

Peripheral Nerve Stimulation for Chronic Idiopathic Orchialgia

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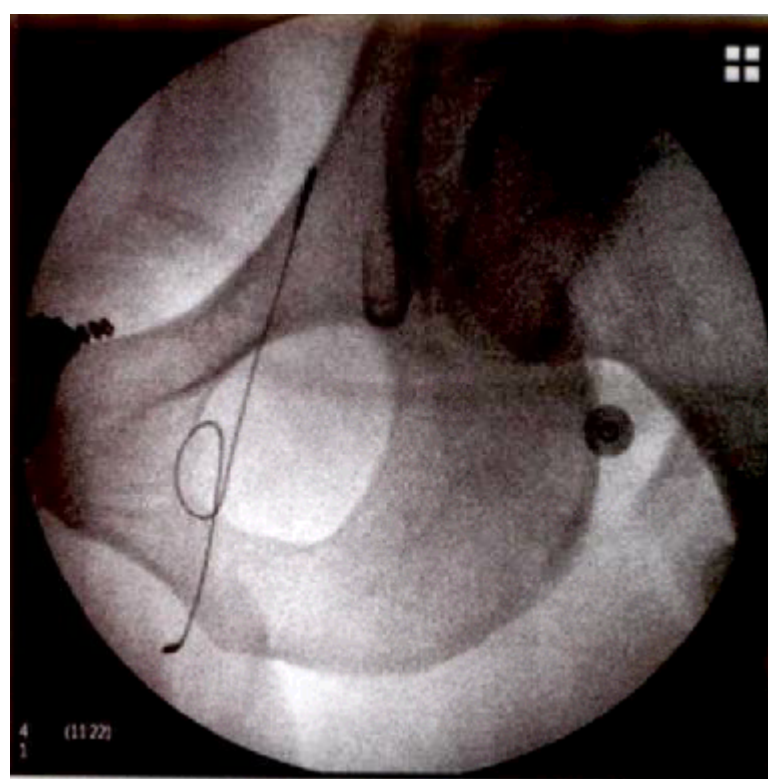


Introduction

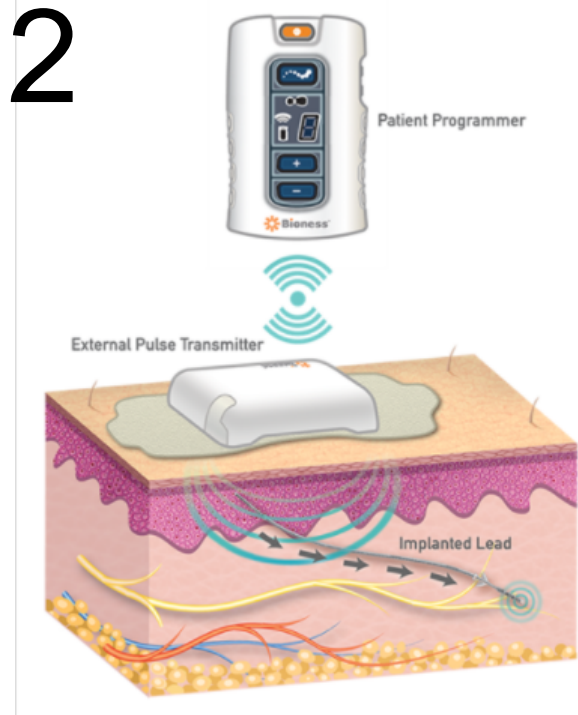
Orchialgia is pain in the testes and often considered chronic if occurring over three months. Although it can be caused by infection and inflammation, often times the causes are idiopathic. (1) Peripheral nerve stimulation is commonly used for chronic musculoskeletal and nerve related pains but in this case we demonstrate the effective use of it for chronic idiopathic orchialgia

