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Case report

A case of laparoscopic surgery for endometrial cancer in a patient previously treated with a transvaginal mesh procedure for pelvic organ prolapse

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ABSTRACT

Transvaginal mesh (TVM) surgery is an effective treatment option for women with pelvic organ prolapse (POP). Because the TVM procedure preserves the uterus, it is possible for endometrial cancer to occur at a later date. We herein present the first report of such an endometrial cancer, diagnosed well after TVM surgery for POP, and the use of laparoscopic surgery to conduct a simple total hysterectomy to treat it.

Introduction

Because it preserves the uterus, transvaginal mesh (TVM) surgery is an effective and desirable treatment option for women with pelvic organ prolapse (POP).[1] However, even with careful preoperative evaluation of the uterus before TVM, cryptic uterine malignancies may be present, or they may occur at a later date. The presence of the TVM mesh could present a surgical problem during a hysterectomy. We present here the first known case of occurrence and successful treatment of endometrial cancer diagnosed well after a TVM surgery for POP.

Case Report

A 68-year-old female (gravida 4, para 3) presented with POP symptoms. Urogynecologic evaluation using the Pelvic Organ Prolapse Quantification system revealed a Stage 4 prolapse. Her body mass index was 24.1 kg/m^2. She was being medicated with a thyroid drug due to hypothyroidism. She had no known family history of malignancies. She denied being on any hormonal replacement therapy. On examination, there were no palpable masses or genital spotting. In favor of a definitive and long-lasting treatment for her POP, she was counseled about TVM.

After confirmation of a normal clinical examination, including normal endometrial thickness, observed using transvaginal ultrasonography (Figure 1A), and normal endometrial cytology, she underwent anterior and posterior TVM and perineorrhaphy. During the surgery, two polypropylene meshes (Polyform Synthetic Mesh, Boston Scientific, Marlborough, MA, USA) were cut to an appropriate size to cover the whole cystocele and rectocele, leaving two tabs on each side for cystocele and one tab on each side for rectocele, respectively. The meshes were then placed in paravaginal spaces, tension free, without stitches using the ProLift System (Gynecare, Somerville, NJ, USA). The patient had a quick recovery, and was doing well at her 3-month postoperative visit, with no recurrent prolapse.

Thirteen months later, the patient presented with painless vaginal spotting. At that point, her endometrial thickness was 20 mm, measured by transvaginal ultrasonography (Figure 1B). Endometrial cytology suspected endometrioid adenocarcinoma. Biopsy of the endometrium showed endometrioid adenocarcinoma, Grade 1. The magnetic resonance imaging showed myometrial invasion.

Conflicts of interest: The authors have no conflicts of interest relevant to this article.

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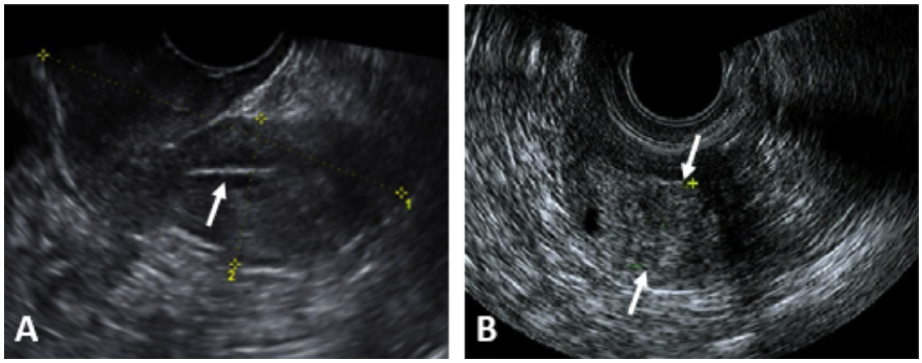

Figure 1. (A) Transvaginal ultrasonography of the endometrium at the pre-TVM evaluation. The arrow indicates a thin endometrium appearing as a white line. (B) Thirteen months after the TVM, the endometrial thickness, indicated by two arrows, was 20 mm. TVM = transvaginal mesh.

We offered the patient laparoscopic surgery for her endometrial cancer. Because TVM was performed previously (Figure 2A), we expected the surgery to be difficult due to the mesh, and we planned accordingly. During surgery through the peritoneum, the mesh was observed in the vesicovaginal space and the pouch of Douglas (Figures 2B and 2C). Because no cervical stromal invasion by the tumor was detected by magnetic resonance imaging, there was no need to resect the parametrium. Therefore, we removed the uterus in a simple total hysterectomy manner, without peeling off or cutting the mesh. Prior to colpotomy, a vaginal fornix was delineated using VAGI PIPE (Hakko Medical, Nagano, Japan). When the outline of vaginal fornix was visible at the attachment of uterosacral ligament, the circumference of the vaginal wall was cut from the anterior vaginal wall using a Harmonic Ace scalpel (Ethicon, Somerville, NJ, USA) until the cervix is separated. Although the vaginal stroma appeared to have yellowish fibrous scar tissue (Figure 2D), there was no problem in suturing it.

A frozen section of the uterus revealed a Grade 1 endometrioid adenocarcinoma, with deep myometrial invasion. Pelvic washings were obtained upon the initial abdominal entry. The uterus, both fallopian tubes, and both ovaries were resected. Pelvic and paraaortic lymph nodes were also removed laparoscopically, using an Endowiper (Osaki Medical, Nagoya, Japan) to prevent lens obstruction due to a contaminated camera port.[2] Operation time was 345 minutes; blood loss was 290 mL. She recovered well and her postoperative course was uneventful.

