

INTRODUCTION

Proximal hamstring tendinopathy (PHT) is a common condition in the athletic population. Conventional treatment options for PHT includes non-surgical interventions such as physical therapy, oral analgesics, and topical glyceryl trinitrate (GTN). Interventional treatments encompass corticosteroid injections, platelet-rich plasma injections (PRP), extracorporeal shockwave therapy (ESWT), low-level laser therapy (LLLT), and surgical repair of the tendon (Challoumas, 2020). However, the results of these interventions are sometimes inadequate for relieving pain. The perineal branch of the posterior femoral cutaneous nerve (PFCN) is known to course near the proximal tendon of the long head of the biceps femoris (Stępień, 2019). We hypothesize that this branch innervates the proximal hamstring and that ablating this branch could help improve refractory pain in PHT. We present a case of chronic pain in a patient with PHT who experienced significant pain relief from a prognostic block of the PFCN and was effectively treated using radiofrequency ablation (RFA) of the nerve. This is a novel treatment for refractory pain in patients with PHT.

MATERIAL AND METHODS

A case report. Patient informed consent was obtained for the submission of a case report. As the case report is devoid of patient identifiable information, it is exempt from IRB review requirements as per WRNMMC policy.

CASE PRESENTATION

A 29-year-old male with a history of a left proximal hamstring tendon tear presented to the pain clinic for chronic left buttock and posterior thigh pain. This pain caused significant functional limitations, particularly with running and walking. Previous treatment included oral analgesics, rehabilitative exercises, and multiple PRP injections at the proximal hamstring. These treatment modalities improved the baseline dull pain; however, he continued to experience sharp pain during exertion, rating the pain at 5/10 on a numeric pain score. An updated magnetic resonance imaging study confirmed PHT. The patient elected to undergo the treatment. The PFNC perineal branch was visualized in the deep gluteal space at the level of the quadratus femoris in transverse axis as small, 1-2 nerve fascicles over the proximal hamstring tendons, separated from the sciatic nerve by a small-caliber artery. A prognostic block was performed using a lateral-to-medial, in-plane approach under ultrasound guidance. The patient reported a positive response. RFA of the nerve was performed using the same technique. The patient experienced significant improvement in pain and function over the 8-month follow-up and was able to able to return to resistance training and running.

