

## Management of persistent groin pain after transobturator slings

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**Abstract** Prolonged groin pain after transobturator tape is uncommon. Three women reported groin pain that had not improved by 3 months postoperatively. Combined steroid and local anesthetic was effective for pain relief in all patients. The differential diagnosis of persistent groin pain after transobturator tape includes adductor muscle strain, osteitis pubis, obturator/groin abscess, structural adhesions, and inflammation, edema or nerve entrapment of the anterior branch of the obturator nerve. No side effects of treatment were noted. Patients that do not respond to local injection may require mesh dissection and excision.

**Keywords** Transobturator tape · Tension-free vaginal tape · Pain · Stress incontinence

### Introduction

The transobturator tape (TOT) was developed by Delorme to reduce treatment morbidity from blind passage of the tape retropubically as in the tension-free vaginal tape (TVT) [1]. The tape is passed from a lateral approach through the obturator foramen. More recently, de Leval developed an ‘inside-out’ transobturator technique (TVT-O) [2]. The success and low rates of associated complications of these transobturator techniques for the treatment of stress incontinence are documented [1–7].

Groin pain after TVT and TOT is infrequently reported in most series [6–8] and the majority of cases resolve spontaneously. Duckett and Jain have previously described

management of prolonged groin pain after TVT [8]. We report our experience evaluating and treating three women with persistent groin pain after TOT.

### Case report

Three women were referred with persistent groin pain after TOT (Monarc, AMS, Minnetoka, MN, USA). Review of the operative records indicate that all patients had the procedure performed under general anesthesia. In all three patients, the TOT was the primary procedure for incontinence. In one instance the pain was bilateral, and in the other two it was unilateral. Pain was non-postural and had not improved by 3 months postoperatively in all patients, despite analgesic use, ice, and in one patient, physical therapy. One woman had been experiencing pain for >1 year after the procedure and recurrent stress incontinence in the 6 months before referral. Vaginal examinations revealed no tenderness at the mid-urethra and intact epithelium. Palpation of the levator ani and obturator internus muscle on the affected side did not reproduce the women’s complaints. Pain was elicited on palpation of the entry wound scar and with external rotation of the leg. There was no puckering of the entry wound with leg rotation. The entry wound scars were all well-healed and without discernible mesh tails. Gait and lower limb neurologic exam were grossly normal in all patients.

Management included local infiltration of methyl-prednisolone (2 ml, 40 mg/ml) and bupivacaine (10 ml, 0.5%) into the most tender area [7], which was the entry wound scar. Injections were given in the office under sterile technique. The patient with bilateral pain received injections into both groins. Follow-up was 2 weeks and 3 months after treatment. There were no systemic or local side effects

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after treatment. Two women were pain-free at 3 months. The third patient who also had recurrent stress incontinence had persistent pain at 3 months that she attributed to the medial groin and had developed a limp. Her exam revealed point tenderness over the femoral neck and magnetic resonance imaging (MRI) revealed trochanteric bursitis. She was referred to orthopedics for management. After her bursitis was similarly injected, the patient was pain-free. She elected to defer on further treatment of her recurrent incontinence.

## Discussion

Persistent groin pain after TVT and TOT is uncommon [6–8]. Most series have documented a low incidence of groin pain, which almost always resolves spontaneously and without intervention [6]. In a non-randomized observational longitudinal study of 50 patients undergoing TVT-O and 50 having TOT, DeBodinance found that most cases of groin/leg pain were transient [7]. Three patients having TOT and four patients after TVT-O had non-sustained groin pain. One patient in the TOT group had persistent unilateral groin pain at 1 year, which was bearable and did not necessitate intervention.

A recent randomized trial, compared TVT with TVT-O, and while subjective and objective cure rates were the same, the number of patients complaining of postoperative groin pain and requiring narcotic analgesia was significantly greater in the TVT-O group than in the TVT group [5]. The groin pain of the TVT patients resolved in 5–10 days, whereas the groin pain of the TVT-O patients persisted for 2 weeks in 10 patients, for 4 weeks in 2 patients, and for 2 months in 1 patient; the majority, however, experienced pain for just a few days.