The final pathological diagnosis was of endometrioid adenocarcinoma Grade 1, World Health Organization (2014) pT1bN0M0, International Federation of Gynecology and Obstetrics (2014) Stage IB, ly(0), v(0), no metastases in 55 resected lymph nodes, negative for washing cytology. The patient underwent adjuvant combination chemotherapy with paclitaxel, carboplatin, and epirubicin thereafter. She was doing well, without recurrence of cancer or POP symptom, at her 15-month follow-up.

Discussion

TVM is a highly effective surgical option for women with advanced POP.[1] By placing the mesh anteriorly in the vesicovaginal connective tissues and posteriorly in the rectovaginal connective

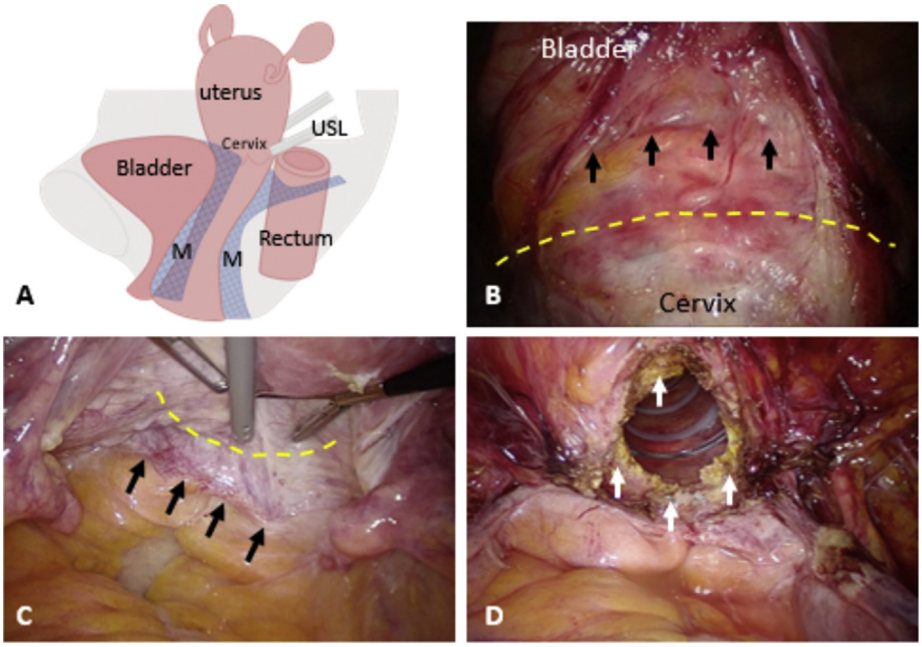

Figure 2. (A) A diagram showing the mesh (M) position in relation to the bladder, uterus, cervix, uterosacral ligaments (USLs), and rectum. (B and C) In laparoscopic surgery for the endometrial cancer, the meshes, placed during the previous transvaginal mesh procedure, were observed in the vesicovaginal space and the pouch of Douglas, as indicated by black arrows. Cut lines are indicated by yellow dashed lines. (D) Yellowish fibrous scar tissue, indicated by white arrows, lined the circumference of the vaginal excision.

tissues, the cervix, uterus, and other prolapsed structures can be reduced back into the pelvis.

Previous reports have found that pre-existing endometrial cancer is present in less than 1% of POP patients. For example, in a pathological analysis of 517 uteri, resected due to POP, endometrial cancer was found in only four cases (0.8%).[3] In two similar studies, 0.3% (2/644) and 0.6% (5/708) of patients had unanticipated endometrial carcinoma.[4,5] Importantly, four of the five endometrial cancer patients in the latter report[5] were negative by preoperative evaluation, including transvaginal ultrasonography and endometrial biopsy. There are no direct association between POP and increased risks of gynecologic malignancy, as was described in the recent paper by Mahnert et al.[6] However, whenever the uterus is preserved as a treatment for POP, there will be a slight risk, somewhere between 0.3% and 0.8%, that endometrial cancer is already occurring at the time of surgery, and this risk will increase normally as time accumulates after the surgery. This risk should be considered by the gynecologist.

Thus, it is not surprising that a case of endometrial cancer diagnosed after laparoscopic supracervical hysterectomy and sacrocolpopexy for POP has already been reported.[7] Like our case, the case described by Tohyama et al[7] was negative by preoperative evaluation of the endometrial thickness using transvaginal sonography and endometrial cytology. In their case, the endometrial cancer was diagnosed from slides of a formalin-fixed histopathological specimen. Their secondary surgery involved removing the remaining cervix, both fallopian tubes, both ovaries, and retroperitoneal lymph nodes. They reported that the surgery was extremely difficult due to the fixed mesh, which was placed in the retroperitoneal space, covering the vagina, cervix to sacrum. In our case, the influence of TVM mesh on our laparoscopic surgery was minimal. This is because the mesh did not reach the uterine cervix in our case, which allowed us to remove the uterus via a simple hysterectomy, without disturbing the mesh.

As a preoperative tool, assessment of the endometrium using transvaginal ultrasonography has been suggested. In postmenopausal women, an endometrial thickness of over 4 mm is predictive of endometrial cancer.[8] In addition to imaging, a preoperative endometrial sampling is recommended.[3] Despite the above suggestive data of some cancer risk, there is no consensus among gynecologists about the necessity for transvaginal ultrasonography or endometrial sampling in the preoperative evaluation of POP surgery.

Conclusion

Although rare, endometrial cancer can occur following the TVM procedure. When a simple total hysterectomy is selected as a treatment option in such cases, laparoscopic surgery can be performed safely. Presumably, a radical hysterectomy, which removes the parametrium, should be more difficult to conduct, due to stenosis of the connective tissues in the vesicovaginal and rectovaginal spaces.

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