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Case report

Postpartum femoral neuropathy: managing the next pregnancy

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SUMMARY

A 34-year-old primiparous woman presented in spontaneous labour and had an unassisted vaginal birth of a 3.5 kg infant. Postnatally, the patient experienced lower limb weakness and was unable to mobilise unassisted. A diagnosis of postpartum femoral neuropathy was made. Full recovery of normal motor function was not achieved until 5 months postpartum. She returned in her next pregnancy, seeking advice on how to avoid this complication from reoccurring. It was decided that an elective caesarean section was an appropriate mode of delivery, which she underwent at 39 weeks without complication and without recurrence of the femoral neuropathy.

BACKGROUND

Postpartum femoral neuropathy is now a rare condition in modern obstetrics. While uncommon, when it occurs, it can be extremely debilitating for new mothers, and there is a lack of clear guidance on how to best to manage women who develop this complication. Risk factors have been described, such as prolonged second stage, regional anaesthesia and macrosomia; however, there is no real evidence on recurrence risks or indeed impact of mode of delivery on recurrence. While recurrence is unlikely to be an inevitable consequence of further vaginal birth, we suggest that it is also reasonable to offer women who have had symptomatic postpartum femoral neuropathy in a previous pregnancy an elective caesarean section in order to reduce recurrence risk.

CASE PRESENTATION

A 34-year-old G1P0 woman, with a booking body mass index of 30 and an uncomplicated antenatal course, presented in spontaneous labour at 41 weeks 3 days gestation. She was otherwise well, with no significant medical or surgical history.

Labour progress was uneventful; the total length of first stage was just less than 9 hours. Epidural was sited at 3 cm dilation. Diagnosis of full dilatation was followed by 1 hour of passive descent. Subsequently, there was active maternal effort for a total of 1 hour 41 min. The final 30 min of this was spent in lithotomy position using leg stirrups as it was noted that legs were 'very heavy due to epidural'. She progressed to an unassisted vaginal birth of a 3.5 kg male infant, with an episiotomy. The total length of the third stage was 7 min, and following

this, the episiotomy was sutured in the lithotomy position.

On the postnatal ward, the woman was noted to have difficulty mobilising, and a medical review was requested. She was found to have decreased power in her right quadriceps muscle and absent right patellar reflex, with no sensory deficit. Mobilising remained difficult, and she was unable to walk without the aid of a walking frame. A working diagnosis of a femoral or lumbosacral plexopathy was made. She was discharged home on day 3 postpartum, with some improvement in muscle strength, but remained unable to mobilise fully without a frame. She was reviewed in the postnatal clinic 6 weeks later and was found to have marked right leg weakness despite intensive physiotherapy and was referred for electromyography. This confirmed a diagnosis of right-sided femoral neuropathy, with evidence of widespread denervation, and ongoing recovery, consistent with her persistent right leg weakness. She continued with intensive physiotherapy and made full recovery by 5 months postpartum.

OUTCOME AND FOLLOW-UP

In her subsequent pregnancy, the woman began experiencing mild sensory symptoms in her right leg, in the distribution of the femoral nerve, from 37 weeks. It was unclear which mode of delivery—vaginal or caesarean section—should be recommended. The woman was very anxious to reduce the risk of recurrence, and on balance, it was decided to proceed with elective caesarean section, which was uneventful. The woman was discharged home on the third day after caesarean without any ongoing symptoms.

DISCUSSION

Postpartum femoral neuropathy is a complication of vaginal delivery that is now an uncommon occurrence. The exact incidence is unknown. Vargo *et al* reported an incidence of postpartum extensor weakness as 2.8 per 100 000 deliveries,¹ while in their case series, Dar *et al* reported an incidence of 1.5 per 1000 deliveries,² suggesting this condition may be somewhat under-reported.

Incidence has decreased over time. This is most likely due to increasing rates of caesarean section and decreasing length of labour, particularly the second stage.

There are two potential mechanisms of injury. The first, and probably more common, is



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pressure-induced ischaemia. This can be caused by excessive hyperflexion, abduction and external rotation of the hip as occurs in the lithotomy position during vaginal delivery.³ Another possible mechanism of injury is direct nerve compression within the pelvis by pressure from the fetal head or instruments.⁴

Various risk factors have been reported, including nulliparity, prolonged second stage, instrumental delivery and use of regional anaesthetic.^{1,5,6} It is thought that regional anaesthetics, such as spinal and epidural, predispose to the development of femoral neuropathy through loss of pain signals that would prevent excessive hip hyperflexion. Diabetes mellitus, particularly when associated with a macrosomic baby, has also been described as a risk factor for the development of a postpartum femoral neuropathy.⁷

Femoral neuropathy has also been reported as a complication of gynaecological surgery such as vaginal hysterectomy, or laparoscopy, where the patient is placed in the lithotomy position, often for long periods of time.^{6,8} Retroperitoneal haematomas, which can occur after excess anticoagulation, trauma or, although rarely, as a complication of a caesarean section, have also been linked to femoral neuropathies.⁹

Diagnosis is usually made by history and physical examination—absent or reduced patellar reflex is the most reliable objective sign of femoral neuropathy. There may also be sensory deficit over the anteromedial thigh and quadriceps weakness. Nerve conduction studies can be used to confirm diagnosis.²

Cases of postpartum femoral neuropathy should be managed conservatively, and prognosis is excellent. Improved function is expected within 6–8 weeks, with total recovery in most cases by 6 months.^{2,10}

Learning points

- ▶ Keep postpartum femoral neuropathy in mind as a potential differential diagnosis in women with difficulty mobilising after regional anaesthetic. Be aware of other symptoms such as sensory loss on anterior thigh (usually unilateral) and absent patellar reflex, which may also be present.
- ▶ While risk factors do exist, these are not always present, as was the case with our patient. This can make identifying at-risk women difficult.
- ▶ There is a lack of clear evidence on how best to manage subsequent pregnancies. Our case demonstrates that it may be reasonable to offer caesarean section in order to prevent recurrence, after full discussion of risks and benefits of both modes of delivery.

Postpartum femoral neuropathy is now a rare event, and consequently, few cases of recurrence in subsequent pregnancies are reported in the literature. This makes quantification of recurrence risk impossible. Recurrent postpartum femoral neuropathy has been described in other case reports. A patient with an uncomplicated caesarean section for her first delivery had two normal vaginal births, following this, both of which were complicated by postpartum femoral neuropathy. It was recommended that future deliveries were by caesarean section.¹¹ This, along with our case, suggests that in order to prevent reoccurrence of femoral neuropathy in the next pregnancy, it is reasonable to offer caesarean section, after full discussion of risks and benefits of both modes of delivery.

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