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**Small Fiber Neuropathy: Differential Diagnosis and Treatment Implications** 185

Stephen L. Barrett and A. Lee Dellon

Burning sensation in the feet is a common problem encountered in podiatric medicine. When this pain is bilateral, symmetric, and includes the top and bottom of both feet, small nerve fiber involvement must be considered in the differential diagnosis. With the now available, in-office, skin biopsy quantification of intraepidermal nerve fibers, documentation of the presence of small fiber involvement in the pain mechanism is possible. Technical details of performing the skin biopsy are reviewed and the legal implications of a positive abnormal skin biopsy for intraepidermal nerve fibers is discussed.

**Lower Extremity Focused Neurologic Examination** 191

James P. Wilton

A focused lower extremity neurologic evaluation aids in the diagnosis of lower extremity nerve pathology. Injuries to the peripheral neural infrastructure can result in chronic neuropathic pain and discomfort. The most common etiologies of chronic neuropathic pain are from peripheral distal pathologies. A complete lower extremity neurologic evaluation includes sensory, motor, and deep tendon reflexes. Additional specific attention to the geographic anatomic testing of peripheral sensory and motor nerves is essential in eliciting a correct etiologic diagnosis for peripheral neural pain and dysfunction.

**Multiple Crush Concept Applied to Multiple Nerves in Leprous Neuropathy** 203

A. Lee Dellon

There is a large reservoir of leprosy patients, no longer contagious, due to multidrug therapy, who are considered cured and are becoming increasingly disabled due to progressive chronic nerve entrapment in the upper and lower extremities. After a review of the history of understanding leprous neuropathy, an approach is outlined based on the approach taken to relieve pain and restore sensation that prevents ulcers and amputations in diabetics with neuropathy and superimposed nerve compressions. The results of the first application of this approach in an indigenous area for leprosy, Guayaquil, Ecuador, is discussed with implications for international care of this neglected patient population.

**Chronic Exertional Compartment Syndrome**

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Richard T. Braver

Increased tissue pressure within a fascial compartment may be the result from any increase in volume within its contents, or any decrease in size of the fascial covering or its distensibility. This may lead to symptoms of leg tightness, pain, or numbness brought about by exercise. There are multiple differential diagnoses of exercise induced leg pain. The proper diagnoses of chronic exertional compartment syndrome (CECS) is made by a careful history and by exclusion of other maladies and confirmed by compartment syndrome testing, as detailed in this text. Surgical fasciotomies for the anterior, lateral, superficial, and deep posterior compartments are described in detail along with ancillary procedures for chronic shin splints that should allow the athlete to return to competitive activity.

**Management of Painful Recurrent Intermetatarsal Neuroma Using Processed Porcine Extracellular Matrix Material: A Case Report**

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Robert G. Parker and Orlando Merced-O'Neil

Painful recurrent stump neuroma presents a common clinical problem following the transection of a nerve after initial interdigital neuroma excision, but there is no gold standard of treatment. A patient presented with pain symptoms consistent with recurrent intermetatarsal stump neuroma after undergoing previous surgery to excise a Hauser neuroma. The recurrent stump neuroma was excised and the resulting nerve was capped and implantation into intrinsic muscle. Postoperatively, the patient experienced a complete resolution of pain and return of normal function. This article discusses capping material characteristics and considers the factors that may contribute to clinical success.

**Current Diagnosis and Treatment of Superficial Fibular Nerve Injuries and Entrapment**

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Peter J. Bregman and Mark Schuenke



Video content accompanies this article at <http://www.podiatric.theclinics.com>

The superficial peroneal nerve is now known as the superficial fibular nerve (SFN). Identification and treatment of entrapment of the SFN are important topics of discussion for foot and ankle surgeons, because overlooking the diagnosis can lead to permanent nerve damage. With the proper tools and skills, surgeons are able to help patients with symptomatic SFN entrapment, patients who often present in some degree of desperation, with the peripheral nerve surgeon as a last resort.

**Intraoperative Nerve Monitoring During Nerve Decompression Surgery in the Lower Extremity**

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James C. Anderson and Dwayne S. Yamasaki



Video content accompanies this article at <http://www.podiatric.theclinics.com>

This article describes the benefits of intraoperative neurophysiologic monitoring (IONM) and proposes methods for integration into nerve

decompression procedures. Standard procedures for intraoperative nerve monitoring (IONM) are illustrated as they would apply to the 3 nerve tunnels that have significant motor components within the lower extremity.

**Rationale, Science, and Economics of Surgical Nerve Decompression for Diabetic Neuropathy Foot Complications** 267

David Scott Nickerson

Nerve decompression is effective and safe for dealing with the pain and numbness symptoms of the frequent nerve compression entrapments in diabetic symmetric peripheral neuropathy (DSPN). Evidence has accumulated of balance and stability improvements and protection against diabetic foot ulceration, recurrence, and its complication cascade. Nerve decompression proffers significant benefit versus the large socioeconomic costs of DSPN complications. Advancing understanding of the mechanism of nerve compression and altered axonal activity in diabetes clarifies the basis of clinical benefit. Clinicians should seek out and recognize nerve entrapments and consider advising nerve decompression for relief of DSPN symptoms and prevention of complications.

**Common Fibular Nerve Compression: Anatomy, Symptoms, Clinical Evaluation, and Surgical Decompression** 283

James C. Anderson

This article thoroughly describes the clinical examination and treatment of common fibular (peroneal) nerve compression. Aspects discussed include the anatomy of the nerve, cause of entrapment, symptoms associated with impairment, and a surgical approach to decompress the entrapped nerve. The standard protocol for decompression as it would apply to the common fibular nerve tunnel is illustrated.

**Case Study: Osseous Pathology with Peripheral Nerve Entrapment and Neuromata** 293

Stephen L. Barrett

This case illustrates the complexity and interrelationship of osseous pathology with peripheral nerve entrapment and neuromata. The patient had an iatrogenic nerve injury of a branch of the medial dorsal cutaneous nerve causing her painful scar. Secondly, she developed an injury to her common peroneal nerve from the cast immobilization, resulting in palsy/drop foot. The tarsal tunnel entrapment was likely a sequela of the cast immobilization and chronic swelling. Her postoperative chronic pain was compounded by the failure to use grommets with the polymeric silicon (Silastic) implant at the initial surgery, leading to a breakdown of the implant with subsequent detritic synovitis.

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