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## MERALGIA PARESTHETICA A REVIEW OF 67 PATIENTS

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### ABSTRACT

Medical records of 67 cases of meralgia paresthetica (MP) were reviewed to obtain demographic and clinical data pertinent to this disease. MP was found more often in men than women. There was a bimodal age distribution with peaks in the third decade as well as the fifth and sixth decades. Many clinical conditions were found associated with MP, the most important being obesity and trauma. The etiological role of normal and pathological anatomy is discussed as well as therapeutic approaches to the disease.

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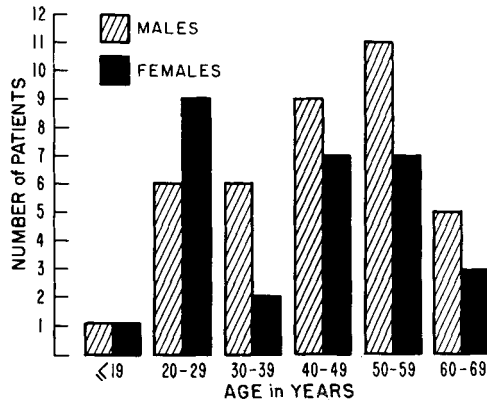
Meralgia paresthetica (MP) is a common, annoying affliction, benign in course, which may be confused with other more serious entities such as femoral neuropathy and root compression due to herniated nucleus pulposus. MP is a neuropathy of the lateral femoral cutaneous nerve, a branch of the lumbar plexus. Its course is variable but the classic symptoms of sensory loss, paresthesias and dysesthesias over the lateral thigh are consistent (*Bernhardt* 1895, *Roth* 1895).

To further clarify the course and to further delineate the clinical picture, we considered it appropriate to review our experience with MP and to survey the pertinent literature.

### METHODS

All hospital records, both inpatient and outpatient, containing a diagnosis of neuritis or neuropathy were reviewed for the 10-year period of 1961-1970, using a standard form for recording pertinent demographic and clinical data.

Diagnostic criteria for MP included: (a) sensory complaints ("numbness", tingling, itching, burning or dysesthesias) in the lateral thigh extending no further than the knee distally and the iliac crest proximally; (b) loss of fine touch, gross touch, temperature and/or pain perception in a corresponding area; and (c) absence of motor and reflex abnormalities. A total of 1,173 cases were originally reviewed. Sixty-seven of these proved to be MP according to these criteria.

**DISTRIBUTION of PATIENTS by AGE and Sex***Figure 1.***RESULTS**

Age and sex distribution are summarized in Figure 1. Though there were more men affected than women, 58 % and 42 % respectively, the sex ratio in our series is much lower than that in most reports (*Ecker & Woltman 1938, Musser & Sailer 1900, Stevens 1957*). This probably reflects the number of young women (7) in our series who had MP in association with pregnancy. This group of patients also alters the age distribution. Eliminating this group of young women from the series would yield an age distribution consistent with the literature.

Table 1 summarizes the duration of complaints before evaluation. In the group with complaints lasting in excess of two years, only two patients stated that they came to the clinic because the symptoms were getting worse. It appears that most of our patients were quite tolerant of their symptoms.

There was no occupational preponderance. Previous reports of a tendency for occurrence in sedentary occupations (*Freud 1895, Musser*

*Table 1. Duration of symptoms prior to diagnosis*

Duration	Patients
Less than 2 months	9
2 months - 6 months	19
7 months - 1 year	8
2 years - 5 years	15
Greater than 5 years	9
Unknown	7

Table 2. Sensory complaints

Complaints	Patients*
Numbness	32
Pain	22
Burning	14
Tingling (prickling)	11
Hypersensitivity	4
Aching	2
Vague discomfort	2
Unknown	2

\* Greater than 67 due to patients with multiple complaints.

& Sailer 1900, Staal 1970) were not supported. Sixteen cases occurred in patients involved in manual labor, factory production work or trades, whereas fifteen cases occurred in persons engaged in the professions. Housewives (13) and service workers, including clerks, policemen and waitresses (11), accounted for the other occupations commonly affected in this series.

Our patients' complaints are summarized in Table 2. The overwhelming number related to numbness, pain or burning. Forty-two percent of our patients did not have a chief complaint referable to MP. This suggests that the disease can be so mild that patients incur the sensory loss and are not aware of it until the symptoms and signs are revealed in a complete review of systems and sensory examination. Though extension of the thigh was most likely to worsen symptoms (11), thigh flexion (2), or even holding the leg immobile in a neutral position (4) would occasionally aggravate complaints. In some cases (6) movement did not affect symptoms. Walking (3) and coughing (2) also were reported as aggravating complaints. The variable effect of body position and movement on severity of symptoms is well known (Castle 1963, Moritz 1962, Staal 1970, Stevens 1957, Stookey 1928).

