Case Report

The Risks of Femoral Nailing in the Positioning of Hemilithotomy on Traction Table Getting A Contralateral Well-Legdrop-Foot

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Abstract

Introduction: Postoperative contra lateral morbidity following fracture fixation surgery is rare due to hemilithotomy placement on traction table. Following a typical orthopedic femoral nailing, we should note a case of unexplained typical peroneal nerve palsy formed on the contra lateral side, manifesting with drop foot.

Case report: After prolonged femoral nailing, a 32-year-old male suffered an uncommon common peroneal nerve palsy that manifested itself toward lateral drop foot. This iatrogenic and intermittent disorder was delineated to be position-related neuropraxia after neurophysiological analysis and review of applicable literature.

Conclusion: Place modification at intervals or complete avoidance of excessive hyperflexion of the knee is advised to prevent typical peroneal nerve morbidity against the lateral.

Keywords: *foot drop, fracture of shaft of femur, common peroneal nerve palsy*

Inroduction

[1]This study describes an extremely severe peroneal nerve palsy that formed following a severe orthopedic femoral nailing on the contra lateral leg, manifesting with drop foot(FIGURE 1) Fortunately, after a 4-month, cautious treatment, this functional deficiency was intermittent and fully recovered. So surgeons must be mindful of this possible morbidity when conducting surgery.

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Case Presentation:

A 32-year-old male (body mass index of 30.2 kg/ m^2) sustained a comminuted, spiral fracture over his right femur in a motor vehicle accident.He was alert and focused on physical examination in the emergency department, with a strong contra lateral leg. Initial neurovascular examination on both legs were normal. The fracture was then treated using an intramedullary nailing with a closed reduction and stabilization. The patient underwent these surgical procedures under general anesthesia, and the unoperated leg was placed in a supine hemilithotomy position by a boot. It took four hours to achieve a suitable fixation, leading to technical difficulties in closely aligning fragments as well as in locking distal static screws. Fixation acceptable.when the patient recovered consciousness he began complaining of extreme numbness and unable to move the unoperated

leg. His left leg was without swelling and local heat. However, at 24 hours after surgery, he already had a left foot drop showing complete loss of ankle dorsiflexion as well as impaired sensation under the knee, especially at the foot dorsum. The motor activity of the leg involved did not change during the remaining stay, while his sensory test progressed to a classic typical peroneal palsy distribution. The patient was fitted with an ankle-foot orthosis and was given physiotherapy with symptoms consistent with a severeperoneal nerve palsy. The velocity of the motor nerve conduction (NCV) indicated decreased amplitude in the common left peroneal nerve and needle electromyography (EMG) showed no motor unit action potential (MUAP) in the anterior left tibialis muscle, which was consistent with typical left peroneal neuropathy. He had daily outpatient follow-ups at our rehabilitation clinic after discharge, and was taught home exercises and given electrical stimulation. Both the motor and sensory functions of his left leg showed incremental progress. Two months after the incident he was almost able to remove his orthoses, and in the 4-month follow-up was observed a complete recovery of the unoperated leg without permanent squealae.

Clinical findings:

Neurological findings included: foot manifesting complete loss of ankle dorsiflexion as well as impaired sensation below the knee, particularly at the foot dorsum there decreased pin-prick sensation and dragging of the left foot during gait study, with impaired dorsiflexion on heel strike.

Table 1- Manual muscle testing (strength) assessment on 1 day of treatment.

Hip	Flexion	5
	Extension	5
Knee	Flexion	4+
	Extension	4+
Ankle	Dorsiflexion	0
Toe	Extension	0

Table No : 2 Range of motion assessment on 1st day of treatment

	Active ROM	**Passive ROM**
Hip flexion	0-1100	0-1200
Hip extension	0-100	0-200
Hip abduction	0-300	0-400
Hip adduction	0-350	0-450
Knee flexion	0-1200	0-1300
Knee extension	00	00
Ankle dorsiflexion	0-150	0-100
Ankle plantarflexion	00	00

Diagnostic assessment:

The velocity of the motor nerve conduction (NCV) indicated decreased amplitude in the common left peroneal nerve and needle electromyography (EMG) showed no motor unit action potential (MUAP) in the anterior left tibialis muscle, which was consistent with typical left peroneal neuropathy. Laboratory testing was done. Studies on nerve conduction and electromyography have confirmed the diagnosis of a severe peroneal neuropathy. Studies of nerve conduction showed potential amplitudes of a conductive block across the fibular head and below-normal compound motor activity. Slowing of the conduction was not observed. It was common to have the sensory and motor nerve responses in both legs. Electromyography of the right anterior tibialis muscle showed improvements in active and chronic denervation.

Therapeutic intervention:

- Intervention type in physiotherapy exercise
- self care
- ankle foot orthosis
- electrical muscle stimulation
- home program

plan of care decide as per month:

1 MONTH

¢ Electrical muscle stimulator:30 contractions sets × 3 times set

¢ Isometric dorsiflexion:15 sec hold , repetition 10 times (FIGURE 2(a))

¢ Isometric planterflexion: 15 sec hold , repetition 10 times (FIGURE 2(b))

¢ Wedge board standing

¢ Providing ankle foot orthosis: An orthotic ankle-foot is given that treats the steppagegate by preventing drop in the foot during movement.