TABLE AND IMAGES

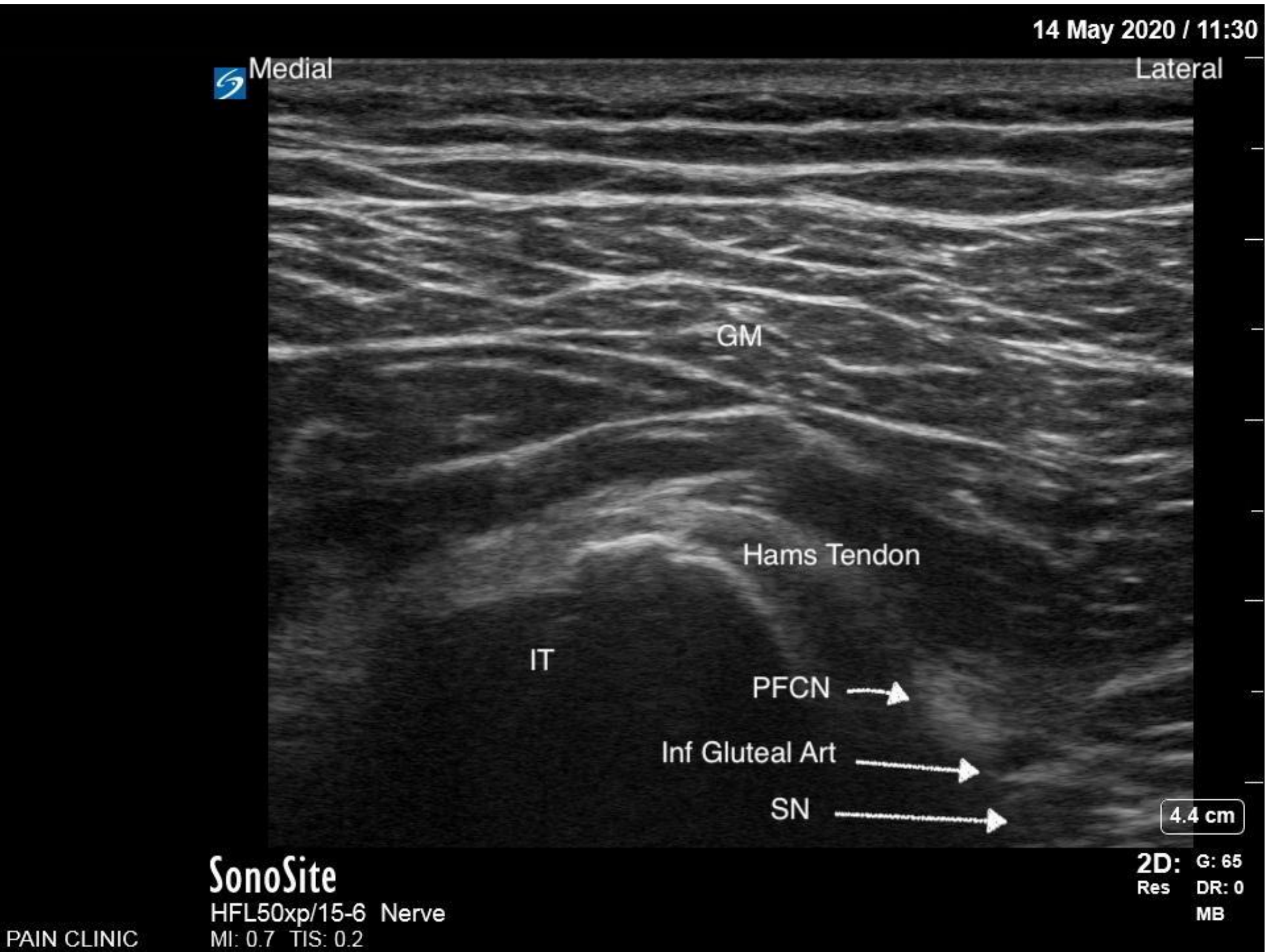


Image 1. This is an annotated image showing the anatomical location of the PFCN in relation to those of the gluteus medius (GM), hamstring tendon (Hams Tendon), inferior gluteal artery (Inf Gluteal Art), and sciatic nerve (SN). The medial side is on the left side of the image, and the lateral side is on the right side of the image.



Image 2. This image shows the RFA needle placement superficial to the ischial tuberosity to ablate the PFCN.

	Baseline	Prognostic Block	1 month	2 months	8 months
VAS	5/10	2/10	3/10	3/10	3/10
LFES	20	Not assessed	58	59	63

VAS: The Visual Analogue Scale

LEFS: The Lower Extremity Functional Score: The minimum clinically important difference (MCID) 9/80.

Table 1. The Visual Analogue Scale pain scores and the Lower Extremity Functional Scores at baseline, when a prognostic block of the PFCN was performed, and 1-month, 2-month, and 8-month follow-ups.

DISCUSSION

- Patients with PHT usually do not recall a specific inciting event. Instead, they report a gradual worsening of pain in the posterior thigh, often described as tightness or cramping in the posterior thigh or deep buttock, located near or at the ischial tuberosity. The pain can radiate along the posterior thigh distally to the popliteal fossa. Symptoms may be exacerbated by repetitive eccentric hamstring contraction, forward flexion of the trunk, running, and prolonged sitting (Chu and Rho, 2017).
- Treatment modalities for tendinopathy include exercise-based rehabilitation strategies, oral analgesics, GTN, corticosteroid injections, PRP, ESWT, LLLT, and surgery (Challoumas, 2020).
- A study described a series of patients with chronic posterior thigh and/or deep buttock pain while sitting, following hamstring injuries, who experienced statistically significant pain relief from diagnostic blocks of the PFCN and ultimately from surgical resection of the PFCN (Dellon, 2015).
- This is a novel report of interventional treatment for PHT. While most PHT cases can be adequately managed by conservative methods and orthobiologic treatments, there are no other non-surgical treatment if patients fail these approaches. The outcome of this case also informs further theories regarding the mechanism of refractory PHT. The positive response from the RFA supports the theory that PFCN provides sensory innervation to the proximal hamstring. Additionally, concurrent injury to the PFCN may be the underlying mechanism of refractory PHT. In either case, the ablation of the PFCN led to improvement in pain and function and enabled participation in rehabilitation. Further studies are needed to validate this treatment.

CONCLUSION

- Patients with hamstring injuries may suffer from chronic posterior thigh and buttock pain due to PHT. When the pain is refractory to the conventional treatment modalities for tendinopathy, a thorough history taking and examination are important to rule out other possible causes of the pain.
- Refractory PHT may be due to concurrent injury to the PFCN.
- Ablation of the PFCN may be a new approach to treat refractory PHT, when patients have positive response to a prognostic block of the PFCN.

REFERENCES

- Challoumas, D., Biddle, M., & Millar, N. L. (2020). Recent advances in tendinopathy.Faculty Reviews, 9.
- Chu, S. K., & Rho, M. E. (2016). Hamstring injuries in the athlete: diagnosis, treatment, and return to play. *Current sports medicine reports*, 15(3), 184-190.
- Dellon, A. L. (2015). Pain with sitting related to injury of the posterior femoral cutaneous nerve. *Microsurgery*, 35(6), 463-468.
- Stępień, K., Śmigiełski, R., Mouton, C., Ciszek, B., Engelhardt, M., & Seil, R. (2019). Anatomy of proximal attachment, course, and innervation of hamstring muscles: a pictorial essay. *Knee Surgery, Sports Traumatology, Arthroscopy*, 27, 673-684.