

## **CASE REPORT**

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### ***Cryoneurolysis of the Genital Branch of the Genitofemoral Nerve with Ultrasound Guidance***

#### ***Case Description***

A 56 year old male presented with right groin pain. His past medical history was significant of prior right orchiectomy and retroperitoneal lymph node dissection for testicular cancer. The patient's symptoms began soon after the previously mentioned surgery. After failing medication therapy with pregabalin, the patient was subsequently referred to pain management and ilioinguinal and genitofemoral nerve field blocks were performed with local anesthetic and steroid. These injections were performed twice over a one month period with near complete relief for approximately for approximately one month. The patient was subsequently referred to our university-affiliated pain management clinic for evaluation for cryoneurolysis of the ilioinguinal nerve and genital branch of the genitofemoral nerve.

On our initial evaluation, the patient conveyed a history of intermittent chronic right inguinal, proximal medial thigh and right scrotal pain. The pain was intermittent in nature, sharp and achy in quality, and averaged eight out of ten on the numerical rating scale when present. His symptoms were exacerbated with exertion and flexion of the lumbar spine. There was no associated numbness or tingling reported in the distribution of the pain. Additionally, no penile pain was present. Physical examination was significant for a 6 cm incisional scar overlying the right inguinal ligament and partial pain provocation with deep palpation over the right inguinal ligament.

After patient evaluation and review of procedure notes detailing the prior successful blind ilioinguinal and genitofemoral nerve blocks, cryoneurolysis of these respective nerves was scheduled. Ilioinguinal cryoneurolysis was performed following stimulation with concordant pain reproduction which yielded complete relief in the distribution of this nerve. Fluoroscopic guidance was utilized for genitofemoral nerve cryoneurolysis in the AP plane centered on the right aspect of the pubic symphysis (Figure 1.). Stimulation was performed via the cryoneurolysis probe with partial reproduction of pain in the distribution of the genital branch of the genitofemoral nerve despite several attempts at repositioning. Due to partial stimulation, cryoneurolysis was performed for two sessions at 90 seconds each. At two week follow-up, the patient reported no pain relief.



Figure 1.

### ***Results***

Due to lack of effectiveness with the prior attempt at cryoneurolysis of the genital branch of the genitofemoral nerve and associated difficulty with nerve localization, a repeat cryoneurolysis procedure was scheduled with ultrasound guidance. On ultrasound examination, the femoral artery and vein were localized with the ultrasound probe oriented in a perpendicular plane to the inguinal ligament. The probe was then moved medially to a position proximal and lateral to the right pubic tubercle where the genital branch of the genitofemoral nerve was localized (Figure 2.). A two inch Stimuplex needle was advanced under ultrasound guidance to the level of the genitofemoral nerve (Figure 3.) and hydrodistention was performed with 2 ml of D5W. The Stimuplex needle was then connected to a nerve stimulator and concordant pain was elicited in the distribution of the genital branch of the genitofemoral nerve. At this point, the Stimuplex needle was withdrawn and a 15 gauge cryoneurolysis probe was advanced through a 12 gauge angiocatheter to the genital branch of the genitofemoral nerve with surrounding hydrodistention (Figure 4.). After additional stimulation with the cryoneurolysis probe confirming concordant pain, cryoneurolysis was performed for two cycles for 90 seconds each. The cryoneurolysis ice ball with a hypoechoic deeper shadow was visualized on ultrasound (Figure 5.). This completed the procedure.

