

Massive retropubic hematoma after minimal invasive mid-urethral sling procedure in a patient with a corona mortis

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ABSTRACT

New and minimal invasive single incision mid-urethral sling procedures are available for treating female stress urinary incontinence. We present a case of a massive retropubic hematoma in a patient with a “corona mortis” artery following a minimal invasive sling procedure. The patient was managed conservatively. The hematoma resolved and the patient remained continent after surgery. Nature and symptoms of sling-related complications should prompt the diagnosis and appropriate postoperative management. One should always be conscious of possible vascular anomalies that might lead to unexpected complications.

Key words: Arterial anomaly, corona mortis, hematoma, mid-urethral sling, minimal invasive, sling procedure

INTRODUCTION

Stress urinary incontinence (SUI) is among the top ten medical problems of adult women. Although mid-urethral slings (MUS) as the primary surgical choice for SUI in women are rapidly increasing, they may have significant associated operative complications.^[1] New and minimal invasive single incision MUS procedures have been introduced to further reduce the complications such as bladder perforation, injury to structures in the true pelvis, and postoperative pain in the region of the adductor muscles.^[2] Current available papers report about continence rates of 91% at the 12-month follow-up and de novo urgency of 37% as the major complication of the procedure.^[3] However, other infrequent complications may occur. We report about a case of a massive pelvic hematoma following

the single incision MUS procedure for the treatment of SUI in a patient with a prominently developed aberrant obturator artery, a so-called corona mortis artery.

CASE PRESENTATION

A 46-year-old woman presented with a 3-year history of progressive SUI requiring one to three pads per day depending on activity. Further medical and surgical histories were unremarkable. In the clinical examination, a mild urethral hypermobility without significant pelvic organ prolapse was noted. Video urodynamic tests were normal (a stable detrusor, normal bladder capacity, normal urinary flow, and voiding studies). The patient underwent a single incision minimal invasive MUS procedure under local anesthesia. Intraoperatively, there were no complications. The day after the procedure, the patient developed infraumbilical pain and lower abdominal swelling. A cystogram was performed, showing a high-rising bladder without evidence of extravasation [Figure 1]. Thereafter, a computed tomography (CT) scan of the pelvis showed a 10×10×10 cm pelvic hematoma (estimated 1000 ml) in the retropubic space due to an erosion of a particularly prominent anomalous anastomosis between the inferior epigastric artery and the obturator artery of the left side, a so-called corona mortis or crown of death [Figure 2]. The patient had a reduced but then stable hematocrit and was, therefore, managed conservatively with analgesics and bed rest. The patient developed frequency because of a transiently small capacity bladder that resolved

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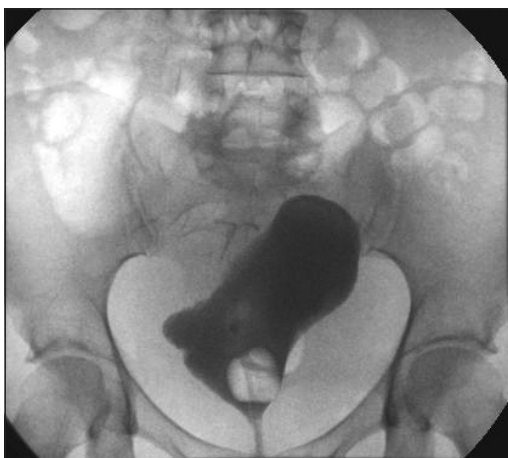


Figure 1: Cystogram showing a high-standing bladder due to the massive retropubic hematoma. Note the large distance of the bladder border to the pelvic rim

spontaneously. Twelve months later, an MRI scan showed that the hematoma had almost completely resolved. The patient remained continent all the time and was happy to have had the operation despite the complication of postoperative hematoma.

DISCUSSION

A recent meta-analysis evaluated the complication rates of different surgical treatments for SUI.^[1] In summary, the cumulative complications rates were 0.8% for bladder erosion, 1.1% for vaginal erosion, 1.7% for pelvic hematoma, 3.2% for revision operations, 3.4% for bladder perforations, 4% for clean intermittent catheterization, 9.7% for urinary tract infections, 15.6% for storage lower urinary tract symptoms (LUTS), and 16.1% for voiding LUTS.^[1]

The above-mentioned most frequent complications are acceptable and it seems that storage and voiding LUTS predominate. However, major complications have also been reported. Although extremely uncommon, they include bowel, vascular, and nerve injuries. Necrotizing fasciitis, ischioanal abscess, sepsis, and even patient deaths have been reported.^[1] Deng *et al.* stated in a review that major complications of sling procedures for the treatment of SUI might be underreported in the literature. The surgeon should be aware of the nature and symptoms of sling-related complications for the prompt diagnosis and appropriate postoperative management. Prospective randomized studies and the reporting of complications by all those who perform these operations are the means to minimize future complications and failures.^[4]

