Retropubic Hematoma After Transobturator Sling Procedure

Sujatha Rajan, MD, and Neeraj Kohli, MD, MBA

BACKGROUND: The transobturator tape procedure is one of the newer minimally invasive sling procedures used for the surgical treatment of genuine stress urinary incontinence.

CASES: Two cases of retropubic hematomas following transobturator tape procedure are reported. One patient was managed conservatively and did not require reoperation, and the other patient required computed tomography-guided drainage of the hematoma. In both cases the patients’ hematomas resolved, and they remained continent 3–6 months after surgery.

CONCLUSION: The transobturator tape procedure is a minimally invasive alternative to the tension-free vaginal tape operation for stress urinary incontinence, but it may be associated with vascular complications.

(Obstet Gynecol 2005;106:1199–202)

More than 20 million women suffer from stress urinary incontinence in the United States. The different options available for management of this condition include pelvic floor rehabilitation, pharmacotherapy, and surgical correction. Surgery is associated with morbidity, learning curve, and lack of uniform success rates among different surgeons. These disadvantages have been, in part, reduced by recent advancements in the minimally invasive suburethral sling procedures for the treatment of stress urinary incontinence.

The earliest minimally invasive sling, which was introduced in the early 90s, is the transvaginal tape procedure, and it has revolutionized the surgical management of genuine stress urinary incontinence. Despite its reported safety and efficacy, this procedure has been reported to be associated with bladder, bowel, and vascular injury due to the blind passage of needles through the retropubic space.

The transobturator tape sling is the most recent minimally invasive midurethral sling, which has been introduced with the hope of decreasing some of the complications associated with retropubic passage of needles. First introduced in France in 2001 by Delorme, the technique involves passage of needles through the medial portion of the obturator foramen, which then exit through an incision in the anterior vaginal wall under direct finger guidance. A synthetic tape is attached to the needles and threaded in place between the 2 obturator foramina, creating a hammock supporting the midurethra. The retropubic space is not entered during this procedure, and hence this method has the theoretical advantage of potentially decreasing the complications arising from the passage of needles in proximity to the retropubic structures. However, other complications, although infrequent, can occur. We report 2 cases of pelvic hematomas following the transobturator tape procedure.

REFERENCES

CASE 1

A 57-year-old para 2 presented with a 4-year history of stress urinary incontinence requiring constant pad use. She denied significant symptoms of urge incontinence or pelvic organ prolapse. Her medical and surgical histories were otherwise unremarkable. Upon examination she was noted to have urethral hypermobility without significant pelvic organ prolapse.

Urodynamic testing revealed a stable detrusor, normal bladder capacity, and normal urethral pressure (maximum urethral closure pressure 56 cm H2O). Uroflow and voiding studies were normal. The patient underwent a transobturator sling and cystoscopy under general anesthesia. There were no complications intraoperatively, and the estimated blood loss was less than 50 mL. She was discharged the day of surgery after successfully passing a postoperative voiding trial.

The patient presented on postoperative day 6 with left hip pain and diffuse bruising in the left hip, infraumbilical area, and inner thigh (Fig. 1). A computed tomography (CT) scan of the pelvis revealed a 7.4 × 7.9 cm pelvic hematoma in the retropubic space and extending behind the left obturator internus muscle. Her hematocrit at this time was normal. She was managed conservatively with analgesics and rest. A repeat CT scan 2 weeks later revealed that the hematoma was unchanged, and her hematocrit was stable. Her pain continued to decrease, and she was pain-free approximately 6 weeks after her surgery and remained continent. A CT scan done at this visit showed that the hematoma had decreased in size to 7 × 4.5 cm.

CASE 2

A 47-year-old multigravida presented with a 2-year history of stress urinary incontinence and symptomatic pelvic organ prolapse. She had previously had a hysterectomy for benign indications. Her medical and surgical histories were otherwise unremarkable. Upon examination she was noted to have a grade 2 cystocele, grade 1 vault prolapse, and urethral hypermobility. A simple cystometrogram revealed normal bladder capacity, and the result of her cough stress test was positive.

The patient underwent an anterior repair, bilateral sacrospinous ligament fixation of the vault, and a transobturator sling and cystoscopy. Because of the attenuation of the patient’s tissues and bilateral paravaginal defects noted intraoperatively, the anterior repair was augmented with a polypropylene mesh. The surgery was uncomplicated, and the estimated blood loss was 100 mL. After an uncomplicated hospital course, she was discharged home without a bladder catheter on the first postoperative day.

One week after the procedure, the patient presented with vaginal bleeding precipitated by an episode of straining due to constipation. Upon examination, there was minimal oozing from the anterior vaginal wall incision. Monsel’s solution was applied, and the vagina was packed for 24 hours. She had persistent bleeding after removal of the pack and hence was taken to the operating room. The vaginal incision was opened and thoroughly irrigated. There was minimal oozing noted from the paravaginal space. This bleeding decreased with pressure and the application of Surgicel (Ethicon, Somerville, NJ) but recurred the next day following removal of the pack. It was noted to be dark, old blood, as opposed to fresh bleeding. Her hematocrit remained stable at 32. A CT scan showed a 4.2 × 5.7 cm right pelvic hematoma located in the retropubic space, which was drained under CT guidance, and the patient’s vaginal bleeding resolved (Fig. 2). A repeat CT scan 2 days later showed complete resolution of the hematoma.

