

Diagnosis and Laparoscopic Repair of Type I Obturator Hernia in Women With Chronic Neuralgic Pain

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ABSTRACT

Background: We performed a pilot study review of 7 female patients suffering with obturator neuralgia produced by a type I obturator hernia. Diagnosis and laparoscopic treatment of this rare hernia are presented.

Methods: Patients with chronic pelvic pain and signs of obturator neuralgia were identified retrospectively by chart review. These patients had been referred to our chronic pelvic pain clinic. Outcomes of their surgery from February through November 2001 were analyzed. Median length of follow-up was 11 months (range, 6 to 16). A new technique using Cooper's ligament and arcus tendineus fasciae pelvis was used for the tension-free mesh hernia repair.

Results: In this pilot study, 6 of 7 patients (86%) received greater than 50% relief of their chronic pelvic pain, which leads to the conclusion that we have at least 95% confidence that the pain reduction achieved is greater than 50%. Due to the small sample size, no statistically meaningful conclusions could be reached. All of the patients have reported some pain relief and increased function since surgery.

Conclusion: Symptomatic type I obturator hernias may be more common than previously thought. Patients with obturator neuralgia, persisting longer than 6 months despite conservative therapy, may respond to laparoscopic reduction of the pilot fat tag and mesh overlay of the obturator canal.

Key Words: Obturator hernia, Obturator neuralgia, Laparoscopic hernia repair.

INTRODUCTION

The obturator foramen is the largest in the human body. It is formed by the rami of the ischium and the pubic bone. The foramen is partially closed by a strong musculoaponeurotic barrier consisting of an internal and an external obturator membrane and an internal and an external obturator muscle. The obturator canal is situated in the cranial portion of this membrane with the pubic bone above and the membrane below. This tunnel measures approximately 0.2-cm to 0.5-cm wide and 2-cm to 3-cm long through which traverse the obturator nerve, artery, and vein.

Obturator hernia (OH) formation was first described by Ronsil in 1724.¹ Although it is considered a relatively rare hernia (0.07% of all hernias), it is the most common in the pelvic floor (obturator, sciatic, and perineal). Three types of obturator hernias have been described based on the anatomical defect that is present. Type I OH occurs when preperitoneal fat and connective tissue (pilot tag) enter the pelvic orifice of the canal. Type II OH causes dimpling of the peritoneum over the canal, leading to the formation of an empty peritoneal sac. Type III OH occurs on entrance of an organ (bowel, ovary, or bladder) that eventually fails to reduce spontaneously. A partial or complete small bowel obstruction has historically been responsible for the diagnosis of most obturator hernias (88% of all OH).²

The incidence of OH is significantly higher in females (6:1) and may be due to their larger foraminal diameter. Bowel obstructions from OH are usually in elderly (average age 70), thin patients. In fact, it has been called the "little old lady hernia." However, with the advent of computerized tomography and magnetic resonance imaging, these hernias are being diagnosed more accurately in younger patients before the onset of bowel obstruction.²

A small proportion of patients may present with chronic pelvic pain and inner-thigh neuralgia. Symptoms are the result of compression of the obturator nerve in its tunnel. Patients may initially consult the neurologist, neurosurgeon, or orthopedist. Obturator hernia was first proposed as a cause of isolated neuropathy in 1969.³ Somell⁴ later reported a series of 7 patients with OH presenting with

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chronic pelvic pain in the groin and hyperesthesia over the obturator nerve distribution. A small preperitoneal fat plug was surgically removed from the canal alleviating symptoms in 5 of 7 patients.⁴ Subsequently, more cases have been reported, and some investigators believe the condition is more common than previously recognized.⁵ Pilot tags of fat have been reported in up to 64% of female cadaver dissections.⁶ It is not known how many of these women suffered from chronic pelvic pain. The frequency of pilot tags and rarity of obturator neuralgia would suggest that most OH do not progress beyond this first stage.⁶

Pain in the medial thigh with radiation behind the knee and into the hip is most common. The pain may be dull, sharp, shooting, or burning. Adductor motor weakness may be present. Most patients complain of increased pain on exercise, prolonged standing, and prolonged sitting. Crossing the legs while sitting may exacerbate the pain.

