Obstetric Foot Drop: What a Gynecologist Should Know? Case Report and Review of Literature

Tinu Philip[1*], Neena Baby[2], Kunjamma Roy[3] and Rekha G Muricken[3]

[1]Department of Obstetrics and Gynaecology, Royal Oman Police Hospital, Muscat, Sultanate of Oman

[2]Department of Neurolgy, Renai Medicity Multi Super-specialty Hospital, Kochi, Kerala, India

[3]Department of Obstetrics and Gynaecology, Believers Church Medical College Hospital, Tiruvalla, Kerala, India

Received: 21 August 2024

Accepted: 28 October 2024

*Corresponding author: tinuphilipdr@gmail.com

DOI 10.5001/omj.2027.32

Abstract

Foot drop is a rare and under-reported neurological complication which can occur following childbirth. We present case report of two patients who developed foot drop in the peripartum period. Both patients had unassisted vaginal deliveries without any regional analgesia. In the first case, patient developed sensory and motor deficits during intrapartum period whereas the second patient developed foot drop during postpartum period. Clinically both lesions were localized to common peroneal nerve injury. MRI of lumbosacral spine, Nerve conduction studies and Electromyogram are useful adjuvants to localize lesions. Both patients completely recovered with short course of oral steroids and physiotherapy. Nulliparity, short stature, higher fetal weight, and prolonged knee flexed position were risk factors identified in our study. The cases highlight the importance of a thorough clinical examination to evaluate the lesion and localize the injury and a multidisciplinary team to manage these patients effectively. Opting for birthing positions other than traditional positions like supine/lithotomy will avoid these injuries. Alternative birthing positions should be encouraged by midwives and obstetricians. Steroids can play an effective role in treatment of various peripheral neuropathies. Role of steroids in management of peripheral nerve injuries need further studies. Recurrence risk of obstetric foot drop is unknown. The future obstetric plan will have to be individualized in these patients with caesarean section being the more likely option.

Keywords: Common Peroneal Nerve; Foot Drop; Nerve Injuries; Nerve Conduction Studies; Birthing Positions; Steroids; Caesarean Section.

Introduction

Obstetric foot drop is a rare complication of labor. Incidence of postpartum lower limb nerve injuries is less than 1%.[1] Lateral cutaneous nerve of thigh, femoral nerve, common peroneal nerve, lumbosacral plexus is order of frequency of involvement.[2] Superficial location of common peroneal nerve around fibular head makes it prone for injury.[3] They are generally unilateral. Bilateral obstetric foot drop is rare.[4,5]

Anatomically, superficial branch of common peroneal nerve (L5-S1) lies lateral to deep branch at neck of fibula. Evertors of ankle (peroneus longus and brevis), sensations of mid and lower part of lateral aspect of calf and dorsum of foot are supplied by superficial nerve. Deep peroneal nerve supplies dorsiflexors of ankle and sensations over interdigital space between first and second toes. Injury of common peroneal nerve at fibular neck usually involves both superficial and deep branches.[6] Injury to superficial branch results in weakness of foot eversion and leads to high stepping gait with slapping of foot whereas deep branch leads to foot and toe drop.

Clinical presentation depends on level of injury and nerve involved. Though prognosis is good, it causes stress and anxiety for both the woman and family. Here we present two cases of common peroneal nerve palsies in peripartum period and their management. Informed consent was obtained.

Case Report

Case one

24-year-old primigravida of height 151 cm and BMI 27 underwent induction of labor (IOL). Induction delivery interval was eleven hours. Duration of active phase was two and half hours and second stage of labor was seventy minutes. She delivered a 3.725 kg baby vaginally without assistance. She complained of difficulty in stabilizing left leg and weakness of left foot during second stage of labor. On examination sensations over lateral aspect of lower part of left leg and foot was absent, weakness in dorsiflexion (power grade 1/5), plantar flexion 4/5 and foot eversion was noted [Figure 1]. Hip abduction and hamstrings were normal. Rest of neurological examination including deep tendon reflexes was normal. She had no significant back pain or radicular pain. No history of regional analgesia or back injury. She received intramuscular (buttocks) syntocinon after delivery. Clinical examination localized the lesion to common peroneal nerve. Nerve conduction studies (NCS) done after two days was normal. MRI lumbosacral spine showed no disc bulge or canal stenosis. She was started on oral steroids (prednisolone 1 mg /kg/day) slowly tapered over one month and stopped. Repeat NCS on 21st postpartum day was normal with normal F waves of peroneal nerves. She showed significant clinical improvement by three weeks [Figure 2].