2 MONTH:

¢ Isometric dorsiflexion (active assisted movement) 15-20 sec hold , repetition -15 times[FIGURE 2(a)]

¢ Isometric planterflexion: 15-20 sec hold , repetition 15 times [FIGURE 2(b)]

¢ Electrical muscle stimulator: 30 contractions × 3 times set

¢ Wedge board standing :10 mins

¢ Toe to heel plantar flexion 10sec hold for10 min

3 MONTH:

¢ Electrical muscle stimulator: 30 contractions ×2 times

¢ Marble picked up exercise× 10 times

¢ Toe curl exercise× 7 to 8 times

4 MONTH:

¢ Electrical muscle stimulator × 30 contractions

¢ All foot movement will be actively performed

¢ Isometric dorsiflexion/planterflexion

¢ Home program exercise

Table 1- Manual muscle testing (strength) assessment on 1 day of treatment.

Assesment		Pre- assessment	Post-assessment
Hip	Flexion	5	5
	Extension	5	5
Knee	Flexion	4+	5
	Extension	4+	5
Ankle	Dorsiflexion	0	4+
Toe	Extension	0	4+

Table No 2: Range of motion assessment after rehabilitation

	Active ROM	Passive ROM
Hip flexion	0-1150	0-1250
Hip extension	0-150	0-250
Hip abduction	0-350	0-450
Hip adduction	0-400	0-500
Knee flexion	0-1250	0-1350
Knee extension	00	00
Ankle dorsiflexion	0-150	0-200
Ankle plantarflexion	0-350	0-450

Outcome and follow up:

[2]After four months of therapy the dorsiflexion of his foot strengthened to grade 4/5.

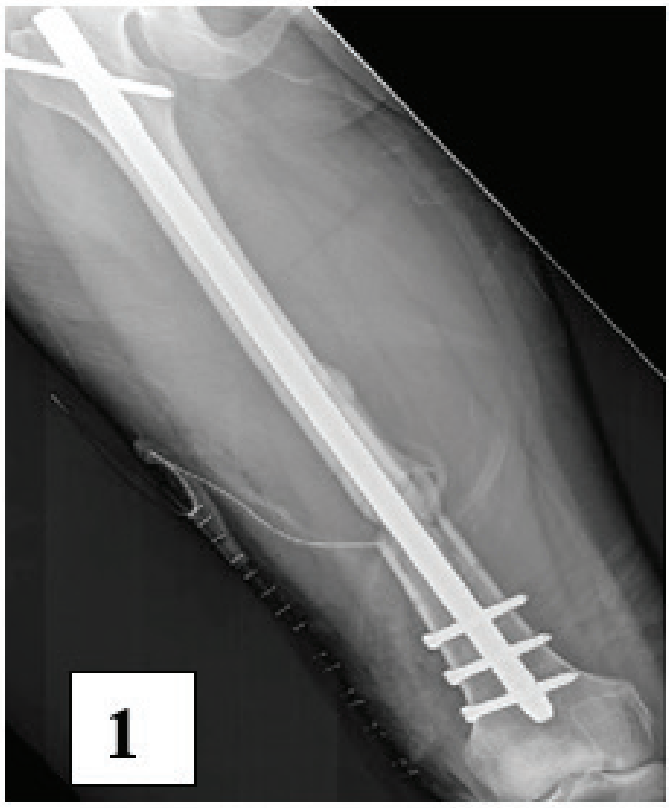

FIGURE 1: intramedullary nailing of femur shaft fracture

FIGURE 2:
FIG (a): Isometric dorsiflexion exercise
FIG (b): Isometric planterflexion exercise

Discussion

[1]The common peroneal nerve is often involved in trauma in lower extremities, and typically occurs as a foot drop while damaged due to the paresis of its distributed ankle dorsiflexor, anterior tibialis, toe dorsiflexors, extensor digitorumbrevis and extensor hallucislongus muscles. Postoperative drop foot on the contra lateral, uninjured leg is uncommon in literature and occurs only in case reports. . Several causes contribute to common peroneal nerve neuropathy, including external compression (Plaster cast, brace or immobilization), direct trauma, traction injury, and entrapment in the fibular tunnel. The reinforcement of the flexed knee and calf significantly raises intramuscular pressure (direct compression theory) and reduces blood pressure in the ankle (vascular insufficiency theory). Another cause of common peroneal neuropathy is prolonged unhealthy position which induces a syndrome of nerve trapping presenting as a drop in the foot.

Conclusion

[1]We note an rare case of contra-lateral, common peroneal nerve palsy that formed following femoral nailing. Physiotherapy plays a major role in the treatment of foot drop patients. The primary goal of care is to increase the range of motions. Only modalities of manual therapy and electrotherapy performed satisfactorily on patient.

Ethical Clearance: The institute ethics committee clearance is obtained

Conflict Of Interest: Nil.

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