The physical diagnosis of obturator neuralgia includes the observation of the patient's abnormal gait and internal palpation of the obturator canal. Adductor weakness may cause the patient to walk with an abnormally abducted hip. The neuropathic pain produced by palpating the nerve vaginally or rectally in the obturator canal will duplicate the patient's symptoms. This is the Howship-Romberg sign (**Figure 1**), and it is pathognomonic for OH.⁷ Although it has been reportedly positive in 25% to 50% of patients with Type II and III OH, all of our patients with neuralgia had a positive response.

Most techniques described for OH repair involve a laparotomy with reduction of the hernia contents and repair transperitoneally. We used a modification of the extraperitoneal mesh repair described by Yokoyama in 1998.⁸

METHODS

A retrospective, continuous cohort study of female patients with chronic pelvic pain and signs of type I obturator neuralgia were identified by chart review. These patients had been referred to our chronic pelvic pain clinic. Outcomes of their surgery from February through November 2001 were analyzed. Median length of follow-up was 11 months (range, 6 to 16). Average age was 36.2 years (median, 36; range, 24 to 48).

A 1.5-cm infraumbilical skin incision is made, and the anterior rectus fascia is identified and incised. A tunnel is created under the rectus muscle, and a preperitoneal distension balloon (Surgipro, Norwalk, CT) is inflated. This is replaced after dissection into the space of Retzius with a structural balloon device (U.S. Surgical,

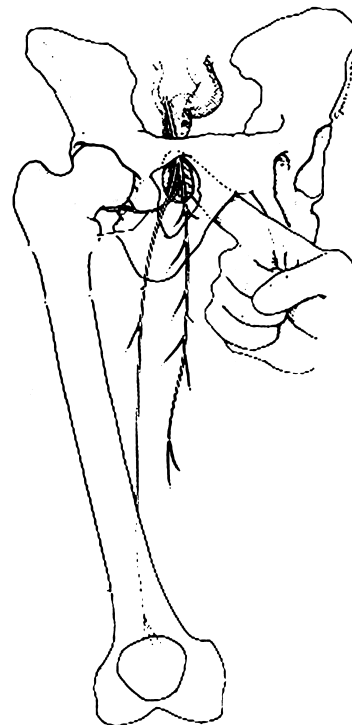


Figure 1. Vaginal compression of either or both divisions of the obturator nerve by the hernia may reproduce pain (Howship-Romberg sign). Used with permission: *Pelvic Pain: Diagnosis and Management*. Howard F, Perry CP, Carter JE, El-Minawi AM, eds. Philadelphia, PA: Lippincott Williams & Wilkins, 2000:391.

Norwalk, CT), and insufflation is begun. A zero-degree laparoscope is used to place a midline 12-mm port and two 5-mm lateral ports. The inferior epigastric vessels must be avoided during this maneuver. Further blunt dissection is carried out into the paravesical and parvaginal spaces until the tendineus fasciae pelvis is identified. The pilot tag of fat is teased from the obturator canal with its traversing nerve artery and vein (**Figure 2**). Obvious care is required to prevent neural and vascular injury. An 8 × 13-cm sheet of polypropylene mesh (U.S. Surgical, Norwalk, CT) is inserted through the midline suprapubic 12-mm port, and the mesh is tacked with the spiral Tacker (U.S. Surgical, Norwalk, CT) to Cooper's ligament anteriorly, and the tendineus fasciae pelvis posteriorly (**Figure 3**). Both sides were done to prevent contralateral recurrence. Other defects can be repaired extraperitoneally at this time, including inguinal and femoral hernias.

Subjects were contacted by mail and asked to rate their present pain. They were told to use a 0 to 10 visual analog scale and to use 10 as their average pain before surgery. A

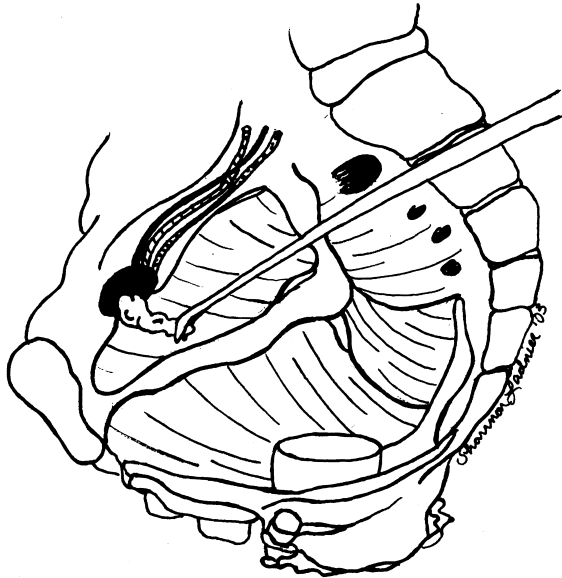


Figure 2. Removal of the compressing pilot tag from the obturator canal.

