Meralgia paresthetica after posterior lumbar spinal surgery

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Introduction

Meralgia Paresthetica (MP), arising from entrapment of the lateral femoral cutaneous nerve (LFCN) between the inguinal ligament and anterior superior iliac spine, results in sensory disturbances over the anterolateral thigh. MP as a post-surgical complication of posterior spine surgery is seldom reported. We present a case series in which patients developed post-operative MP after prone positioning on the Jackson Spinal Surgery Table. A review of the current literature regarding MP following posterior spinal surgery is presented (Table 1).

References

1. Cho KT, Lee HJ: Prone position-related meralgia paresthetica after lumbar spinal surgery : a case report and review of the literature. J Korean Neurosurg Soc 44:392-395, 2008
2. Tejwani SG, Scaduto AA, Bowen RE: Transient meralgia paresthetica after pediatric posterior spine fusion. J Pediatr Orthop 26:530-533, 2006
3. Yang SH, Wu CC, Chen PQ: Postoperative meralgia paresthetica after posterior spine surgery: incidence, risk factors, and clinical outcomes. Spine (Phila Pa 1976) 30:E547-550, 2005
4. Gupta A, Muzumdar D, Ramani P: Meralgia paresthetica following lumbar spine surgery: A study in 110 consecutive surgically treated cases. Neurology India 52:64-66, 2004
5. Mirovsky Y, Neuwirth M: Injuries to the lateral femoral cutaneous nerve during spine surgery. Spine (Phila Pa 1976) 25:1266-1269, 2000
6. Cheatham SW, Kolber MJ, Salamh PA: Meralgia paresthetica: a review of the literature. Int J Sports Phys Ther 8:883-893, 2013

Methods

A retrospective chart review of patients placed in prone position on the Jackson spinal table was conducted. Patients who developed MP were selected. A systematic search was performed using the PubMed database with subject headings: meralgia paresthetica, posterior spinal surgery, and lateral femoral cutaneous nerve.

Results

MP developed in two male and two female patients out of 500 patients in prone position on the Jackson table. Average age was 42.5 years-old. One patient had a history of Diabetes mellitus (DM). The mean BMI was 25.35. Mean OR time was 444.75 minutes. Mean EBL was 400cc. Three patients presented with unilateral and one patient with bilateral symptoms. The reported incidence of MP is 4.3 cases per 10,000 patient years in the general population. Individuals with DM have an incidence of 247 cases per 100,000 patient years. The syndrome is found in the pediatric population and most likely under diagnosed.

Conclusions

The authors suggest using the provided padding as directed. Increased padding is recommended as all body weight is placed solely upon four points. The patients' hips must be placed symmetrically. In the differential of anterolateral thigh pain following prone positioning procedures, MP should be considered. Risk factors such as length of surgery and DM increase the likelihood of developing MP. Though a seemingly benign diagnosis, MP causes significant discomfort and must be addressed upon discovery.

Meralgia Paresthetica studies in current literature

Authors	Year	Number of Patients	Procedure	MP Incidence	Age	M/F	BMI (kg/m^2)	OR Time (min)	Table	Unilateral/ Bilateral Sx	Recovery Time
Cho et al.	2008	1	PLIF L3-L4	-	51	F 1	23.8	270 m		Unilateral (R)	6 months
Tejwani et al.	2006	56	Posterior spine fusion for scoliosis	10/56 (18%)	*MP*: 15.1, *W/O MP*: 12.9	M18/F38	*MP*: 21.9, *W/O MP*: 21.7	*MP*: 451 m, *W/O MP*: 387 m	Jackson Table plus 1) Lower leg support table and thigh supports or 2) Lower leg suspension sling	Bilateral (6) and Unilateral (4) Anterolateral thigh numbness without pain or weakness	<6 months (2-24 weeks)
Yang et al.	2005	252		60/252 (23.8%)	*MP*: 45.1, *W/O MP*: 42.1	M22/F38 MP Incidence: F-24.2%, M- 23.2%	**MP*: 23.6, *W/O MP*: 22.4	*MP*: 212 m, *W/O MP*: 192 m *LOS>3.5 hours, incidence =29.0%	Relton-Hall frame	Bilateral in 17/60 affected patients (28.3% of affected patients; 8.75% of total patients)	Avg: 10.5 days (2-60 days range)
Gupta et al.	2004	110	Microlumbar discectomy (53), Laminectomy (32), Internal decompression for spinal stenosis (15), Instrumentation (19), Other (4)	13/110 (12%)	*MP*: 38.2 Series age: 46.9		*MP*: 45.3 kg, *W/O MP*: 68.4 kg			Unilateral (11), Bilateral (2), 9 patients c/o unpleasant paresthesia, 4 c/o numbness	62% 10 days, 85% in 1 month, 92% in 6 months
Mirovsky et al.	2000	105	Posterior fusion using Relton-Hall frame, 11 anterior iliac bone graft, 26 in knee-chest position, 15 with anterior RP and posterior fusion w/ Relton-Hall frame, 8 RP	21/105 (20%)	Series age: 46	M5/F6	*MP*: 24.9, *W/O MP*: 24.7	*MP*: 198 m, *W/O MP*: 210 m	Relton-Hall frame (11/23 patients developed MP)	Bilateral (6)	89% recovered within 3 months 2 pateints had pain for 1 year

Meralgia Paresthetica studies in current literature
This table displays the studies investigating MP published in current literature. A total of 5 studies are presented, displaying the subject of investigation and results.
*: statistically significant as per the study
W/O: without

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Learning Objectives

By the conclusion of this session, participants should be able to 1) Understand the pathology causing MP, 2) Discuss which patients are most at risk for developing post-surgical MP, and 3) Identify better ways to prevent MP occurrence through positioning and padding techniques.