MERALGIA PARESTHETICA
AN ANATOMICAL AND SURGICAL STUDY

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The syndrome of burning, tingling numb sensation in the anterolateral area of the thigh, with variable reduction of sensation in the distribution of the lateral femoral cutaneous nerve, was first described by Bernhardt in 1895 and named meralgia paresthetica by Roth in the same year. Although this syndrome is fairly common in mild form, there has been continuing uncertainty of its cause and treatment. Early observations tended to relate it to prolonged toxic or infectious processes with a long stay in bed and loss of weight. Later writers have been impressed by mechanical factors as a possible or probable cause, and treatment in the more severe cases has been directed toward release of the nerve from its restricted location beneath the lateral portion of the inguinal ligament, either by resection or transposition.

Stookey was the first to advance the idea of a mechanical cause of meralgia paresthetica in an excellent clinical and anatomical study in 1928. He was impressed by the constant accentuation of the symptoms by standing or walking, with relief when sitting or lying down, and by the sharp angulation of the nerve where it crosses the ridge of the ilium. He compared this angulation with that of the ulnar nerve at the elbow, where neuritis develops commonly, and interpreted that meralgia paresthetica is caused by repeated stretching of the lateral femoral cutaneous nerve over this angle of the ilium. Later observers have tended to emphasize other trauma, as pressure on the nerve in its superficial position by bed, belts or braces, and the repeated tensing of the inguinal ligament over the restricted nerve. These observations have given increasing evidence that meralgia paresthetica is caused in major degree by mechanical factors and is a traumatic neuritis, comparable to ulnar neuritis and similar syndromes elsewhere in the body.

Trauma to nerves is of varying types, dependent on the manner and severity of the force applied. Sustained pressure or stretching of a nerve is not significantly painful, giving rise chiefly to loss of function of the nerve, which recovers promptly when the physical force is released unless axonal death has occurred. Examples of this are the leg "asleep" after sitting with pressure or stretch on the sciatic nerve and numbness of the arm after sleeping with the arm above the head. Severe injury to a nerve, with associated swelling, hemorrhage or infection, may heal slowly and develop inflammatory interstitial fibrosis with accompanying loss of function and severe "causalgie" pain, interpreted as caused in part by the sympathetic component of peripheral nerves. Intermittent compression of a peripheral nerve is a common cause of painful traumatic neuritis, as ulnar neuritis in a shallow ulnar groove and nerve-root pain related to a compressible herniation of an intervertebral disc. Simple stretching of a nerve over a smooth surface does not cause pain, otherwise ulnar neuritis would be much more common than it is. These observations apply equally to lateral femoral cutaneous neuritis, tensing of the inguinal ligament being the chief factor in continuation of symptoms. Since transposition or release of intermittently compressed nerves elsewhere has given satisfactory relief from this type of traumatic neuritis, this should be the best procedure for

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relief of meralgia paresthetica, and both Lee and Mack have reported good results from transposition of the lateral femoral cutaneous nerve to an osteoplastic slot in the crest of the ilium. This operation necessitates section of the inguinal ligament, removal of bone and lateral stretching of the nerve for its transposed position.

Other methods for surgical relief of meralgia paresthetica have been tried with varying results. Simple section of the nerve above or below the inguinal ligament leaves the nerve with its sympathetic components at the site of irritation and disturbing paresthesia usually has returned or persisted. Resection of the portion of the nerve passing beneath the inguinal ligament should be more effective if done extensively enough, but this necessitates section of the inguinal ligament and results in complete loss of function of the nerve. In view of the difficulties involved in the several surgical procedures for meralgia paresthetica and the interpretation that the best procedure is transposition of the nerve from its intermittently compressed position, an anatomical study was done of the relation of the nerve to the inguinal ligament and attached fascias and muscles to determine if a simpler method of transposition could be found.

This anatomical study is based on dissection of 50 cadavers in the laboratory of gross anatomy at the University of Nebraska College of Medicine (Fig. 1). The lateral femoral cutaneous nerve has its origin in the lumbar plexus, usually from the 2nd and 3rd lumbar nerves, and appears at the lateral border of the psoas major muscle just above the crest of the ilium. It is directed somewhat laterally across the anterior surface of the iliacus muscle, from which it is separated by the muscle sheath. This sheath is very thin and the adjacent tissue is loose, permitting the nerve to be moved easily. Both the muscle sheath and the nerve are covered by a much denser layer of fascia which is termed

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Fig. 1. Drawing to show outwardly curved course of lateral femoral cutaneous nerve and its relation to muscles, fascias and inguinal ligament.