

Pregnancy after tension-free vaginal mesh (anterior Prolift) and concomitant tension-free vaginal tape-obturator procedure

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Abstract

Objective. Treatment of anterior vaginal wall prolapse and stress urinary incontinence (SUI) with transobturator tension-free vaginal mesh (anterior Prolift) and concomitant tension-free vaginal tape-obturator (TVT-O) has been proved feasible, safe and effective. However, there is little known about the influence of pregnancy on women who have had such procedures before pregnancy.

Design and methods. A 32-year-old woman (gravid 1, para 1) with two years history of SUI and nine months history of pelvic organ prolapse (POP) was treated with transobturator tension-free vaginal mesh (anterior Prolift) and concomitant TVT-O. Her recovery was excellent, and she was pregnant eight months after the operation.

Results. The patient went through her pregnancy smoothly with no special discomfort and successfully delivered an infant via caesarean section without recurrence of POP and SUI. Her last visit to our clinic about 14 months after caesarean section revealed that the anterior Prolift mesh and TVT-O mesh still remained intact and the position of the vaginal fornix, anterior and posterior walls and uterus also remained normal.

Conclusions. Pelvic floor reconstruction with vaginal mesh (Prolift) may have positive significance for young patients who desire uterine preservation for future pregnancies. However, further studies are warranted to determine whether it can be used in pregnant women or women planning future pregnancies.

Introduction

Pelvic organ prolapse (POP) is the protrusion of one or more of the pelvic structures

(bladder, uterus, vagina) toward or beyond the vaginal opening. POP may be associated with urinary incontinence; stress urinary incontinence (SUI) affects about 40% of patients with POP.¹ Combined pelvic reconstructive surgery and transobturator tape has been used in women with advanced POP and SUI,^{2,3} but no cases have so far been reported in literature describing pregnancy and delivery after such procedures. Pregnancy and delivery after mid-urethral sling procedures for SUI has been reported, and it seems that pregnancy does not affect the topography and function of the tape and delivery by primary cesarean section are recommended by Gauruder-Burmester *et al.*⁴ to preserve the topography and function of the tape.

However, pelvic reconstructive surgery with vaginal meshes for POP are mostly performed in patients over 50 years old. Meanwhile, as the mesh will not stretch significantly while the patient grows, it is contraindicated for pregnant women or women planning future pregnancies. We know little about what would happen if a patient encounters an unexpected pregnancy after a pelvic floor reconstructive surgery with vaginal meshes.

Here, we presented a case of a woman pregnant after a treatment of anterior vaginal wall prolapse and SUI with tension-free vaginal mesh (anterior Prolift) and concomitant tension-free vaginal tape-obturator (TVT-O) procedure and successfully delivered an infant via caesarean section without recurrence of POP and SUI and discussed the possible reasons.

Design and Methods

A 32-year-old woman (gravid 1, para 1) with nine months history of a protruding vaginal mass and dyspareunia was referred to our center. The mass, which protruded out of the vaginal introitus, could be manually reduced at resting position. She had suffered from involuntary urine loss during coughing, laughing, and sneezing for nearly two years, and the symptoms had been alleviated but still existed after the emergence of POP. She denied symptoms of urinary frequency, urgency and dysuria. She had a history of a prior uncomplicated vaginal delivery 12 years earlier, and the infant weighted about 3.500 g. Her medical and surgical history was unremarkable.

Pelvic examination revealed stage III anterior vaginal wall prolapse, with pelvic organ prolapse quantification (POP-Q) measurements: Aa +1, Ba +2, C -3, gh 5, pb 3, tvl 8, Ap -3, Bp -3, D -4. The cervix and vagina were smooth and soft without infection and decubitus ulcers. No uterine and ovarian abnormalities were found. Urine leakage from external urethral orifice was observed at the moment of cough, with or

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Key words: pregnancy, tension-free vaginal mesh, anterior prolift, tension-free vaginal tape-obturator.

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without reduction of the prolapse. The patient had got one child and had no wish for further childbearing. She had a strong desire to have a one-completed surgery and hoped us to perform a surgical method of lower relapse rate. We introduced the merits and demerits of all optional surgical methods we were able to provide for her and she selected Prolift.

Considering the request of the patient and traditional surgeries for POP have higher relapse rate compared with Prolift, an operation involving anterior Prolift (Ethicon Inc., Somerville, NJ, USA) and TVT-O (Ethicon Inc.) was subsequently performed in our center after getting informed consent by her. She made the decision with full awareness of the results of the surgery including not being suitable for another pregnancy. The patient pulled through the operation remarkably well and was discharged home in good condition 2 days after the surgery.

