Chronic Pelvic Pain Due to Peripheral Neuropathy: A Case Report

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Abstract

Background: There are numerous possible causes for chronic pelvic pain. Evaluation of these causes should begin with the least invasive form of assessment.

Case: A 28-year-old woman with chronic pelvic pain underwent an array of investigations and surgical interventions without relief of pain. When she was admitted to hospital because of a flare up of pelvic pain, the chronic pain service was consulted. The presentation of stabbing pain that was reproduced by eliciting focal tenderness over the course of ilioinguinal nerve made nerve entrapment a possible diagnosis. An ilioinguinal nerve block was performed, resulting in resolution of the pain.

Conclusion: Chronic pelvic pain due to peripheral neuropathy can mimic visceral pain, presenting a diagnostic challenge.

Résumé

Contexte : La douleur pelvienne chronique compte de nombreuses causes possibles. L'évaluation de ces causes devrait commencer par la forme d'examen la moins invasive.

Cas : Une femme de 28 ans présentant une douleur pelvienne chronique a été soumise à un ensemble d'explorations et d'interventions chirurgicales, sans pour autant obtenir un soulagement de la douleur. Lorsqu'elle a été hospitalisée en raison d'une flambée de douleur pelvienne, le service de douleur chronique a été consulté. La présentation d'une douleur en coup de poignard, reproduite par le déclenchement d'une sensibilité en foyer le long du petit nerf abdomino-génital, a fait en sorte que la compression chronique a été considérée à titre de diagnostic possible. Un bloc du petit nerf abdomino-génital a été effectué, ce qui a entraîné la résolution de la douleur.

Conclusion : La douleur pelvienne chronique attribuable à une neuropathie périphérique peut imiter la douleur viscérale, ce qui constitue un défi sur le plan du diagnostic.

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INTRODUCTION

Chronic pelvic pain (CPP) in women is a debilitating condition that is responsible for substantial suffering and health care expenditure.[1] It can arise from a variety of pathologic causes, and it may occur in individuals with no apparent physical abnormalities. About 40% of laparoscopies are performed to evaluate CPP.[2] The neuropathy arising from entrapment of the ilioinguinal nerve is a possible cause. The mean delay in diagnosing this condition may be as long as 12 months.[3] Having knowledge of this condition can prevent unnecessary investigation and delay in treatment.

Key Words: Chronic pelvic pain, entrapment neuropathy

Competing Interests: None declared.

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THE CASE

A 28-year-old woman was referred to the chronic pain service with an 18-month history of pelvic pain. Her background problems included polycystic ovaries, obesity (BMI 43 kg/m^2), asthma, and depression. She had undergone Caesarean section nine years previously and laparoscopic cholecystectomy seven years previously.

The pain had begun spontaneously 18 months prior to admission. It involved the lower abdomen, more markedly the right lower quadrant than the left. The intensity of the pain gradually increased. The patient underwent a series of investigations, including blood tests, computerized tomography of the pelvis, ultrasound examinations, laparoscopy, and hysteroscopy, none of which identified the cause of the pain. Hysterosalpingography was attempted but was abandoned because of the intense pain. The patient was admitted to hospital for investigation and treatment, and the chronic pain service was consulted.

The patient described the pain as continuous, intense, and stabbing. It was located in the pelvic region, was felt more on the right side than the left, and was aggravated by having a full bladder, by menstruation, and by sitting upright. It was severe enough to limit mobility but was partially relieved by local application of heat or by lifting the abdominal panniculus.

The patient had previously used oxycodone, acetaminophen, and nonsteroidal anti-inflammatory agents

with little benefit. She was taking venlafaxine 75 mg daily for treatment of depression. Following admission to hospital, she was offered patient-controlled analgesia (PCA) using morphine. Her score on the analogue pain-rating scale remained 10/10 at rest, despite the use of PCA with administration of morphine 10 mg per hour.

On examination, the patient was moderately distressed by the pain. The abdomen was soft with no palpable masses; there was decreased sensation to pinprick over the Pfannenstiel scar, which was hidden by the abdominal panniculus. The pain was reproduced by palpating the scar along the course of the ilioinguinal nerve, more on the right side than the left. There was no allodynia or hyperalgesia in the area involved.