Duckett and Jain recently reported their experience managing 5 women with groin pain after TVT, which had not improved 3 months after surgery [8]. One woman was treated conservatively, while in four women, local injection with combined steroid (as described above) [8], was given. Two of four patients required tape excision for pain relief.

The differential diagnosis of persistent groin pain after transobturator slings includes adductor muscle strain, osteitis pubis, obturator/groin abscess, inflammation and edema or nerve entrapment of the anterior branch of the obturator nerve, and structural adhesions. Muscle strain and osteitis pubis should resolve with rest, ice, and non-steroidal anti-inflammatories within 3 months postoperatively. Obturator abscess is a unique complication of transobturator slings typically accompanied by vaginal erosion/exposure of the mesh [9, 10]. Besides mesh exposure and accompanying vaginal discharge, physical exam findings indicative of an obturator abscess may

include tenderness of the levator ani and/or obturator internus muscles, an inflammatory mass involving the obturator region, and reduced lower extremity flexion and rotation [9, 10].

When the TOT is performed correctly, the obturator neurovascular bundle should not be in contact with the tape [11, 12]. But conceivably, the proximity of the mesh to a branch of the anterior obturator nerve may cause compression and entrapment (before entering the thigh, the obturator nerve divides into an anterior and posterior branch; then, the anterior branch travels superficial to the internal obturator muscle, but deep into the pectineus and adductor longus muscles and then travels superficial to the adductor brevis muscle; and finally, the motor branches arise distal to the obturator foramen to supply the adductor brevis, adductor longus, and gracilis muscles) [13]. Anterior branch entrapment may lead to exercise-related pain or may consist of groin pain. The patient may complain of a deep ache in the adductor origin region at the pubic bone that increases with movement. The anterior branch may become entrapped in the fascia as it passes over the adductor brevis muscle due to a benign inflammatory process, edema or abscess [13].

In general, the temporal sequence of the neurological manifestations of entrapment neuralgia includes irritative sensory symptoms, such as pain and paresthesia; ablative sensory symptoms of numbness; and finally, in mixed motor/sensory nerves, ablative motor signs, such as weakness and atrophy. Needle electromyography (EMG) studies, performed by inserting the needle into the belly of the patient's adductor muscles, might show a pattern of denervation in the adductor longus and brevis muscles in the setting of prolonged injury and if a significant portion of the nerve were involved [13]. Evoked potentials probably have limited clinical utility in the evaluation/diagnosis of a potential neuralgia related to the placement of a sling, i.e., an MRI would give more accurate spatial and structural information especially in the evaluation of an obturator space abscess, the anatomic course of the mesh tape, and compression of the neurovascular bundle. Given the benign findings at physical examination, the absence of vaginal mesh extrusion, and other indicators of chronic infection, we did not perform MRIs on the patients as part of the initial evaluation. MRI was performed post injection on one patient because of the tenderness over the femoral neck and new gait disturbance.

In our cases, pain relief was not achieved with conservative treatment including oral analgesics, physical therapy in one patient, and ample time given for spontaneous resolution. The combined anesthetic steroid injection provided durable relief in our patients making a neural source of the pain more likely. Pain in this setting might be from inflammation or edema of the anterior branch of the

obturator nerve or from entrapment neuralgia. The nerve block used to differentiate the neural origin of the pain of entrapment may also be therapeutic [14]. Surgical treatment of nerve entrapment typically includes resection of the nerve or neurolysis [14]. Dissection and division of the mesh possibly may have the same effect of resection or neurolysis [8]. Vervest et al. described persistent retropubic pain after TVT in which application of local anesthetic failed requiring surgical exploration, which was therapeutic [15]. Explantation and histological examination revealed the inadvertent course of the tape through branches of the ilioinguinal/iliohypogastric nerve.

The pain may also have a non-neural etiology. Tension on the tape secondary to adductor motion may lead to abnormal distortion or pulling of the tissue in the groin and pain.

Conceivably, mesh characteristics could lead to more significant adhesions resulting in pain. In addition, previous surgery and the advent of ‘redo’ mid-urethral slings for persistent or recurrent incontinence could foreseeably predispose these patients to prolonged groin pain.

Surgeons should be aware that groin pain may persist in some patients undergoing TOT. Although only three patients were described here, if injection of combined local anesthetic and steroid fails, dissection and excision of the distal end of the tape should be considered.

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