



Paravesical haematoma following placement of an isolated anterior mesh for cystocele repair

Paravezikalni hematom posle umetanja izolovane prednje mrežice radi korekcije cistokele

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Abstract

Introduction. Pelvic organ prolapse is a substantial health problem for women around the world. Given the limitations of traditional surgery in the reconstruction of normal vaginal anatomy and function in genitourinary prolapse, various synthetic implants have been developed for surgical repair. Mesh procedures are gaining in popularity, encouraged by preliminary data. Although minimally invasive and relatively safe, serious complications following these procedures have been described. **Case report.** We presented a patient who had underwent an isolated anterior mesh procedure and developed postoperative haematoma which required surgical intervention. **Conclusion.** This report suggests that minimally invasive urogynecological procedures could result in significant complications. Thus, surgeons should be familiar with effective interventions in order to manage them.

Key words:

cystocele; surgical mesh; surgical procedures
minimally invasive; postoperative complications;
hematoma; treatment outcome.

Apstrakt

Uvod. Prolaps pelvičnih organa predstavlja značajan zdravstveni problem žena širom sveta. Imajući u vidu ograničenja tradicionalne hirurgije u rekonstrukciji normalnog anatomskeg izgleda vagine i njene funkcije kod prolapsa genitalnih i urinarnih organa, razvijeni su različiti sintetski implantati koji se koriste pri hirurškom lečenju. Postupci s mrežicom se sve češće primenjuju, a preliminarni podaci su ohrabrujući. Iako su ovi postupci minimalno invazivni i relativno bezbedni, opisane su i teške komplikacije nakon njih. **Prikaz bolesnika.** Prikazana je 71-godišnja žena kojoj je ugrađena izolovana prednja mrežica, posle čega je došlo do nastanka postoperativnog hematoma koji je bilo potrebno hirurški zbrinuti. **Zaključak.** Ovaj slučaj ukazuje na činjenicu da minimalno invazivne uroginekološke procedure mogu biti praćene značajnim komplikacijama. Važno je da hirurzi, koji vrše ove operacije, budu obučeni za intervencije kojima se uspešno zbrinjavaju nastale komplikacije.

Ključne reči:

cistikela; hirurška mreža; hirurgija, minimalno-invazivne procedure; postoperativne komplikacije; hematom; lečenje, ishod.

Introduction

Pelvic organ prolapse is a substantial health problem for women around the world. Studies show that 50% of parous women lose pelvic support that results in prolapse¹. The pathogenesis of genital prolapse is the result of the weakness of any or all of the pelvic support structures, which include levator ani muscle, connective tissue, uterosacral and cardinal ligaments, and rectovaginal fascia. It has a negative impact on these women's quality of life due to the associated urinary, anorectal, as well as coital dysfunction.

The choice of treatment depends on the patient's general health status, symptoms, quality of life impairment and prolapse type and grade. Surgical treatments aim at restoring the physiological anatomy of the vagina, alleviating symptoms and preserving lower urinary tract, bowel and sexual functions.

Varieties of abdominal and vaginal surgical techniques are used to treat pelvic organ prolapse. Some include the use of biological grafts or absorbable and non-absorbable synthetic meshes. Given the limitations of traditional surgery in the reconstruction of normal vaginal anatomy and function in

genitourinary prolapse, various synthetic implants have been developed for surgical repair¹. They are used to substitute or augment supportive tissue, thus improving surgical success and increasing the longevity of repairs^{2,3}. In the era of promoting minimally invasive surgery with the aim to decrease morbidity and hospitalization costs, the vaginal approach using synthetic mesh appears to be more attractive than conventional procedures¹.

Prolapse recurrence is most common in the anterior compartment, and traditional repair by anterior colporrhaphy has been associated with up to 32% failure rate⁴. Thus, mesh procedures, such as isolated anterior mesh, are gaining in popularity and preliminary data are encouraging. This procedure is a unique way of placing a prolene mesh between the vaginal mucosa and the prolapsed organ, thus recreating support for weakened pelvic structures. The surgeon approaches the repair vaginally, passing a specially designed trocars through pelvic landmarks. Trocar placement for anterior vaginal wall repair involves traversing the obturator membrane and the arcus tendineus fascia pelvis near the ischial spine.

