

# Proximal Fibular Osteochondroma Producing Common Peroneal Nerve Palsy in a Post-Cesarean Section Patient

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## Abstract

Various causes of common peroneal palsy have been described in the English language medical literature in the past. Authors report a case of foot drop in a post cesarean section patient, due to osteochondroma of the proximal fibula, which recovered completely after excision of the offending mass.

**Keywords:** Osteochondroma; Fibular head; Common peroneal nerve; Entrapment neuropathy; Cesarean section.

## Introduction

Incidence of neurological complications in peri and post partum period has been reported to be around 1%.<sup>1</sup> Compressive neuropathy of the common peroneal nerve (CPN) has been described to be due to cysts from the tibiofibular joint,<sup>2</sup> lateral meniscal cysts,<sup>3</sup> fibular head osteophytes,<sup>4</sup> and osteochondroma of the fibular head.<sup>4</sup> Traumatic causes have been reported due to fractures of the proximal fibula, traction of the nerve, compression by tight bandages or direct injury to the nerve.<sup>8</sup> Osteochondroma of the fibular head as a cause of CPN palsy presenting soon after normal or cesarean delivery is very rare.

## Case Report

A 21-year-old primigravida was taken up for emergency cesarean section, due to non-progression of labor. Lower segment cesarean section (LSCS) was done under spinal anesthesia with a 25G needle in the L3-4 space and 3 mL of 0.5% bupivacaine with patient in the right lateral position. After the spinal anesthesia, a wedge was kept under the buttocks of the patient to avoid post spinal hypotension. Cesarean section was completed in 43 minutes. In the immediate postoperative period, she noticed inability to dorsiflex the right

ankle, (Fig. 1). There was no sensory loss in the extremity. She had grade 2/5 power of the ankle dorsiflexors and evertors. Pain in the right leg from the level of the fibular head to the foot started after a few days with burning sensation in the leg. She was aware of painless masses around the right knee especially over the medial side but was not aware of the small masses over the proximal fibula. Her burning pain subsided in a few days' time.



Figure 1: Figure showing absent dorsiflexion of the right foot.

Physical examination revealed presence of multiple bony hard, nontender masses on the side of the proximal tibia and lateral aspect of the fibula, and over the lateral aspect of the distal femur. Plain radiographs showed multiple osteochondromas around the proximal tibia and fibula and the distal femur. (Fig. 2)



Figure 2: Plain films showing multiple osteochondroma over the medial aspect of the proximal tibia, over the medial and posterior aspect of the proximal fibula. A small osteophyte is seen over the proximal fibula (white arrow).

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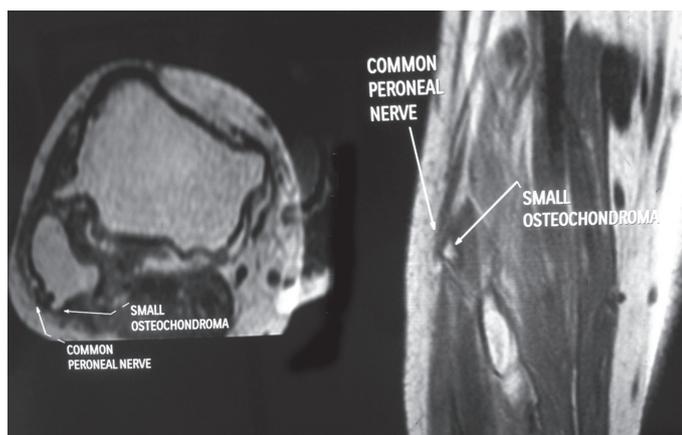
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A computerized tomography (CT) scan further confirmed the multiple osteochondromas, and in addition showed a small mass from the lateral aspect of the fibular neck. (Fig. 3)