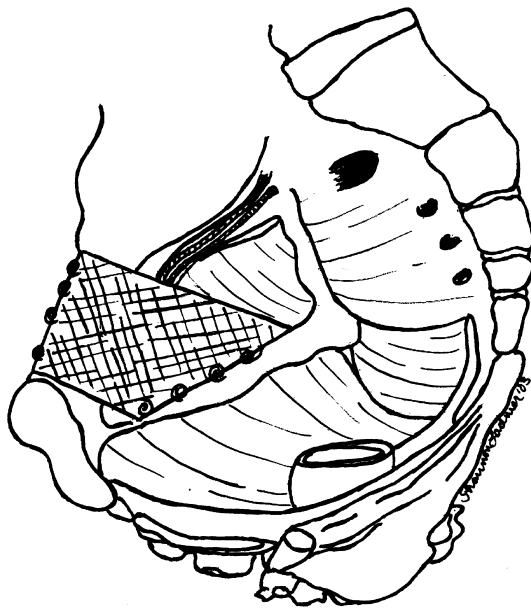


Figure 3. Polypropylene mesh secured to Cooper's ligament and tendineus fascia pelvis.

percentage change in their neuropathic pain was then calculated to determine pain reduction (**Table 1**). Patients were allowed to use a score >10 if their pain was worse than preoperative levels.

Table 1.
Retrospective Estimation of Reduction in Patients' Pain due to Obturator Neuralgia*

Patient	Score (0-10)	% Change	Follow-up (mos.)	Age
1	1	90	8	37
2	3	70	12	45
3	4	60	10	38
4	0	100	14	22
5	0	100	16	41
6	6	40	9	34
7	2	80	6	37

*Patients used a 0 to 10 postoperative pain scale with 10 as the amount of pain they experienced preoperatively.

RESULTS

The small number of patients included in this retrospective study makes meaningful statistical analysis very difficult. Therefore, it is best to view these results as a pilot study until the rest of our patients with obturator neuralgia can be followed.

No surgical complications occurred, and all patients were discharged 24 hours postoperatively. All patients noted a decrease in their pain level. The average length of follow-up was 10.7 months. The average age was 36.2 years. Two of 7 patients received complete relief (29%). All but one patient experienced a greater than 50% reduction in her pain (86%). The mean reduction in pain was 77%. The standard error associated with this estimate is 8.4. This gives a 95% confidence interval (56, 98), which clearly does not contain 0. Further, this interval does not contain 50%, which leads to the conclusion that we have at least 95% confidence that the pain reduction achieved is greater than 50%.

DISCUSSION

Realizing the limitations of a small retrospective study, we continue to follow an additional 6 patients with obturator neuralgia who have all improved after the above procedure. Many of our patients have multiple pain generators including pelvic floor tension myalgia, interstitial cystitis, and adductor muscle spasm of the thigh. These pain sources are all identified preoperatively and receive the appropriate medical and physical therapy measures.

Groin, hip, and medial thigh pain due to obturator neuralgia may cause the patient to seek consultation with a gynecologist, orthopedist, or neurologist. Unfortunately, most hernias present as Type III with life-threatening bowel obstructions carrying a high mortality rate up to 70%. The general surgeon is most familiar with this hernia and its acute presentation. Many of the patients in our series had years of undiagnosed pain. This caused much disability and unnecessary suffering. With this study, it is hoped that more patients with Type I OH and neuralgia will be diagnosed and treated to avoid such high risks.

CONCLUSION

Symptomatic type I obturator hernias may be more common than previously thought. Patients with obturator neuralgia, persisting longer than 6 months despite conservative therapy, may respond to laparoscopic reduction of the pilot fat tag and mesh overlay of the obturator canal.

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