Table 3 summarizes our findings on sensory examination. Loss of superficial pain perception appears to be the most significant sign. However, few charts recorded negative findings in other sensory modalities (particularly temperature perception). When both pain and another sensory modality were disturbed, we also found the loss of pain perception to involve the larger area (Stevens 1957). Most cases appeared to involve the distribution of the anterior division of the lateral femoral cutaneous nerve with only three involving losses in the more proximal and posterior divisions of the nerve.

Clinical correlates are listed in Table 4. Ten patients had no as-

*Table 3. Sensory examination*

Modality	Patients
Decreased pinprick	30
Decreased pinprick plus hypesthesia and/or dysesthesia	20
Hypesthesia only	3
Dysesthesia only	1
Hyperesthesia	2
No sensory loss	8
Unknown loss	3

sociated disease. Twenty-four were obese, whereas three had a recent rapid weight loss due to a serious underlying disease. Ten patients had a history of recent trauma to the thigh, hip or inguinal region just prior to the development of symptoms. Two of these incurred trauma from lap belts following an automobile accident. Chronic trauma, e.g., wearing a heavy equipment belt, occurred in four. Pregnancy and recent parturition were the most common associated

*Table 4. Associated clinical condition*

Condition	Patients*
Obesity	24
Trauma to thigh or inguinal region	10
Pregnancy and parturition	8
Diabetes mellitus	7
Other neuropathies	6
"Low back pain"	7
Osteoarthritis	4
Surgery just prior to symptom development	4
Weight loss	3
Alcoholism	2
Ascites	2
Sarcoid	1
Ulcerative colitis	1
Uterine leiomyomata	1
Hyperthyroidism	1
Chronic lung abscesses (sterile)	1
Lipoma on affected thigh	1
None	10

\* 14 patients listed twice or more.

events in women between 20 and 40 years of age. Low back pain and osteoarthritis occurred with only modest frequency in our 67 patients, though vertebral column disease of many types has been implicated in causation of MP (*Moritz 1962*).

Many patients in this series had several associated illnesses which further confuse the possible etiological significance of any one. For example, six of the 24 obese patients had other findings or complaints. Two were diabetics; two had also received trauma to their legs, while others had undergone a recent operation, had severe cardiac disease or were alcoholic. While only 25 % of the obese patients had other associated diseases, six of the seven diabetics and three of the six patients with other neuropathies reported a third or fourth illness. Of the ten patients who had trauma, two were obese. These findings are consistent with the idea that obesity or local trauma are the commonest precipitating factors in those patients anatomically predisposed to entrapment.

#### DISCUSSION

Roth originated the term "meralgia paresthetica" in 1895 (*Roth 1895*). However, Bernhardt independently reported six cases in the same year and is generally given credit for discovering the disease (*Bernhardt 1895*).

Following the reports of Roth and Bernhardt, numerous cases appeared in the literature, including cases reported by Sigmund Freud (*Freud 1895*). He reported the first bilateral case and also disclosed that he suffered from the ailment himself.

As indicated in Table 2, the disease is characterized by numbness or tingling on the lateral thigh, as well as sensations of heat, cold, burning, aching, tenderness, hyperesthesia, dysesthesia, or even excruciating pain to even the lightest of stimuli (*Bernhardt 1895, Bychowski 1930, Knox 1963, Roth 1895*).

On examination, the most consistent finding is a decrease of pain and touch perception in the distribution of the lateral femoral cutaneous nerve (*Ecker & Woltman 1938, Keegan & Holyoke 1962, Knox 1963*). Generally, the objective loss on examination is over a smaller area than the patient's complaint (*Stevens 1957*). Trophic skin changes and alterations of sweating in the affected area have been reported as well as loss of the pilo-motor response (*Chhuttani et al. 1966, Moritz 1962*).

MP generally occurs unilaterally, but is bilateral in 8-12 % of the cases (*Ecker & Woltman 1938, Keegan & Holyoke 1962, Staal 1970,*

*Stevens* 1957). Bilateral cases rarely have equal involvement of both sides. Seven (10 %) of our cases were bilateral and the remainder were almost equally divided between right-and left-sided involvement.

Though the disease is usually benign, as *Stevens* (1957) reports, it can be the harbinger of a more serious disease, especially if (1) the complaints or physical findings exceed or are inconsistent with the distribution or function of the lateral femoral cutaneous nerve, (2) there are other neurological signs and symptoms, or (3) a history of old pelvic or abdominal disease is present.