We suspected that the patient's CPP resulted from a peripheral neuropathy following entrapment of the ilioinguinal nerve. Thus, a diagnostic and therapeutic nerve block was performed using 20 mL of 0.25% bupivacaine and 40 mg of methylprednisolone to block the right ilioinguinal nerve and tender areas in the scar. Within minutes, the patient's rating of pain on the analogue scale had fallen to zero, and she was able to sit up and walk without pain. Treatment subsequently began with pregabalin 75 mg twice daily, and over the next few days she discontinued the use of opioids.

Three months later the patient reported a recent recurrence of lower abdominal pain, this time more on the left side than the right, but milder than during the original presentation. Bilateral ilioinguinal nerve block was again performed with bupivacaine and methylprednisolone. Her pain rating score has since remained at less than 2/10, even with exertion. She continues to attempt to reduce weight.

DISCUSSION

Chronic pelvic pain is often assumed, by patients and physicians alike, to be visceral in origin.[4] Being aware that peripheral neuropathies may cause CPP may avoid inappropriate investigations and unhelpful surgical interventions.

The etiology of such a peripheral neuropathy can vary; possibilities include nerve stretch, obesity, repetitive minor injuries, blunt trauma, and surgical incisions. The patient described here had undergone a Caesarean section with a transverse lower abdominal incision more than nine years before the onset of pain. The incidence of postoperative neuropathy following major pelvic surgery has been reported to be 1.9%,[5] and the prevalence of nerve entrapment in patients following a Pfannenstiel incision for various surgical procedures has been reported as 3.7%.[6]

Nerve entrapment can result from neuroma formation after damage to the nerve, incorporation of the nerve by a suture, or tethering or constriction of the nerve in surrounding scar tissue. Although these mechanisms can produce pain immediately in the postoperative period, the onset of pain can also occur many years after the original surgery.[4,6] Bilateral idiopathic entrapment neuropathy involving ilioinguinal nerves, with no obvious cause for entrapment, has also been reported.[7]

The patient in the present case was obese and had gained more weight in the two to three years before the onset of pain. A protruding, pendulous abdomen can push the inguinal ligament anteriorly and inferiorly, dragging the inguinal nerves with it and contributing to entrapment neuropathy. Although this mechanism is commonly described in meralgia paresthetica (involving the lateral femoral cutaneous nerve deep to the inguinal ligament), it can also involve other nerves in that area. In a series of groin neuropathy that included 35 patients with ilioinguinal nerve involvement causing groin pain who underwent surgical management, two of the patients with poor results had a large abdominal panniculus.[8] In another series of patients with nerve entrapment treated with neurolysis, the only patient who failed to respond to the treatment had a large panniculus.[9] In both of these series, the pain was relieved when the respective procedures were combined with panniculectomy.

The patient's pain was exacerbated when the bladder was full and during menstruation. Consequently, visceral pathologies including urinary tract infection, endometriosis, and polycystic ovaries were suspected but ruled out. The phenomenon of "viscero-somatic convergence" makes discrimination of somatic and visceral pain difficult.[10] Somatic (abdominal wall) nerves and visceral nerves relay pain signals through the same dorsal horn segment in the spinal cord. The second order neurons from the transmission cells in the dorsal horn segment relay the signal to the brain. Consequently, the brain perceives the sensation of pain as coming from a single dermatome level but does not distinguish between somatic and visceral origins. In addition, menstruation can exacerbate neuropathic pain by means of perineural edema, hormone-induced increases in neurotransmitter activity, or dorsal horn sensitivity.[4]

Clinicians not familiar with the phenomenon of entrapment neuralgia may conclude that the reported symptoms have a psychosomatic basis. Psychological factors may exacerbate the pain response, but only rarely is somatization a cause of pain.

Neurological complications after pelvic surgery are often transient and generally resolve spontaneously with minimal intervention, although long term disability occasionally occurs.[11] Ilioinguinal and iliohypogastric nerves are at risk for entrapment. Both the nerves originate from the lumbar plexus, pass together through the psoas muscle, and extend diagonally along the ventral surface of the quadratus