COMMENT

The original minimally invasive midurethral sling procedure, the tension-free vaginal tape (TVT), involves the transvaginal passage of needles through the retropubic space and has been associated with reports...
of rare bladder, bowel, and blood vessel injury. The procedure has also been reported to be associated with pelvic hematoma, ranging from 0.6–1.9% in published reports. The abdominal retropubic approach (suprapubic arc sling) has also been reported to have a mean decrease in hematocrit, from preoperative to postoperative day 1, of 7.1% (range 1–14%), with occasional retropubic hematomas requiring transfusion. Indeed, many patients may have small subclinical hematomas associated with blind needle passage through the retropubic space. The great majority of these patients remain asymptomatic and clinically silent. In rare cases of symptomatic hematoma, transfusion and evacuation have been reported.

The transobturator approach has been introduced to minimize risk of complications from retropubic passage of the needles. Although limited data are available regarding the safety and efficacy of this approach, current literature suggests that bladder and urethral injuries are extremely rare. No significant bleeding or hematoma complications have been reported to date. We have performed 60 transobturator sling procedures at our institution and have encountered 2 hematomas. We believe these hematomas were most likely caused by bleeding in the retropubic space.

To understand and prevent these complications, knowledge of the pelvic anatomy and obturator space with respect to the transobturator sling procedure is important. In females, the obturator foramen is a triangular aperture formed by the pubic and ischial rami. The obturator membrane covers the obturator foramen and is a site of origin for the obturator externus and the obturator internus muscles. Both of these muscles insert into the medial surface of the greater trochanter of the femur. The obturator canal is situated in the anterosuperior aspect of the obturator foramen and contains the obturator neurovascular bundle. The obturator artery exits the pelvis through the upper part of the obturator foramen where it terminates in anterior and posterior branches (Fig. 3).

With needle passage during the outside-in transobturator approach, the needle tip penetrates the obturator externus muscle, the obturator membrane, and then rotates around the medial aspect of the pubic rami, skimming the obturator internus muscle. It is then contacted by the surgeon's finger and exited through the vaginal incision under direct finger guidance. Failure to rotate the needle or a significant push of the needle before rotation may extend the needle tip fully through the obturator internus muscle, thereby entering the retropubic space and causing vascular injury.

In both the cases presented, there were no significant sequelae from the pelvic hematoma, and both patients did well without significantly compromising surgical efficacy. Early recognition of complications is the key to effective management. Imaging modalities, such as CT scan or magnetic resonance imaging, are useful for establishing the diagnoses and offering guided drainage in appropriate patients. We recommend a conservative approach to management of these hematomas if the patient is hemodynamically stable. In the case of expanding hematomas, percutaneous drainage or angiography and embolization may be preferable to laparotomy or laparoscopy because access to these spaces may be challenging.

To decrease the risk of vascular injury, the pelvic surgeon should pay attention to proper technique with the outside-in approach and have a high clinical suspicion under the appropriate circumstances. This complication is rare and is most often self-limited. An inside-out modification of the transobturator sling (TVT-Obturator, GYNECARE, Somerville, NJ) has been introduced and may further reduce the risk of vascular injury. To date, there is limited data on the
Hematomata is a collection of blood within the uterine cavity resulting in uterine distension. Hematomata usually result from obstruction, typically from either developmental anomalies or postsurgical cervical obstruction. We present a case of hematomata secondary to an abnormal, atonic uterine myometrium in a patient with Cornelia De Lange syndrome.

CASE
A noncommunicative 18-year-old female with Cornelia De Lange syndrome presented to the emergency department for lower abdominal pain resulting in self-mutilating behavior (mentally retarded and nonverbal, she displays discomfort by biting her hands). Her medications included acetaminophen with codeine, lorazepam, and senna. Following menarche at age 11 and regular menstrual cycles for 1 year, amenorrhea was induced with depot medroxyprogesterone acetate for the next 5 years. Over the proceeding 12 months, a more frequent and higher dose of depot medroxyprogesterone acetate was administered in an attempt to control abnormal uterine bleeding. Four months before presentation, she began displaying self-mutilating behavior. She was unable to cooperate with a physical examination to evaluate whether there was a gynecological source of her pain. The week before presentation the patient had a pelvic ultrasound examination at an outside hospital, which showed a fluid-filled uterus measuring 4.9 cm × 5.5 cm × 3.0 cm. The patient was referred to the University of Virginia Hospital, and a repeat ultrasound examination confirmed a hematoma, a normal cervix, and a normal vagina. The patient had no history of pelvic infection or any gynecological surgical procedure or instrumentation. Because of the apparent pain and inability to cooperate with an examination, informed consent was obtained from the patient’s parents to perform a pelvic examination under general anesthesia and evacuate the hematoma.

During the pelvic examination, a normal hymen, vagina, and cervix were identified. Transabdominal ultrasonography was used intraoperatively to visualize the fluid collection and demonstrate that the uterine sound and dilators entered the uterine cavity. The cervical canal was found to be patent, and the cervix was easily dilated with no evidence of stenosis. No drainage of blood was noted, despite the hematoma, until suprapubic pressure was applied.

Given the unusual pseudo-obstruction, abnormal uterine contractile function was the suspected etiology of the hematoma. Two weeks postoperatively, a pelvic magnetic resonance imaging was performed to further define