

# Prospective Evaluation of the Effect of Thigh Dissection for Removal of Transobturator Mid Urethral Slings on Refractory Thigh Pain

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**Purpose:** Transobturator slings have higher rates of de novo neurologic symptoms than retropubic slings, most commonly related to the thigh. Cases refractory to conservative management may require removal of the thigh portion of the sling. In this series we prospectively examine the effect of thigh dissection with mesh removal on refractory thigh pain.

**Materials and Methods:** All thigh dissections for refractory neurologic symptoms after transobturator sling placement were followed prospectively from October 2012 to October 2015. Patients were assessed preoperatively, with a pain score using a visual analog scale, and postoperatively with a global response assessment.

**Results:** A total of 12 thigh dissections were performed from October 2012 to October 2015 in 8 patients. Mean ( $\pm$ SD) time from original mesh placement to presentation was 2.7 ( $\pm$ 1.5) years. Average preoperative pain score was 7.9 ( $\pm$ 1.7) out of 10, with pain in the thigh in all patients. Seven cases involved unilateral thigh dissection and 1 had concomitant bilateral thigh dissection. Five patients underwent concurrent transvaginal excision. On postoperative evaluation the average global response rating was 1.6, with 1 defined as very much better and 2 defined as much better. Of the 8 patients 3 went on to have the contralateral side done with an average global response rating of 1.3 ( $\pm$ 0.6). One patient underwent further treatment for stress urinary incontinence with placement of a retropubic mid urethral sling.

**Conclusions:** Our prospective series supports the use of thigh dissection in patients with refractory neurologic symptoms after transobturator sling placement. The procedure can be performed safely with positive outcomes for the patient.

## Abbreviations and Acronyms

EBL = estimated blood loss

GRA = global response assessment

TOT = transobturator

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**Editor's Note:** This article is the fifth of 5 published in this issue for which category 1 CME credits can be earned. Instructions for obtaining credits are given with the questions on pages 1326 and 1327.

**Key Words:** suburethral slings; adverse effects; urinary incontinence, stress; postoperative complications; surgical procedures, operative

TRANSOBTURATOR slings were originally developed to decrease the risk of injury to the bowel and the bladder,<sup>1</sup> and they have lower rates of de novo irritative symptoms and voiding dysfunction.<sup>2</sup> However, they have higher rates of de novo neurologic symptoms in up to 9.7% of patients,<sup>3</sup> most commonly related to the thigh.

These symptoms can initially be treated conservatively and the majority will resolve with time.<sup>3</sup> However, cases of persistent thigh pain or neurologic symptoms have been reported.

If conservative management fails, removal of the sling including the thigh portion can be considered. The

surgical technique for thigh dissection was first described using the assistance of orthopedic surgery in a case report of a 47-year-old woman who experienced postoperative pain refractory to medical management. After thigh dissection and removal of the sling material, the patient's pain initially improved. However, the pain returned with longer followup and required further medical management with pain medication and nerve blocks.<sup>4</sup>

Since this report there have been 2 series on outcomes after thigh dissection to remove transobturator slings in symptomatic patients. Rigaud et al published their prospective series of thigh dissection for mesh removal in 8 patients and they found improvement in pain scores.<sup>5</sup> Reynolds et al performed a retrospective, multicenter study of 8 patients who had undergone thigh dissection to remove transobturator mesh arms from transobturator slings or augmented prolapse repairs, and the majority of patients reported benefit from mesh removal.<sup>6</sup>

Overall the literature is limited in this area, mainly because of the small subset of patients who require thigh dissection after transobturator mesh placement. Therefore, in this series we prospectively examined the effect of thigh dissection on refractory thigh pain.