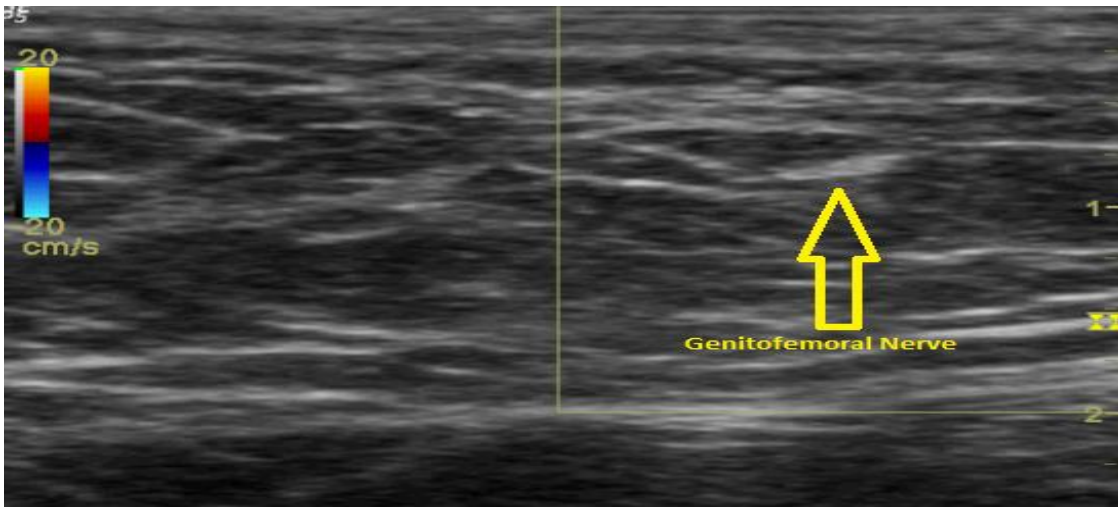


Figure 2.

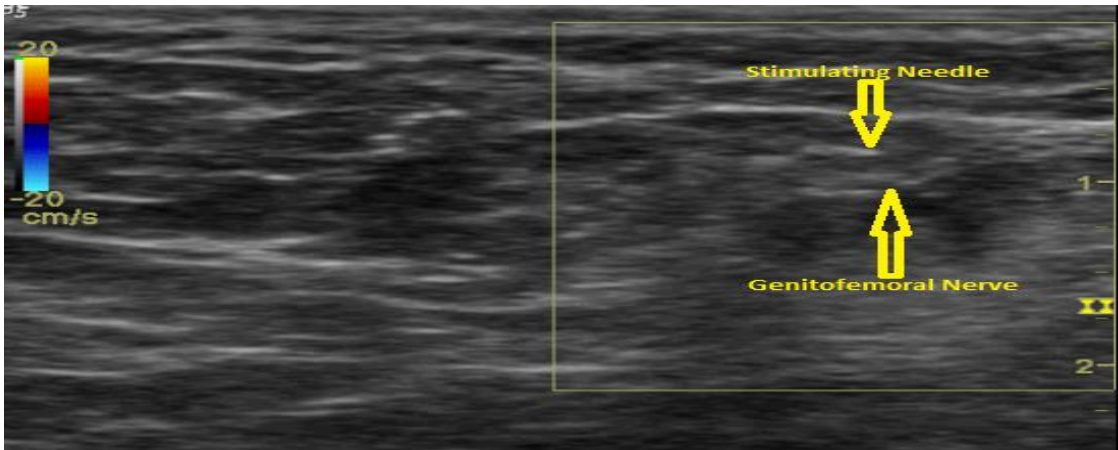


Figure 3.

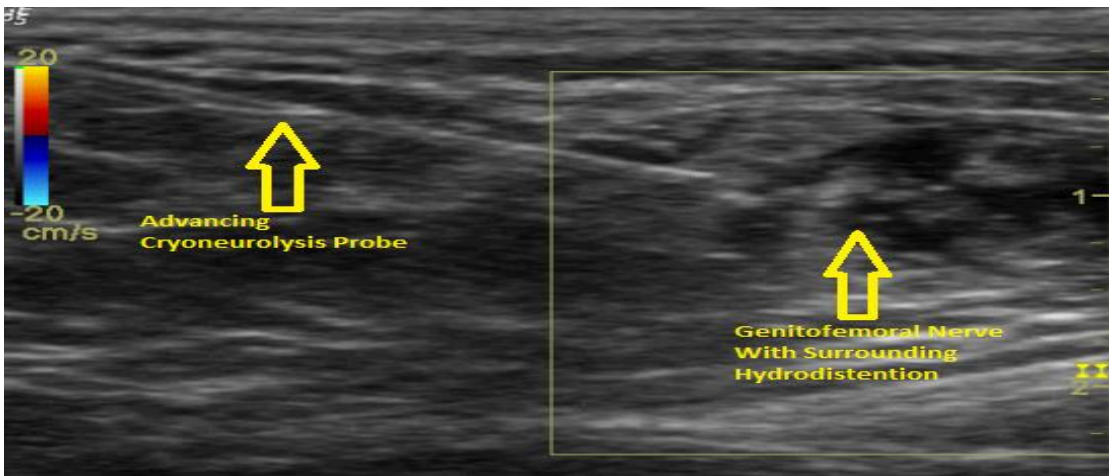


Figure 4.

