesthesia during delivery. However, no details about delivery or analgesia in that patient were mentioned. In epidural analgesia during delivery, a motor block is unwanted, and thus voluntary muscle movements are possible, which makes longstanding external compression of nerves uncommon. In our patient, prolonged labour with spinal analgesia and a continuation of analgesia during episiotomy probably masked signs of external compression on both heels.

The medial calcaneal nerve arises from the tibial nerve at the medial side of the ankle, perforates the lacinate ligament, travels downwards, passing the bony projection below on the inner side of the ankle, and supplies the skin over the medial aspect of the heel. However, considerable anatomical variations of the origin and the course have been described [3]. Patients with risk factors, such as diabetes, are at a greater risk of developing neuropathy during epidural anaesthesia [4]. However, also without any risk factors, the clinician should be aware of the absence of the normal reaction to longstanding pressure on a nerve during epidural analgesia [5]. Preventative measures like soft gel pads or intermittent posture changes could possibly prevent neuropathy of the medial calcaneal nerve in long-lasting epidural analgesia.

Conclusion

Bilateral medial calcaneal nerve neuropathy as a result of external compression is a rare complication of epidural obstetric analgesia.

Disclosure Statement

This paper does not contain clinical studies or recognizable patient data. The authors declare that they have no conflict of interest.

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