**Figure 3:** CT scan showing the osteophyte over the fibula neck (white arrow).

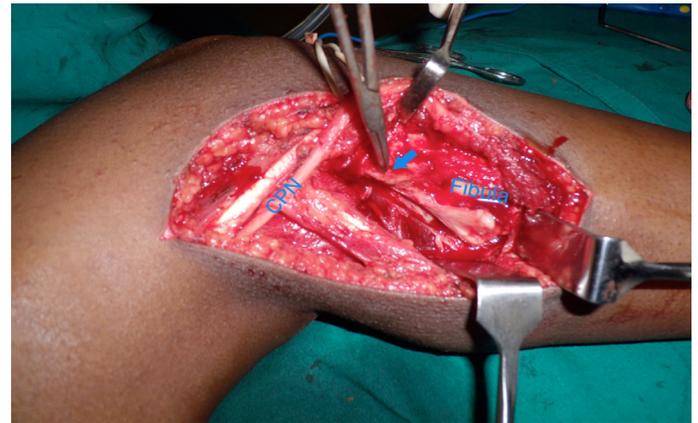
A magnetic resonance imaging (MRI) was done to identify the relation of the CPN to the fibular neck masses. MRI showed multiple osteochondromas around the lateral aspect of the distal femur; medial and lateral aspect of the proximal tibia; and medial, lateral, and posterolateral aspect of the proximal fibula. Two small osteochondromas of 3 and 4 mm were noted in the lateral aspect of the proximal fibula. The masses were found indenting the common peroneal nerve at the site where it winds round the proximal fibula. (Fig. 4)



**Figure 4:** MRI showing the compression of the CPN by the osteochondroma.

Electrophysiological studies revealed a nonstimulatable right common peroneal nerve. Electrophysiological studies of the posterior tibial nerve were normal. The patient underwent surgical decompression of the right CPN and excision of the offending osteochondroma. The osteochondroma was found displacing the CPN, (Fig. 5). A neurolysis of the CPN was also done. Recovery from paralysis started in 4 weeks' time. She recovered completely

with grade 5/5 power of the dorsiflexors and evertors of the ankle at 6-month follow-up.



**Figure 5:** Operative picture showing the common peroneal nerve and the osteochondroma. Histopathology confirmed the diagnosis of osteochondroma.

## Discussion

The peroneal nerve is vulnerable to injury while it winds around the neck of the fibula. At this particular location, the nerve is superficial and covered only by subcutaneous tissue and fat. Various causes of CPN palsy had been reported in literature before. Extranural compression by cysts of the lateral meniscus,<sup>3</sup> synovial cysts from the proximal tibiofibular joint,<sup>2</sup> ganglion cysts,<sup>7</sup> osteophytosis,<sup>4</sup> and benign bone tumors around the proximal fibula causing CPN palsy had been reported before.<sup>4-7</sup> Osteochondromas are benign tumors of the bone located mainly in the metaphysis of long bones with more than 35% of cases affecting the bones around the knee.

Our case was diagnosed to be multiple exostosis syndrome, which is characterized by formation of multiple bone masses which developed from the epiphysis. Osteochondroma are usually asymptomatic but may become painful with fracture of the bony stalk, nerve impingement syndromes, malignant transformation, and mass effects. Clinical manifestations depend on the size and location of the mass. Prolonged compression can occur with hip abduction, leg external rotation and knee flexion, as done in gynecological procedures,<sup>8</sup> resulting in CPN palsy. External rotation of the limb with knee flexion as it happens in prolonged bed rest may result in compression of the peroneal nerve at the proximal fibula due to bony prominence of the fibular head. This, in addition to the presence of osteochondroma, triggered the common peroneal nerve palsy in our patient. Moreover, by keeping the patient on the right lateral position for the spinal anesthesia, the knee was kept in slight varus further stretching the CPN.

Our patient received spinal anesthesia for cesarean section and initially it was thought that this could be the reason for her neurological deficit; however, plain films and advanced imaging techniques identified osteochondroma of the proximal fibula as the cause of her foot drop. Foot drop during spinal anesthesia has been reported before which is thought to be due to needle trauma or inadvertent drug placement.<sup>1,9</sup> Postpartum neurologic deficit is

usually bilateral and could be due to spinal cord ischemia, direct trauma to the spinal nerve or the spinal cord, chemical toxicity of the local anesthetic agent or formation of a hematoma.<sup>10</sup> Epidural catheter placement may cause direct neural trauma.<sup>11</sup> Peters and Hinds reported a case of postpartum foot drop in a postpartum patient caused by segmental demyelination as a result of fetal head compression on the lumbosacral plexus. Their patient was subsequently diagnosed to have hereditary sensory neuropathy.<sup>1</sup>

## Conclusion

Postpartum foot drop is a rare complication, in this case, due to the presence of an osteochondroma over the fibular head. This complication should have been anticipated and a lateral position on the affected side should have been avoided.

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