Although minimally invasive and relatively safe, serious complications following an isolated anterior mesh procedure have been described, such as haemorrhage and the need for blood concentrate, bladder injuries, urinary retention, urinary tract infection, *de novo* urinary incontinence, infection, fever, buttock and groin pain, fistula formation, mesh shrinkage and erosion, and dyspareunia^{1,3,5-7}. Haematoma formation has been cited as a possible complication of this procedure^{3,5,6,8}.

Case report

A 71-year-old woman (G7, P2) presented with bearing-down sensation and incomplete urinary bladder emptying. Her history revealed no complaints of urinary incontinence. Vaginal examination in the dorsal lithotomy position revealed descent of the anterior compartment, while medial and posterior compartments were well-supported. The prolapse was classified according to Pelvic Organ Prolapse Quantification (POP-Q) classification. The patient had an isolated cystocele (Ba = +3), and during Valsava maneuver there was no descensus of the uterine cervix in relation to the hymen level (C = -7, D = -8, Bp = -2). Stress test in the supine and standing positions was negative.

The patient underwent an isolated anterior mesh procedure (Prolift® system, Ethicon, Somerville, NJ, USA) under general anaesthesia. It was performed according to the French TVM group technique, without difficulty, by the surgeon experienced in urogynaecological surgery. No cystoscopy was performed, and the total operative time was 40 min. Intraoperative blood loss was average for our experience. A Foley catheter and vaginal packing were introduced for 24 h. The patient voided spontaneously and completely after cathether removal. The patient received intravenous antibiotic (ceftriaxon 2 g per day) and low-molecular-weight heparin prophylaxis for 3 days postoperatively. Her postoperative hemoglobin level was 118 g/L, and coagulation pro-

file was normal. The postoperative course was uneventful, allowing the patient to void normally. The patient was stable at discharge and went home on the postoperative day 4. On the day 42 after the surgery the patient felt pain in the right hypogastric region of the abdomen. She was circulatory stable, but an 8-cm mass was palpated to the right of the uterus, indicating paravesical haematoma. The patient did not report any use of aspirin, anticoagulants or risk medications. Ultrasound scan revealed a hypoechoogenic mass to the right of the urinary bladder of 80 × 71 mm (Figure 1). Surgical revision

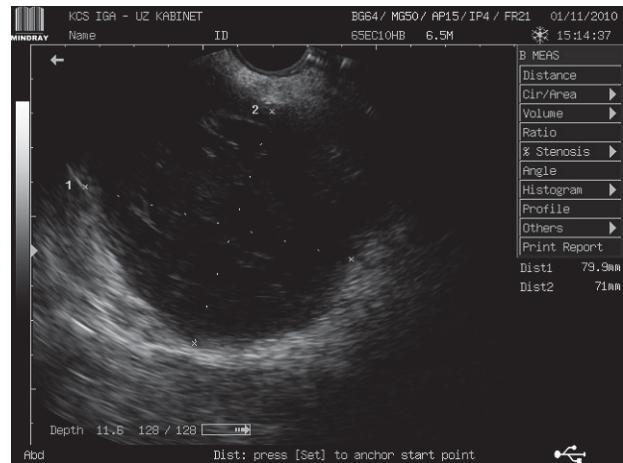


Fig. 1 – Transvaginal ultrasound image showing a hypoechoogenic mass (paravesical haematoma).

was initiated, clotted blood was evacuated from the paravesical space, just above the superior ramus of the right pubic bone, and a drain was inserted. No active bleeding site was found. The mesh could not be seen in the operative field, but was palpable in place. A total hysterectomy and a bilateral salpingoophorectomy were performed. Intravenous antibiotics (ceftriaxon 2 g per day and metronidazole 500 mg/8h) were administered for prophylactic reasons. Preoperative hemoglobin was 126 g/L, and 122 g/L after the procedure. A coagulation profile was repeatedly normal. The drain was removed on the second postoperative day. A repeat ultrasound scan showed no fluid collection in the pelvis, and the clinical examination revealed appropriate position of the mesh without displacement. Further postoperative course was without complications, and the patient was discharged on the postoperative day 7. One year after the surgery the patient was continent, and without complaints. On pelvic exam, the anterior vaginal wall remained well supported with no recurrence of her symptoms.

