

Laparoscopic retro peritoneal triple neurectomy for intractable post herniorrhaphy groin pain

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Introduction

Chronic groin pain following hernia surgery is defined as pain that lasts for more than 3 months and documented among 18% of post herniorrhaphy patients [1]. Severe intractable pain can occur in about 1-5% of patients. The causes of chronic post herniorrhaphy groin pain can be neuropathic or non-neuropathic. Neuropathic pain occurs due to entrapment of nerve by sutures, staplers or mesh and nerve damage due to stretching or thermal injury. Patients mostly present with neuralgic pain in distributions of the Ilioinguinal(IIN), Iliohypogastric(IHG) and Genitofemoral(GF) nerves[2]. Non neuropathic pain occurs due to excessive scar formation, mechanical pressure due to bulky rolled up mesh (Meshoma) and periosteal reaction due to sutures or staplers.

The classical symptoms are burning pain around the surgical scar which radiates to the inner thigh or pubic tubercle and impaired sensory perception in the involved nerve territory.

Post herniorrhaphy groin pain is managed initially with local anesthetic or steroid injections, opiates, tricyclic antidepressants(TCA), radio-frequency ablation and behavioral therapy[2]. Eventually surgical management by neurectomy for chronic groin pain is considered as the last option. Open 2-staged approach has been followed as the standard approach to triple neurectomy, anteriorly through the inguinal region to reach the ilioinguinal and iliohypogastric nerves and from the flank to reach the genitofemoral nerve. However, if the patient has undergone previous operations in the inguinal region, the surgeon is faced with a scarred field, often necessitating multiple incisions. As an alternative a single-stage laparoscopic retro peritoneal approach can be utilized.

Case Presentation

A 54-year-old man presented with a two-and-a-half-year history of intractable left sided groin pain following left recurrent inguinal hernia repair with mesh in 2019. The patient reported experiencing severe pain in his left groin which radiates into scrotum. The pain was exacerbated with activities such as bending forward, standing, or walking. He denied weakness, numbness, tingling in the lower limb and bladder or bowel dysfunction. There was no clinically demonstrable recurrence or radiologically demonstrable meshoma in the ultrasound scan of the groin. He was treated with oral analgesics (NSAID, Opiate & TCA). These medications provided only mild relief to his pain. He was then treated with image guided nerve block, which provided relief only for a short period. So, we planned surgery as a last option and offered a laparoscopic retro-peritoneal triple neurectomy. Laparoscopic triple neurectomy was done with identification and transection of the ilioinguinal, iliohypogastric, and genitofemoral nerves. Operating time was 42 minutes and post-operative period was uneventful. On his first postoperative day, he was able to ambulate without significant pain. Patient was seen two weeks, one month and three months respectively following the operation to assess the efficacy of this procedure. The intractable pain was totally disappeared except for a mild numbness in the groin which the patient was happy to accept.

Discussion

Chronic inguinodynia needs a systematic and thorough preoperative evaluation to identify the potential causes of pain [1,2]. When initial conservative therapy, including a nerve block is not effective, a surgical intervention should be considered. No standardized surgical procedure is applicable to all the patients with chronic inguinodynia. The surgical procedure should be selected according to original repair technique, the patient's condition, and the nature of the pain. In our patient, the chronic groin pain was significantly reduced by the retroperitoneal triple neurectomy. There has been no report regarding this procedure in Sri Lankan literature up to date.

