A 58-year-old very obese female with a history of chronic low back pain presented with severe numbness and a tingling sensation in the left anterior lateral thigh. Severe disabling conditions had manifested over a 4-month period. The numbness and tingling sensation lasted no more than 5 minutes per episode, and the pain attacks occurred 40-50 times a day. A neurological examination was normal, except for the severe numbness and tingling sensation in the left anterior lateral thigh. Lumbar magnetic resonance imaging (MRI) revealed no acute lesions except for a mild posterior disc bulging at the L2-3 level. This lesion was unchanged when compared with a lumbar MRI taken two years prior. Her chronic back pain was relatively well controlled without medication, but her thigh pain was unresponsive to conservative treatment with medication. Before visiting our outpatient clinic, the patient had undergone various treatments including weight reduction, medication, and acupuncture around the left anterior lateral thigh. However, her symptoms did not improve, and instead had progressed. Treatment with non-steroidal anti-inflammatory drugs and anticonvulsants was unhelpful, as was using suspenders instead of a belt to avoid waist compression. LFCN blocks using a local anesthetic and steroids were performed twice at 1-week intervals in our outpatient clinic. These blocks provided temporary pain relief that lasted about 1 week. After the positive results of the diagnostic nerve blocks, the patient was scheduled for PRF.
treatment of the LFCN.

We performed fluoroscopically guided selective LFCN PRF using a NeuroTherm NT1,000 (NeuroTherm, Inc., Middleton, MA, USA) radiofrequency generator. In the operating room, the patient’s position was supine. The target site was prepped with betadine and aseptically draped, and the anterior superior iliac spine was identified under C-arm fluoroscopy. A disposable 20-gauge, 15 cm radiofrequency cannula (Model S-1505, NeuroTherm, Inc., Middleton, MA, USA) with a 5 mm active tip was inserted (Fig. 1). The introducer needle was withdrawn and the disposable RF electrode (Model RFDE-15, NeuroTherm, Inc., Middleton, MA, USA) was advanced. This was accomplished without bleeding.

Selective stimulation of sensory fibers (50 Hz) showed concordant pain between 0.3 and 0.5 V, which confirmed proper localization of the PRF electrode. Motor stimulation was negative at 1.7 V. After stimulation, PRF lesioning was performed for a total of 240 pulses. The pre-set maximal temperature was 42°C. After the procedure, her pain, as measured on a visual analog scale, had decreased by 75% without medication. The pain intensity did not aggravate after 4 months of follow-up without medication.

DISCUSSION

Meralgia paresthetica is a compressive mononeuropathy with a reported population incidence of 1 in 10,000. It results from compression of the LFCN where it crosses between the anterior superior iliac spine (ASIS) and the inguinal ligament to enter the thigh.

The LFCN typically arises from the dorsal branches of the ventral rami of the L2 and L3 spinal nerves. After emerging from the lateral border of the psoas major, the LFCN travels across the iliac muscle toward the ASIS, and then enters the anterior lateral thigh. After emerging from the iliacus muscle toward the ASIS, the LFCN travels across the iliac crest and enters the anterior lateral thigh approximately 1 cm medial to the ASIS. A bifurcation into anterior and posterior divisions occurs approximately 5-12 cm below the anterior superior iliac spine. Kosiyatrakul et al. reported that 58.3% of LFCNs passed medial to the ASIS, 22.9% passed at the ASIS, and 18.8% passed lateral to it.

The LFCN typically arises from the dorsal branches of the ventral rami of the L2 and L3 spinal nerves. After emerging from the lateral border of the psoas major, the LFCN travels across the iliac muscle toward the ASIS, and then enters the anterior lateral thigh by passing under, through, or above the inguinal ligament. In most individuals, the LFCN crosses into the anterior lateral thigh approximately 1 cm medial to the ASIS. However, the relationship of the LFCN to the ASIS is quite variable. The nerve may cross into the anterior lateral thigh as much as 2 cm lateral or 6 cm medial to the ASIS. A bifurcation into anterior and posterior divisions occurs approximately 5-12 cm below the anterior superior iliac spine.

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targeted somewhat inferior to the usual location of the LFCN block (Fig. 1). More clinical trials and studies are needed for better identification of the target point.

CONCLUSION

Experience and documentation of PRF neuromodulation of the LFCN is rare. But, PRF neuromodulation of the LFCN may offer an effective, low risk treatment in patients with meralgia paresthetica who are refractory to conservative treatment or are unwilling or unfit to undergo surgery. Further controlled prospective studies are necessary to evaluate the exact effects and long term outcomes of this method.

References