Eight months after the surgery, we learned that she was pregnant and advised her to terminate the pregnancy, but she refused.

Results

The patient's postoperative visits to our out-patient gynecological clinic about three and six months after anterior Prolift and TVT-O operation revealed no complain of urge or stress urinary incontinence, increasing vaginal discharge and distending or bearing-down sensation in lower abdomen. She had achieved normal sexual activity and was satisfied with the surgical results. On pelvic examination, vaginal fornix, anterior and posterior walls and

uterus were all in the normal position, with the POP-Q measurements: Aa -3, Ba -3, C -6, gh 3, pb 3, tvl 7, Ap -3, Bp -3, D -7 and no infection or rejection of the mesh occurred.

Eight months after the operation, the patient encountered an unplanned pregnancy and decided to continue it. Her pregnant period was also smooth with no special discomfort. Considering her previous trans-vaginal operation, she delivered a 3.400 g infant via caesarean section in the third trimester of pregnancy and no recurrence of POP and SUI was found during the subsequent 18-month follow-up period. Her last visit to our clinic about 14 months after caesarean section revealed that the anterior Prolift mesh and TVT-O mesh still remained intact and the position of the vaginal fornix, anterior and posterior walls and uterus also remained normal.

Discussion

POP and urinary incontinence are significant problems in developing countries, with 19.7% and 28.7% of mean prevalence, respectively.⁵ Specific tissue and functional deficiencies resulting in prolapse also contribute to lower urinary tract symptoms, particularly SUI.⁶ Therefore, POP and SUI, which share etiologic factors, commonly coexist.^{2,7} Though the treatment of women with high grade prolapse without SUI still remains controversial, the situation that women with active symptoms of SUI should be performed with an anti-incontinence procedure during the prolapse repair surgery has reached a consensus.⁸ Combined pelvic reconstructive surgery and transobturator tape in women with advanced POP and SUI has been proved to be safe and effective.^{2,3}

In this case, the patient with anterior vaginal wall prolapse was also accompanied by SUI and a TVT-O procedure was performed with anterior Prolift surgery. The surgical procedure went smoothly and the recovery was excellent without complications during the postoperative follow-up period in our case.

Few cases about pregnancy and delivery after mid-urethral sling procedures for SUI

have been reported. Groenen *et al.*⁹ reported 3 cases and reviewed related literatures. Most cases remained continence during pregnancy and after delivery, and for those recurrent cases, the second mid-urethral sling operation was also safe and effective. However, the limited presented cases do not clearly demonstrate whether caesarean delivery can protect against SUI in case of pregnancy after mid-urethral sling procedure.

Unfortunately, as data on pregnancy after a pelvic floor reconstructive procedure with vaginal meshes are absent, it remains a perplexing encounter for obstetrician and gynaecologists. The vaginal mesh (Prolift) used in the surgery is made of sterile non-resorbable polypropylene which can afford excellent strength, durability, and surgical adaptability, with sufficient porosity for necessary tissue ingrowth. Though the ligaments supporting the uterus enlarge and elongate during the pregnancy period, the part of the body undergoes the most significant changes is the uterus. It increases to 20 times its original weight, and 1000 times its initial capacity and the pelvic and vagina tissue soften with an increased blood supply. As the *tension-free* vaginal mesh (anterior Prolift) implant was placed in the vesicovaginal space under the bottom of the bladder with four straps that are secured via a transobturator approach to support and repair the prolapsed anterior vaginal wall during the operation, it exerted much more strength than stretch during the pregnancy period. The mesh is knitted by a process which interlinks each fiber junction and this construction permits the mesh maintain flexibility and meets the need of various tensile forces produced by the body. The patient's successfully delivery via caesarean section without recurrence of SUI and POP proved that pelvic floor reconstruction with vaginal mesh (Prolift) may have positive significance for young patients who desire uterine preservation for future pregnancies. Again, as evidences show a vaginal delivery contributes significantly more to the development of SUI and POP than a caesarean section, caesarean section was recommended to decrease the SUI and POP recurrence rate in our case.

However, data on long term follow-up for a

large number of patients are lacking and further studies are warranted to determine whether the pelvic floor reconstruction surgery with vaginal meshes can be used in pregnant women or women planning future pregnancies.

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