Images

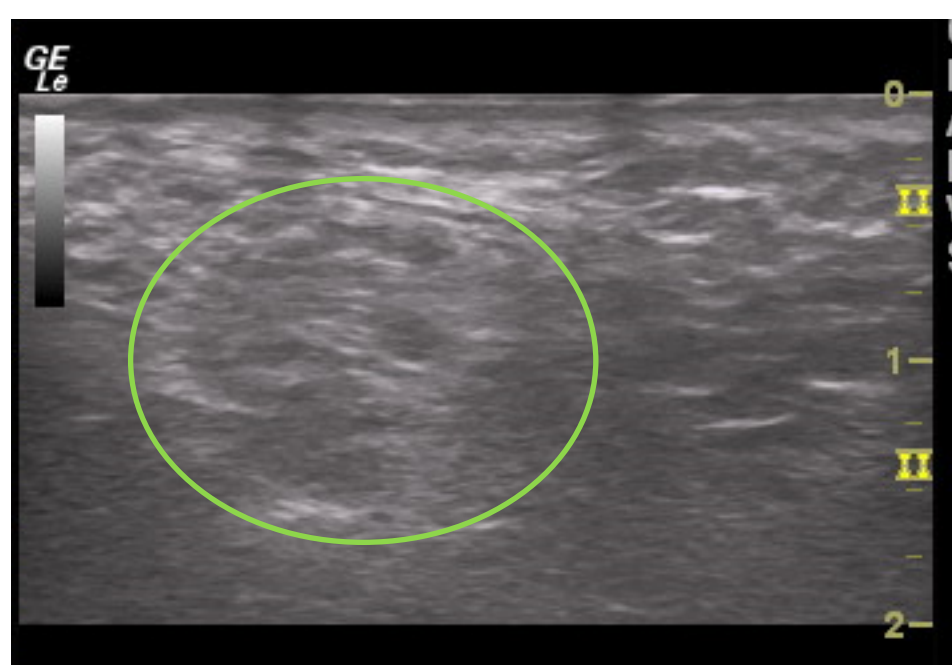
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1. Fluoroscopic picture of peripheral nerve lead
2. Bioness Peripheral nerve stimulator
3. Spermatic cord in cross section

Case Description

A 35 year old male presented with left groin pain which started 2 years prior after a fall. Pain was described as mild to severe tugging and pulling in the left groin, as well as radiation to the left abdomen. Patient denies any exacerbating factors. Pain is slightly alleviated with stretching, and has mild tingling of the left groin but no weakness or radiation to the lower extremities. Physical therapy and NSAIDs have not given relief, and pain has not improved over time. Lower back, abdominal and groin imaging, as well as urologic workup has been negative for any pathology and orchialgia is so far idiopathic in nature. An ilioinguinal nerve block had definite pain relief into the abdomen, but not the testicle, so a genital branch of the genitofemoral nerve block was performed, with successful testicular pain relief and therefore was scheduled for peripheral nerve stimulator leads for implantation into the left ilioinguinal and genitofemoral nerves

With the patient supine, the left lower groin was evaluated with ultrasound using a 12 MHz linear array transducer. The genital branch of the genitofemoral nerve is very challenging to visualize with ultrasound and often not seen. We were able to clearly visualize the spermatic cord which contains the vas deferens, pampiniform plexus, lymphatic vessels, arteries and nerves in cross section. Using a proximal to distal and out of plane approach, a 18 gauge spinal needle was placed into the spermatic cord. A blunt tip guidewire was then passes thru and the spinal needle removed. Stimulation into the spermatic cord was achieved and the introducer sheath was placed into the spermatic cord. Then the Bioness StimRouter lead was guided into the cord. Repeat stimulation into the testicle was achieved. The introducer sheath was removed leading the electrodes adjacent to the structures of the cord. The receiver was then tunneled proximally towards the abdomen.

A two week post-procedure programming was performed with the patient reporting good tingling into his pain distribution and nerve response to the stimulation, furthermore the patient returned for follow up appointment and continued to feel relief post implantation of the peripheral nerve stimulator.

Discussion

Peripheral nerve stimulation (PNS) is one of the methods of electroanalgesia for patients with pain syndromes. It has most commonly been used for treatment of neuropathic pain, often when the nerve lesion is distal to stimulation site (2). Orchialgia is a chronic pain occurring in the testes and the pain is often described as dull and aching, or may be exacerbated by exercise. Although it is often caused by infection and inflammation, often times the causes are idiopathic. (1). A full workup of to rule out any infectious causes are necessary as well as any other pathological causes before one should label it as idiopathic orchialgia. The testicles receive multiple innervations; the testis mainly from the superior spermatic plexus via nerve fibers accompanying the internal spermatic vessels, and the parietal/visceral layers of the tunica vaginalis and cremaster muscle carried by the genital branch of the genitofemoral nerve. (3). There has been multiple described treatments including minimally invasive options such as spermatic cord blocks and pelvic plexus blocks (4,5) as well as surgical options including microsurgical denervation of spermatic cord, testicular denervation and orchiectomy (6,7).

In our case, there was a documented 2 year workup with multiple specialists including various musculoskeletal as well as urology specialists, conservative management and medical management has all failed to give effective pain relief. Our case demonstrates a novel use and approach for complete coverage of testicular pain, with the insertion of the lead towards the testicle overlying the spermatic cord likely blocking both the testis and overlying parietal/visceral layers of the tunica vaginalis as they receive innervation over the spermatic cord and genital branch of genitofemoral nerve.

Conclusion

Using peripheral nerve stimulation to treat chronic idiopathic orchialgia may provide a patient longer lasting relief than nerve blocks and give a less invasive option than surgery for those with intractable idiopathic orchialgia and can help reduce reliance on pain medication.

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