Discussion

New approaches to pelvic organ prolapse have been evolving rapidly with little data reported on safety issues. As more novel approaches to pelvic organ prolapse are introduced, a new set of complications may evolve. Any new surgical procedure also raises the question of the associated anatomical risks, especially when a part of the procedure is performed blindly.

The Prolift® procedure is a technique that incorporates mesh to compensate for areas of pelvic weakness. Operating in a highly vascularized, confined space, the surgeon may encounter complications that later may be challenging to manage. The placement of trocars near highly vascularized areas creates the possibility of haematoma formation as an operative complication. It is a well-known possibility in pelvic organ prolapse surgery, and therefore, this complication is not unique to the isolated anterior mesh application. Reports from the manufacturer indicate a risk of 1.75% surgery-derived hematomas⁶.

If abnormal abdominal pain appears after those procedures, it is necessary to perform both vaginal and ultrasound examination. Patients should also be carefully examined if other complications occur, like buttock or groin pain, signs of shock, brisk vaginal bleeding and urinary retention. Most of the haematomas are asymptomatic or produce only minor symptoms. These are haematomas with small volume and usually no intervention is necessary. In contrast to that, haematomas with a greater volume provoke moderate to severe problems, like abdominal pain, urge symptoms, dysuria or circulatory disturbances. In such cases operative management of the haematoma is indicated⁵. Therefore, the decision if a patient should be treated conservatively or surgically must be made for each patient individually and with their consent.

A possible cause of haematoma formation following the insertion of an isolated anterior mesh is the injury of corona mortis, which refers to vascular connections between the external iliac and obturator systems in the obturator canal. These connections may be arterial, venous or both. It is known to hernia and orthopedic surgeons, but probably less well known to gynaecological surgeons³. With the increase in surgery of the anterior pelvic ring, many investigators have started to study the detailed anatomy of the retroperitoneal vascular system. The incidence of communicating vascular channels has been reported to be 83%³. The name 'crown of death' testifies to the importance of this feature, as significant haemorrhage may occur from its accidental lesion. This

bleeding could be either arterial or venous in nature. The slow onset and late presentation of the haematoma in the presented case are not consistent with a corona mortis lesion. The presented patient had no recognized risk factors for postoperative bleeding, except the postoperative use of low-molecular-weight heparin, which might be a factor increasing the likelihood of postoperative haemorrhage. We assume venous source of haematoma. The haematoma was self-tamponaded and resolved after the surgical intervention.

This report illustrates that minimally invasive urogyneological procedures are not without significant complications. Various mesh kits are being heavily marketed, but there is a concern regarding a lack of information on their safety and efficacy⁶. With the number of mesh implants growing, there is always a concern for new complications that may arise whether from the kit itself or the use of the kit by those less experienced than the investigators who publish their data. It is equally important for the patient and the surgeon to be aware of different complications that may occur with these new procedures. Surgeons should counsel women about the complications that may occur when using these procedures, particularly those related to the use of mesh and the possibility that their management might necessitate surgical intervention under general anaesthesia. It is also important for surgeons to be familiar with effective interventions to manage them. Future research should be directed towards well-conducted and adequately powered randomized control trials, comparing vaginal mesh procedures with traditional surgeries with respect to surgical complications rate and how surgeons should manage device-related complications.

Conclusion

The prevalence of corona mortis and its anatomical relation to the pubic bone is important and should be considered when introducing new surgical approaches in pelvic surgery, thus decreasing the incidence of surgical complications and improving the results of operations.

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