The role of flexion and extension of the thigh in producing and alleviating symptoms (*Stookey* 1928), and the role of predisposing pressure points caused by normal anatomical relationships (*Moritz* 1962, *Roth* 1895) impress some authors with the importance of these normal relationships on the possibility of entrapment.

Numerous reports describing both acute blows to the leg or abdomen and chronic banging from equipment belts, gold watches, leaning against bars and tight stays in corsets and girdles attest to the importance of trauma (*Bernhardt* 1895, *Chhuttani et al.* 1966, *Hager* 1895, *Knox* 1963, *Staal* 1970, *Stevens* 1957). One of *Bernhardt's* (1895) patients, a Prussian military officer, developed his symptoms only while wearing his ceremonial sword. When it was recommended that the forego wearing the sword to ease his pain, his Prussian military dignity was offended, but he compromised by wearing only the scabbard and obtained partial relief.

Anatomical variants have been implicated in the pathogenesis of MP by *Hager* (1885), *Ghent* (1961), *Keegan & Holyoke* (1962) and others (*Stevens* 1957). *Ghent* (1961) describes four predisposing variants:

1. Passage of the lateral femoral cutaneous nerve *through* rather than deep to the inguinal ligament.
2. "Bowing" of the nerve as it crosses the iliacus fascia.
3. Passage of the nerve through the sartorius muscle.
4. Passage of the nerve lateral and posterior to the anterior superior iliac spine.

The association of MP with obesity has been noted by most authors (*Bernhardt* 1895, *Chhuttani et al.* 1966, *Ecker & Woltman* 1938, *Knox* 1963, *Staal* 1970, *Stevens* 1957). Though the association between obesity and MP is strong, it is unclear as to how obesity and MP are related. Pannicular traction at the inguinal ligament is one reasonable suggestion for the mechanical cause of MP by obesity (*Stevens* 1957). Any process increasing intra-abdominal or intra-pelvic pressure can cause MP as well as discrete tumorous enlargements of organs (*Staal*

1970, *Stevens* 1957). This includes ascites (*Staal* 1970) and pregnancy, the most common cause of increased intra-pelvic pressure.

Systemic diseases known to cause neuropathies may occasionally produce an isolated neuropathy of the lateral femoral cutaneous nerve. MP has been reported as the sole complaint in alcoholics, in patients with diabetes mellitus, and in lead poisoning (*Staal* 1970, *Stevens* 1957, *Stookey* 1928). Infections, especially typhoid fever, and toxins have frequently been implicated, especially in the older reports (*Musser & Sailer* 1900).

A familial tendency in the disease has been reported (*Bychowski* 1930), but in none of our patients was this association established.

### Therapy

In treating MP, the best approach is to consider the disease in the context of its natural history. Since it usually disappears spontaneously and is rarely incapacitating it can usually be treated simply by reassurance. Table 5 summarizes the efforts at therapy, both at the University of Michigan Medical Center and prior to patient evaluation at this Center.

A simple therapeutic maneuver is a reduction or elimination of

*Table 5. Summary of therapy*

Therapy	Patients*
Treatment of underlying disorder	
Diabetes mellitus	1
Diuresis of ascites	1
Weight loss	20
Nerve block	9
Surgery	
Transposition	4
Neurolysis	1
Vitamins	
Thiamin	1
Multivitamins	1
Vitamin B <sub>12</sub>	1
Steroids	
(Local infiltration)	4
Analgesics	
(Aspirin, propoxyphene)	7
Other ("shots")	2
Alcohol rubs	1
Diathermy and ultrasound	1

\* 54. The remaining 13 patients received either no therapy or reassurance.

offending mechanical factors, e.g., corset, belt or obesity. If the pain persists, mild analgesics give partial relief in most cases. Infiltration of the area about the nerve as it passes medial to the anterior superior iliac spine with lidocaine or procaine will usually relieve the symptoms temporarily while leaving a patch of hypesthesia (*Staal 1970*). Alcohol block may also be used. Physical therapies and electrical therapies have been attempted since the first reported cases and there is no good evidence of any benefit exceeding reassurance (*Stevens 1957*). Severe or intractable pain may require surgical relief and several procedures are available, ranging from simple lysis to several different transposition techniques (*Keegan & Holyoke 1962, Lee 1936, Stookey 1928*). Surgery is probable no more effective than removing etiologic agents (*Staal 1970, Stevens 1957*). Nevertheless, it seems to succeed where some more conservative methods fail. Unfortunately, there is no reliable way of predicting which patients will receive long-term benefits from a surgical decompression.

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