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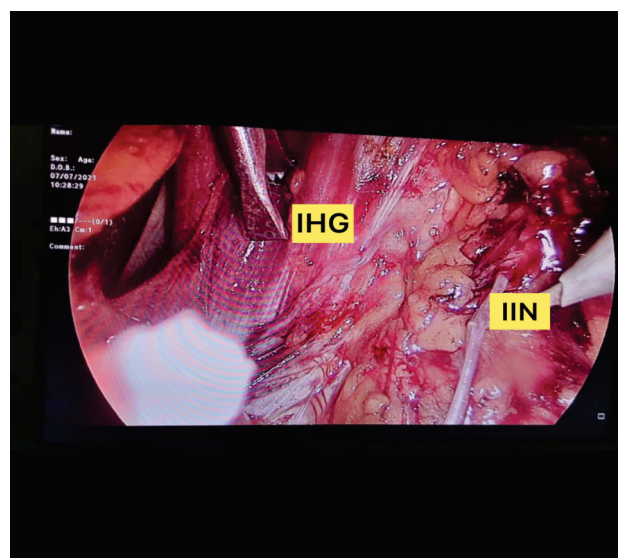
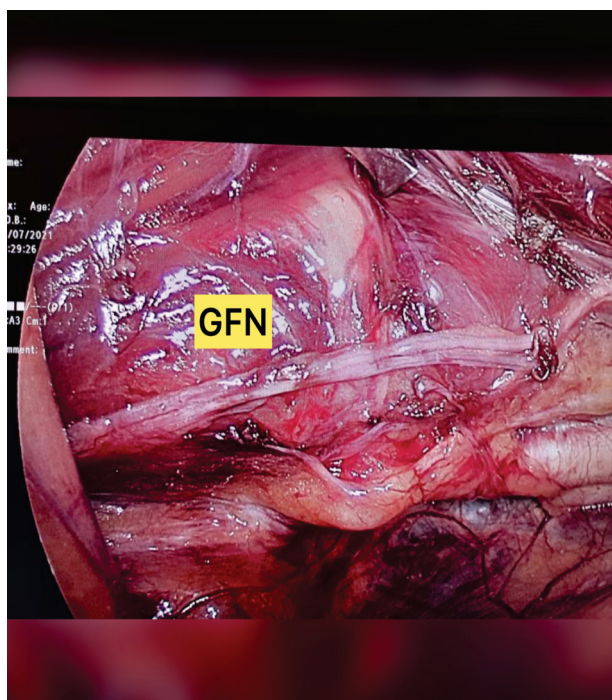
Neurectomy through the anterior approach is a well established procedure for treating chronic inguinodynia because of the added advantage of identifying coexisting problems and removal of mesh and sutures whenever necessary. However, this procedure is somewhat challenging due to the risk of injury to vas deference and the nearby vessels, disruption of the previous hernia repair and also due to poor visualization of the nerves. Exacerbation of the pain by inadequate surgery represent a potential limitation of this procedure [3]. Neurectomy through a laparoscopic retro peritoneal approach offers an advantage in terms of nerve treatment and can be performed proximal to the scarred previous operative field. This procedure is not the ideal approach for patients with meshoma, nociceptive pain, or when having testicular pain. Therefore, the surgical approach and procedure should be selected by taking into account the benefits and the shortcoming.

Before performing the procedure, surgeons should attain a thorough understanding of the retro peritoneal neuroanatomy. The IIN, IHGN, and GF nerves arise from the lumbar plexus. These nerves are distributed to the inguinal region and they pass through the retro peritoneal space[4]. Retro peritoneal fat pad should be dissected sufficiently to expose the quadratus lumborum muscle and the psoas major muscle because the

IIN and IHGN run along the anterior surface of the quadratus lumborum muscle and the GFN is always found directly overlying the psoas muscle[4].

Side effects of this procedure include numbness in the groin, abdominal wall laxity, hypersensitivity due to deafferentation, testicular atrophy and numbness in the labia in females that can interfere with sexual sensation [4]. In our patient, numbness and hypersensitivity were observed at the early phase of surgery but gradually diminished over the time. In the treatment of patients with chronic refractory neuropathic pain and chronic inguinodynia, we should let patients know that surgical intervention sometimes does not always result in pain elimination after triple neurectomy as there can be a failure rate up to 17% according to the current available literature [5].

In conclusion, we report a successful case of laparoscopic retro peritoneal triple neurectomy. Detailed understanding of the retroperitoneal neuroanatomy of the inguinal nerves is mandatory to perform safe and effective surgery. Diagnosis of neuropathic pain by thorough preoperative assessment is also vital for the success of this procedure because it is not effective for other types of pain.



Conclusion

Laparoscopic retro peritoneal triple neurectomy is safe and appropriately provides relief to the chronic intractable groin pain. Since there is no available literature regarding this procedure up to now in Sri Lanka, we assume this may be the first reported case in Sri Lankan surgical literature.

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Learning Points:

- Chronic intractable post herniorrhaphy groin pain can be a severely debilitating condition
- Post Herniorrhaphy groin pain needs systematic assessment and an individualised management
- Surgery is the last resort with an effective outcome
- Laparoscopic retro peritoneal triple neurectomy has been shown to have a 90% to 100% success rate in relieving the chronic groin pain.