

INTRAPELVIC NERVE ENTRAPMENT AS A CAUSE OF PELVIC FLOOR DYSFUNCTION AND REFRACTORY PUDENDAL PAIN: A REVIEW OF 50 CASES

Hypothesis / aims of study

The intrapelvic portions of the lumbosacral nerves have been well described for decades. However, capable laparoscopic surgeons in the fields of gynecology, urology and colorectal surgery are not accustomed to diagnosing and treating peripheral nerve entrapments, while specialists who are (neurosurgeons, spine, hip and hand surgeons), rarely have the skills required to navigate the pelvis laparoscopically, which is the best route to approach these nerves (1). For this reason, intrapelvic nerve entrapment remains a significant, neglected cause of perineal and sciatic pain, as well as refractory pelvic floor dysfunction (2). Our objective is to report the outcomes of the first 50 patients undergoing laparoscopic nerve root decompression for refractory pudendal nerve pain and pelvic floor dysfunction at our center.

Study design, materials and methods

A retrospective cohort study of 50 consecutive patients undergoing laparoscopic nerve root decompression from December 2009 to December 2017 was conducted at our center. A diagnosis of nerve entrapment was made based on symptomatology, clinical and neurological examinations. The onset of symptoms was recorded at the initial consultation. The number of previous surgeries documented included only those aimed at treating lumbosacral nerve entrapment. Visual analogue scale (VAS) scores were used to assess pain severity at each patient visit. A paired t-test was used to compare preoperative VAS-scores to VAS-scores at the last post-operative visit. A 50% reduction on VAS score and/or a significant reduction in the use of analgesics was considered a successful outcome.

Results

A total of 50 patients underwent laparoscopic nerve root decompression during the study period. Etiologies of the intrapelvic nerve entrapments, the nerves involved, and the clinical and surgical data are displayed in tables 1 & 2. Success rate – at least a 50% improvement in pain scores – was 86%. These results are in keeping with those reported in the literature [3] using the same technique. The average interval between symptom onset and correct diagnosis was 4.5 years, with patients undergoing an average 1.2 previous ineffective surgery for treatment of their symptoms. Following nerve decompression, 52.9% of patients experienced neuropathic pain, lasting on average 4.1 months. 19.6% of patients experienced a post-decompression motor deficit, lasting on average 2.6 months. Perioperative complications included one pudendal nerve transection, one obturator nerve tear, one ureteral injury, 2 cases of genitofemoral neuropathy, 2 cases of urinary retention, one incisional hernia, one rectovaginal fistula and one case of piriformis muscle adhesions requiring a transgluteal endoscopic procedure.

Interpretation of results

Laparoscopic detrapment of intrapelvic portions of the lumbosacral plexus yields satisfactory and reproducible results.

Concluding message

The diagnosis and treatment of intrapelvic nerve entrapment is poorly understood by physicians. Awareness must be raised in order to provide patients with a more timely diagnosis and treatment, and to avoid unnecessary or ineffective surgical procedures.

Table 1. Etiology and localization of nerve entrapments

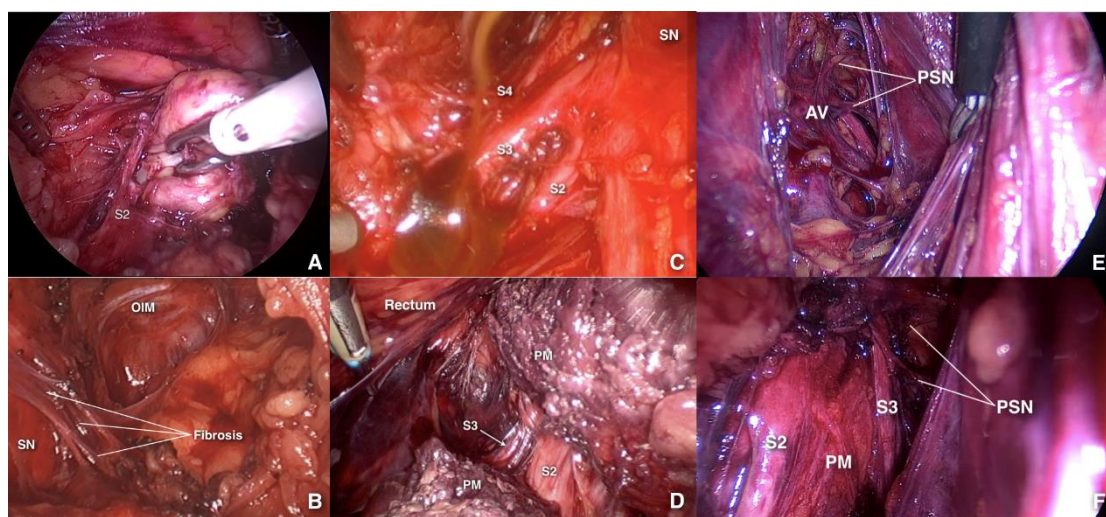
| Etiology | n | Entrapped Nerves | n |
|-----------------|----------|-----------------------------|----------|
| Endometriosis | 19 | Pudendal | 4 |
| | | S2, S3, or S4 nerve roots R | 11 |
| Fibrosis | 5 | S2, S3, or S4 L | 7 |
| | | S2, S3, or S4 (bilat.) | 1 |
| Piriformis | 4 | Obturator L | 1 |
| | | Sciatic R | 7 |
| Vascular | 20 | Sciatic L | 6 |
| | | Sciatic R + L | 1 |
| Schwannoma | 2 | Sciatic & pudendal R | 3 |
| | | Sciatic & pudendal L | 9 |
| Total | 50 | | 50 |

Table 2. Clinical Variables

| Variable | Mean | Median | Std. Dev. | p-value |
|------------------------|------|--------|-----------|-------------|
| Age | 39.1 | 37.5 | 9.7 | - |
| Follow-up (mos) | 13.3 | 7.3 | 14.7 | - |
| Pre-op VAS | 8.7 | 10 | 2.1 | * |
| Post-op VAS | 2.2 | 1 | 2.7 | <0.00000001 |
| Operating Time (min) | 171 | 152 | 90.6 | - |
| Previous Surgeries | 1.2 | 1 | 1.5 | - |
| Diagnostic Gap (years) | 4.5 | 4 | 3.9 | - |

* paired t-Test

Figure 1- The Five Etiologies of Intrapelvic Nerve Entrapment



Legend: Neoplastic (A), fibrotic (B), endometriotic (C), piriformis muscle (D) and Vascular, pre-decompression (E) – Vascular, post-decompression (F). SN – Sciatic Nerve; PM – Piriformis Muscle; OIM – Obturator Internus Muscle; PSN – Pelvic Splanchnic Nerves; AV – Abnormal Vein

References

1. Possover M, Chiantera V, Baekelandt J. Anatomy of the Sacral Roots and the Pelvic Splanchnic Nerves in Women Using the LANN Technique. *Surg Laparosc Endosc Percutan Tech.* 2007 Dec;17(6):508-10.
2. Lemos N, Possover M. Laparoscopic approach to intrapelvic nerve entrapments. *Journal of Hip Preservation Surgery.* , 2015. doi: 10.1093/jhps/hnv030.

Disclosures

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