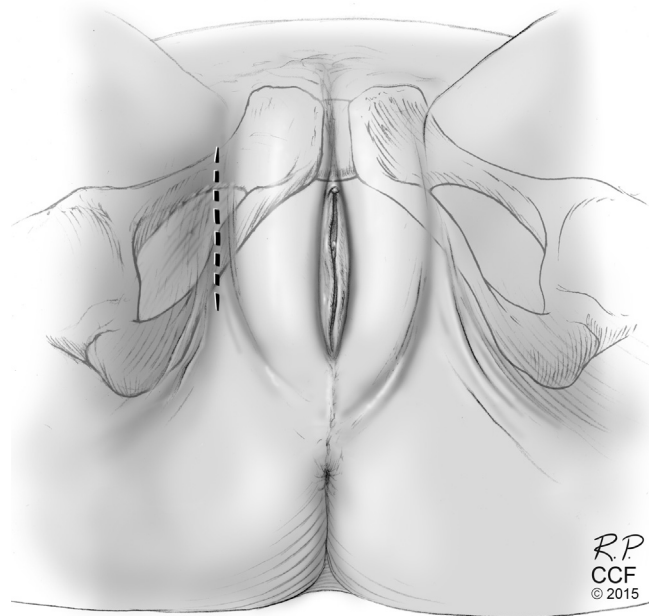
## MATERIAL AND METHODS

All thigh dissections for refractory thigh pain after transobturator mesh placement were followed prospectively from October 2012 to October 2015. Conservative treatment had failed in all patients and pain could be replicated with palpation near the typical trajectory of the mesh arm. If the patient also had pain related to the vaginal portion of the sling, concomitant vaginal and thigh excisions were offered in select scenarios. Sometimes the vaginal excision was performed first to see if the thigh pain resolved with vaginal excision alone. However, this was ultimately determined after discussion with the patient as there were some patients who wanted to proceed with thigh dissection alone for fear of recurrent stress urinary incontinence.

Preoperatively a complete history was taken and a physical examination was performed. Demographic information was collected, as well as surgical history, course of the development of any pain or neurologic symptoms and current symptoms. A pain score using a visual analog scale and anatomical drawing for the patient to mark the site of pain was obtained preoperatively. The postoperative outcome was assessed using the GRA and the goal was to assess this between 6 and 10 weeks. However, if the patient had complications related to thigh dissection sometimes the survey was delayed. Last followup was defined from the last office visit or telephone call with the urology clinical staff. Institutional review board approval was obtained for the study protocol (#12-1039). Patients provided informed consent before enrollment. Data points are presented as a percentage or mean ( $\pm$ SD).

The thigh dissection was performed in a fashion similar to that described by Wolter et al.<sup>4</sup> However, in our series all cases were performed by one urologist (HBG). No consulting surgeons were involved. The incision is made for the thigh dissection (fig. 1). In some cases the scar on the skin can guide the site of incision and allow for a more limited incision and dissection. However, in our experience the majority of cases require a larger incision approximately 6 to 8 cm in length lateral to the inferior pubic ramus for adequate exposure. The gracilis muscle is cut 1 to 2 cm from the inferior pubic ramus (fig. 2). In a similar fashion the adductor brevis is divided. If the mesh is encountered before dividing these muscles, then it is traced out distally toward the skin and proximally through the obturator membrane without having to cut the muscles off the inferior pubic ramus. Localization of the mesh is aided by dissection in the typical site of passage, visualizing any scars remaining from the groin incision, palpation and visualization of the mesh. However, dissection can be complicated if the mesh is not in the expected location. In more difficult cases all the layers of muscle including the gracilis, adductor brevis and obturator externus are cut to find the mesh. In some cases the sling was identified purely by palpation around and within the obturator externus muscle.

Once the sling has been identified it is traced to the inferior pubic ramus. The obturator membrane is pierced to aid in freeing the sling from the bone. Often the sling is scarred to the bone. However, every attempt is made to free the mesh from the bone and excise all the remaining mesh. The muscles are not reattached at the completion of the case as they have been cut close to the inferior pubic ramus to avoid any neurovascular injuries and there is little remaining tissue on the bone to reapproximate. The



**Figure 1.** Incision for thigh dissection to remove TOT tape

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