Figure 1: Picture showing absence of dorsiflexion of left foot.

Figure 2: Picture showing complete resolution of foot drop.

Case two

27-year-old primigravida of height 158 cm and BMI 24 underwent IOL. Induction delivery interval was twelve hours. Duration of active phase was three hours and second stage of labor was thirty-five minutes. She delivered a 3.510 kg baby vaginally unassisted. After 24 hours of delivery she had difficulty in walking with high steppage gait involving left foot. On examination she had weakness of left ankle dorsiflexion, eversion with toe extension weakness and sensory impairment over lateral foot. Rest of neurological examination including ankle jerk was normal. Intramuscular syntocinon was given after delivery in the buttocks. No history of regional analgesia or back injury. Clinically lesion was localized to common peroneal nerve. NCS on third day was normal. Follow up NCS was not done as patient refused. MRI was planned later if patient did not improve. She was treated with oral steroids, physiotherapy and foot exercises. She completely recovered by six weeks postpartum.

Discussion

Common peroneal neuropathy after vaginal delivery is under-reported.[7] Nulliparity, short stature, high birth weight, fetal malposition, prolonged second stage of labor are risk factors for obstetric foot drop.[1]Both our patients had these risk factors except prolonged labor. Past history of back injury or any neurological condition increases the risk. Injuries may go unnoticed in patients with labor analgesia due to sensory blockade.[8]

Good history and clinical examination will localize the lesion. Commonest cause is nerve compression at the level of fibular neck due to position. Sciatic nerve injury rarely occurs following intramuscular injection in the buttocks in which associated hip flexion and plantar flexion weakness occurs due to tibial nerve involvement. In L5 radiculopathy causing foot drop, associated hip abduction weakness occurs. Foot drop from lumbosacral plexus injury, proximal lower limb is also involved. In NCS, motor nerve conduction parameters will show impairment by 5-7 days after injury and sensory involvement is evident after 11-13 days. This explains the normal NCS in both our cases as it was done within five days. F wave study helps in identifying proximal conduction defects including radicular involvement. Electromyogram is not routinely done and is reserved for follow up of cases

which do not recover. It identifies denervation/reinnervation patterns. MRI lumbosacral spine helps to rule out root involvement.

Most women deliver in lithotomy position which predisposes to these injuries.[1] Whether this is a preference of women or health care providers need to be studied.[9] Patients should be encouraged to change positions in labor and to delay active pushing till natural urge. Avoiding prolonged flexion of thighs, extreme thigh abduction and external rotation during lithotomy prevents such injuries.

These lesions have a good prognosis unless an axonal involvement.[1,10] Both our cases recovered completely by six weeks. Involvement of neurology team and physiotherapy sessions are cornerstones of management. These patients are at increased risk of fall. Steroids are useful in peripheral nerve injuries both compressive and non-compressive. Their anti-inflammatory and regenerative effects help to treat various peripheral neuropathies and associated pain.[11] Prednisolone or dexamethasone can be used.

Recurrence risk of obstetric foot drop is unknown, evidence favors caesarean section in next pregnancy.[12,13]

Conclusion

Though rare, awareness of postpartum nerve injuries is important. Proper and early assessment of any sensory or motor weakness in peripartum period is needed. Switching from traditional birthing positions (supine/lithotomy) to alternative positions help avoid this complication. Training of obstetricians and midwives in alternative birthing positions enable pregnant women to apply these positions during labor. These injuries have good prognosis with physiotherapy. Role of steroids in improving outcome warrants further studies.

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