

# Meralgia Paresthetica: Complication Of Prone Position During Lumbar Disc Surgery

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## Abstract

**Background:** Meralgia paresthetica (MP) is an entrapment neuropathy of the lateral femoral cutaneous nerve (LFCN). Prone position related MP is not a frequently seen complication.

**Methods:** We report five cases of meralgia paresthetica after lumbar disc surgery which was performed in prone position. The level of the disc herniation was L4-5 in three patients and L5-S1 in two patients. All patients were obese. Mean height was 159.6 cm and mean weight was 89.8 kg. The main symptoms related to meralgia paresthetica were burning pain and hyperalgesia on the anterolateral aspect of the thigh.

**Results:** The complaints in all patients relieved with conservative therapy.

**Conclusion:** The reason for meralgia paresthetica in these patients was the compression of the lateral femoral cutaneous nerve (LFCN) by the abdominal pillows at the point where it passes beneath the inguinal ligament. Although the development of meralgia paresthetica due to prone positioning during spine surgery has a benign course, care should be taken especially in the obese patients to prevent the LFCN compression by abdominal pillows.

## INTRODUCTION

Meralgia paresthetica (MP) is an entrapment neuropathy of lateral femoral cutaneous nerve (LFCN). This condition is due to local entrapment of the LFCN as it passes through the inguinal ligament. Patients complain of a burning sensation, paresthesias, numbness and hypersensitivity or hyposensitivity over the anterolateral aspect of the thigh. The suspected etiological factors of MP are obesity, pregnancy and tight garments (<sup>1,2,3,4</sup>). These factors may cause pressure or traction on the nerve.

MP as a complication of surgery has been reported in the literature (<sup>5,6,7</sup>). We report five cases with MP which is due to prone positioning during lumbar disc surgery. The causative factors, prevention and treatment are discussed.

## CASE PRESENTATIONS

Between 1986 and 2003, almost 4000 patients with spinal problems were operated in prone position in our institution. Five of these patients developed MP after surgery (Table 1).

## Figure 1

Table 1: Summary of the clinical features of the patients

Age/Sex	Height/Weight	Body Mass Index(BMI)	Level of disc herniation	MP side	Duration of complaints
57/F	160cm/94kg	36.7	L4-5 left	Bilateral	4 weeks
64/F	155cm/89kg	37	L5-S1 right	Left	2 weeks
63/F	163cm/85kg	32	L4-5 right	Bilateral	4 weeks
48/M	162cm/93kg	35.4	L4-5 left	Bilateral	4 weeks
60/F	158cm/88kg	35.3	L5-S1 right	Right	5 weeks

Four patients (80%) were female and one patient (20%) was male. The age presentation was between 48 and 64 (mean age 58.4 years). The patients' heights were between 155 cm and 164 cm (mean 159.6 cm), weights were between 85 kg and 94 kg (mean 89.8 kg). The level of disc herniation was at L4-5 in three patients (60%) and L5-S1 in two patients (40%). The complaints which we relate to MP were evident right after the surgery. Burning pain and hyperalgesia on the lateral aspect of the thigh were the main symptoms. Electromyogram was performed in three patients (60%) and none of them demonstrated any L2-L3 root involvement. Anti-inflammatory treatment was administered to all patients

and the complaints were resolved in 2-5 weeks (mean 3.8 weeks).

### **DISCUSSION**

MP was first described by Hager in 1885 (<sup>8</sup>). Bernhardt (<sup>9</sup>) reported more extensively on the condition in 1895, and later Roth (<sup>10</sup>) published a paper in which he named it meralgia paresthetica, from the Greek words meros for thigh and algos for pain. MP is a sensory mononeuropathy and can be described as a syndrome of dysesthesia or anesthesia in the distribution of LFCN (<sup>11,12</sup>). The LFCN originates directly from the lumbar plexus and may be derived from several different combinations of lumbar nerves, including L2 and L3, L1 and L2, L2 alone, and L3 alone. The plexus passes to the thigh through the tunnel formed by the inguinal ligament and spina iliaca anterior superior. A variety of causes for MP have been reported to date, including intrapelvic disease, herpes zoster, a congenitally tight foramen where the nerve passes through the inguinal ligament, osteoarthritis of the lumbar spine with associated muscle spasm (<sup>11</sup>), metastatic carcinoma in the iliac crest (<sup>13</sup>), retroperitoneal tumors (<sup>14</sup>), obesity (<sup>15,16,17</sup>), pregnancy (<sup>18</sup>), ascites, and seat belts (<sup>19</sup>). The most common causes are tight clothing (<sup>20</sup>), complications after thoracoabdominal surgery (<sup>5,21,22,23</sup>), and iliac bone graft harvesting (<sup>3,6,7,24,25</sup>). A case of MP following femoral artery cannulation was recently described (<sup>26</sup>).

The bulk of literature on MP suggests that it is most often associated with trauma secondary to mechanical causes. As stated by Ivins (<sup>12</sup>) despite its early widespread recognition and numerous articles concerning MP were published since 1900's, its diagnosis is still missed or delayed, and few practicing physicians seem to be aware of the condition or recognize the symptoms. The other reason we present our experience with MP after spine surgery is although it is a well known entity, published and discussed in many surgical journals, it appears that it is hardly discussed in anesthesiology society. We believe that anesthesiologists should be alert and vigilant to the occurrence of this syndrome.

Injury to the LFCN was found to be a common complication during spine surgery and occurs in 20 % of the patients (<sup>6</sup>). In the cases presented here, compression and direct pressure to the LFCN with the use of abdominal pillows for prone positioning of the patients during spine surgery rendered the development of MP and obesity increased the probability of the occurrence of this syndrome. Mirovsky et al (<sup>6</sup>) reported 21 patients who had LFCN injuries from the Hall-Relton

frame. To keep the abdomen free of pressure is very important for spine surgery in prone position. If the abdomen is compressed the engorged epidural venous plexus may easily bleed during the dissection of the nerve root and the disc. Additionally, these veins may obscure the view of the surgical site. We routinely use jelly formed supporting pillows to keep the abdomen pressure-free. These bags are positioned on both sides from thorax to the anterior iliac spine. Care is taken not to pass the inferior border of the pillow below the anterior iliac spine. This may cause compression of the LFCN at the point where it passes beneath the inguinal ligament. However, in obese patients prevention of the compression to the LFCN could not be achieved. Due to the mass effect of the fatty abdomen, LFCN can be easily compressed. In this series all five patients were obese. We think that the presence of fatty abdomen caused supporting pillow induced compression of the LFCN.

The patients reported signs of MP next day of the surgery. Conservative treatment with anti-inflammatory agents resolved the complaints in 2-5 weeks. None of the patients needed a surgical intervention. There were no recurrences after 1-3 years of follow-up.

Between 1986 and 2003, almost 4000 patients have been operated in prone position for spinal pathologies in our institution. Nevertheless, we only diagnosed five patients with MP after surgery in prone position; we assume that this condition is overlooked.

### **CONCLUSIONS**

In conclusion, the supporting pillows used during prone positioning of the patient should be placed accordingly in order to avoid the compression of LFCN. Care must be taken especially in obese patients. Because of the relatively high probability of MP after spine surgery, we strongly suggest that patients should be informed about the occurrence of this complication.

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