The single incision minimal invasive MUS procedure has been introduced to lower the risk of complications.^[2] Currently limited data are available in the literature regarding the safety and efficacy of this approach. Only one case of bleeding and one case of bladder perforation

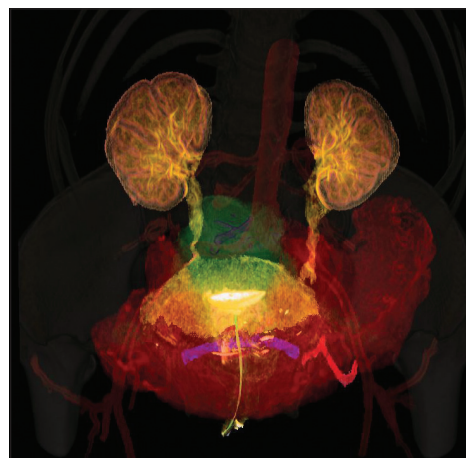


Figure 2: 3D volume rendering image of a 46-year-old woman demonstrating a massive retropubic hematoma, the kidneys with ureters, and bladder with an indwelling catheter. Different colors have been applied to mark various structures. The MUS and a strongly developed aberrant obturator artery originating from the inferior epigastric artery on the left side, from which the bleeding occurred, are visible

have been reported to date, suggesting that complications may be extremely rare.^[3] The retropubic hematoma in this case is most likely related to direct injury to an aberrant anastomotic branch between the inferior epigastric artery and obturator artery. Generally, the obturator artery is a branch of the internal iliac artery, and the inferior epigastric artery is a branch of the external iliac artery. Connections between these systems along the obturator fossa have been referred to as a “corona mortis” (= abnormal obturator artery). The corona mortis may consist of venous, arterial, or both types of connections, with wide variability. Several investigators have estimated its arterial incidence as 10–43%.^[5] It is located behind the superior pubic ramus at a variable distance from the symphysis pubis (range 30–90 mm). The name “corona mortis” or “crown of death” testifies to the importance of this feature, as significant hemorrhage may occur if accidentally cut. It may be difficult to achieve subsequent hemostasis.^[6]

It is clear that knowledge of the pelvic anatomy and obturator space is important to understand and prevent complications. Surgeons who decided to operate in the area of the anterior ring of the pelvis should look for anatomic aberrations to avoid potentially serious bleeding, which may lead to major complications. The key to effective management of complications is early recognition. CT or MRI play a crucial role to establish the diagnosis and plan guided drainage in selected patients. If the patient is hemodynamically stable, a conservative management is recommended, while in the case of expanding hematoma angiography with selective embolization should be preferred, since laparotomy or laparoscopy to these spaces may be challenging.^[7]

In the future, better predictable risk factors for complications

of MUS placement should be identified. Moreover, a better understanding of the pathogenesis of complications may offer further improvements in the subsequent treatment thereof.^[8] Minimal invasive procedures might have significant complications, and when carried out in an out-patient setup, patients should be properly informed to seek out appropriate help immediately.

REFERENCES

1. Novara G, Galfano A, Boscolo-Berto R, Secco S, Cavalleri S, Ficarra V, *et al.* Complication rates of tension-free midurethral slings in the treatment of female stress urinary incontinence: a systematic review and meta-analysis of randomized controlled trials comparing tension-free midurethral tapes to other surgical procedures and different devices. *Eur Urol* 2008;53:288-308.
2. Moore RD, Mitchell GK, Miklos JR. Single-Center Retrospective Study of the Technique, Safety, and 12-Month Efficacy of the MiniArc Single-Incision Sling: A New Minimally Invasive Procedure for Treatment of Female SUI. *Surg Technol Int* 2009;18:175-81.
3. Gauruder-Burmester A, Popken G. The MiniArc sling system in the treatment of female stress urinary incontinence. *Int Braz J Urol* 2009;35:334-41; author reply 341-3.
4. Deng DY, Rutman M, Raz S, Rodriguez LV. Presentation and management of major complications of midurethral slings: Are complications under-reported? *Neurourol Urodyn* 2007;26:46-52.
5. Karakurt L, Karaca I, Yilmaz E, Burma O, Serin E. Corona mortis: incidence and location. *Arch Orthop Trauma Surg* 2002;122:163-4.
6. Darmanis S, Lewis A, Mansoor A, Bircher M. Corona mortis: an anatomical study with clinical implications in approaches to the pelvis and acetabulum. *Clin Anat* 2007;20:433-9.
7. Rajan S, Kohli N. Retropubic hematoma after transobturator sling procedure. *Obstet Gynecol* 2005;106:1199-202.
8. Daneshgari F, Kong W, Swartz M. Complications of mid urethral slings: important outcomes for future clinical trials. *J Urol* 2008;180:1890-7.

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