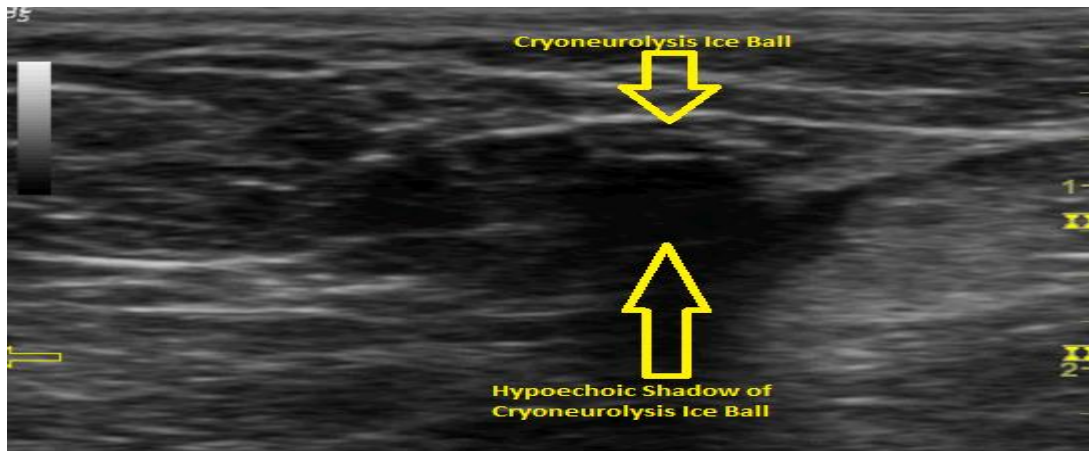


Figure 5.

### ***Discussion***

The genital branch of the genitofemoral nerve is commonly damaged by lower abdominal incisions resulting from Pfannenstiel incisions, appendectomy, inguinal herniorrhaphy, trochar insertion or, in our case, orchiectomy<sup>1</sup>. Blockade of the genital branch of the genitofemoral nerve is a simple procedure performed by using anatomical landmarks to inject between 5 to 10ml of local anesthetic (with or without steroids) 1cm superior and lateral to the pubic tubercle<sup>2</sup>. Since a field block is performed, blockade using anatomical landmarks typically has a high success rate; however, patients with persistent pain in the distribution of this nerve may require neurolysis for long-acting relief. The small size of the genital branch of the genitofemoral nerve and anatomic variations often make localization and successful neurolysis difficult. Our case report illustrates the utility of ultrasound and proposes a novel technique in localizing the genital branch of the genitofemoral nerve for cryoneurolysis.

The technique for blocking the genital branch of the genitofemoral nerve under ultrasound guidance has not yet been published<sup>1</sup>. Further literature review did not demonstrate any prior reports of using ultrasound guidance for cryoneurolysis of the genital branch of the genitofemoral nerve.

### ***Conclusion***

Ultrasound guidance is a useful modality in localizing the genital branch of the genitofemoral nerve for cryoneurolysis.

### ***References***

1. Peng, P., Tumber, P. Ultrasound-Guided Interventional Procedures for Patients with Chronic Pelvic Pain—A Description of Techniques and Review of Literature. *Pain Physician*. 2008; 11: 215-224.
2. Genitofemoral Block. The New York School of Regional Anesthesia. [http://www.nysora.com/peripheral\\_nerve\\_blocks/classic\\_block\\_tecniques/3081-genitofemoral\\_block.html](http://www.nysora.com/peripheral_nerve_blocks/classic_block_tecniques/3081-genitofemoral_block.html).