

# Pregnancy after advanced pelvic floor repair using CR-mesh (A.M.I.): a case report

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All authors declare that neither they have a financial interest or affiliation with any commercial organization.

**Abstract:** We report a case of a pregnancy of a young woman who previously underwent a transvaginal pelvic floor repair with mesh for pelvic organ prolapse. A 36-year-old woman with complete utero-vaginal prolapse, occurred after a vaginal birth complicated in a 4° degree perineal laceration, who underwent transvaginal complete advanced pelvic floor repair with CR-mesh (A.M.I.) to restore all the three DeLancey levels of support. After this operation, good anatomical and functional results were obtained. Then, she became pregnant culminating in elective caesarean delivery. During cesarian section no problem was reported in relation to the previous mesh implantation. The post-delivery follow-up after 2 years exhibited no prolapse relapse. In conclusion, pelvic floor reconstruction with vaginal meshes could have positive significance for young patients who desire uterine preservation for future pregnancies. However, further studies with long-term follow-up are warranted to determine whether it can be used in women planning future pregnancies.

**Key Words:** Pregnancy; Pelvic organs prolapse; Pelvic floor reconstruction; CR-mesh.

## INTRODUCTION

Transvaginal pelvic floor repair using meshes are used all over the world and proved to be an alternative to the fascial surgery to reduce the risk of recurrence<sup>1-4</sup>. Whereas the meshes usually don't stretch significantly as the patient grows, often they are considered contraindicated for pregnant women or for women planning future pregnancies. Few articles in literature describe what happens if a patient encounters a pregnancy after a pelvic floor repair surgery with vaginal meshes<sup>5,6</sup>. Here, we presented a case of a pregnancy after a complete advanced pelvic floor repair with CR-mesh (A.M.I.)<sup>7</sup> and a successful delivery via caesarean section without recurrence of pelvic organ prolapse.

## PATIENT AND METHODS

In November 2004 a 33-years-old woman was hospitalized at the Operative Unit of Obstetrics and Gynecology of Desio Hospital (Italy) at 41weeks 6 days of gestation of her second pregnancy. She had a history of a prior therapeutic abortion during the 17th week of her first pregnancy because of a fetal malformation (cystic hygroma). After a pharmacologic induction of labour by amniorexi and intravenous infusion of oxytocin and an uncomplicated labor she had a healthy baby weighting 3830 gr. During the delivery a median episiotomy was performed, complicated in a fourth-degree<sup>8</sup> complete perineal laceration, with a 1 cm total thickness rupture of the anal sphincter (internal and external) and of the front rectal wall. A reparation of the laceration was conducted with an introflecting double suture with reabsorbing stitches to repair the rectal wall and an overlapping using 4 prolene stitches, according Sultan,<sup>9</sup> to repair the external anal sphincter. The procedure ended with the reconstruction of deep and superficial perineal muscles, with final reconstruction of perineal body. No complications occurred in the postoperative period with a complete functional recovery.

Three years later, in October 2007, the patient was referred to our center complaining a protruding vaginal mass out of the vaginal introitus, anal incontinence (Incontinence Wexner Score = 8) and urinary frequency and urgency. She denied urinary incontinence.

Pelvic examination revealed stage IV pelvic organ prolapse, a total bilateral detachment of the pelvic fascia running for the whole white-line insertion with cyctocele 4°

stage (presenting wrinkled surface indicating a lateral defect), hysterocele 3° stage, enterocele 2° stage and a rectocele 1° stage associated to signs of previous surgery, with a good persistent reconstruction of perineal body and of the anal-vaginal distance (4 cm) (Figure 1). The pelvic organ prolapse quantification (POP-Q) measurements were the follow: Aa +1, Ba +3, C +3, gh 4, pb 3, tvl 8, Ap -1, Bp -1, D +1. The cervix and vagina were smooth and soft without infection and decubitus ulcers. No uterine and ovarian abnormalities were found.

She underwent then following exams:

Cough-test, after the replacing of prolapse: negative

Cistomanometry: no urodynamic signs of detrusor hyperactivity

Urofloussometry: no urodynamic signs of defects in bladder emptying, negative bladder post-voidal residue and pressure-flow curve not obstructed

Dynamic defecography: presence of a static and dynamic enterocele and rectocele with internal mucosal prolapse, without intussusception.

Anal-rectal manometry: maintained the basal tone of external anal sphincter, and voluntary contraction of the same, even if with pressure values at lowest limit.

Trans-anal ultrasound with 360° 10Mhz rotating probe: a front median scar is highlighted into the anal sphincter (previous overlapping), the internal anal sphincter seems to have a normal thickness, with a minimal lack of homogeneity into the more cranial scanning and an adjacent lack of homogeneity of eternal anal sphincter that seems partially interrupted.



Figure 1. – Pelvic examination before CR-mesh operation: prolapse 4° stage.



Figure 2. – Anatomical result after transvaginal complete advanced pelvic floor repair with CR-mesh.

Latent period of pudendal nerve: signs of chronic suffering of pudendal nerves, especially on the right side.

In June 2008 the patient, after a careful and complete informed consent about all the available therapeutic possibilities, underwent a complete advanced pelvic floor repair with CR-mesh (A.M.I., Austria)<sup>7</sup> associated with anal perisphincter infiltration with macroplastique (Figure 2). The CR-mesh technique suited the following concepts: 1. fixation of the anterior and of the posterior compartments to the De Lancey Level I apical support (by bilateral suspension to the medial end of the sacro-spinous ligament); 2. recreation of the De Lancey Level II lateral support (using transobturator and trans-ileococcygeus slings); 3. recreation of the De Lancey Level III distal support (by recreating bladder neck support and by reinforcing perineal body using superficial slings). The CR-mesh consists in a particularly soft macroporous monofilament polypropylene mesh, which has a weight of 19 g/m<sup>2</sup>, less than other meshes used for the utero-vaginal prolapse, to minimize fibrosis and retraction after surgery and to permit good elasticity.

In the postoperative time an haematoma occurred, extended to the para-rectal space and to the left gluteal regions. This haematoma spontaneously resolved in one month. Another postoperative complication was urinary retention. The patient was discharged nine days after the operation with antibiotic and anti-inflammatory therapy, intermittent catheterism and daily ultrasound checks of post-voidal residue that normalized with value <100cc on the 13th day.

## RESULTS

At 1-month follow-up the patient declared a complete satisfaction, she was asymptomatic, with normal bladder-urethral function and also a good control on anal-rectal function (Wexner score =2). She only still complained a light chronic pelvis pain (VAS=4) with occasional use of FANS. She presented a 1° degree POP-Q asymptomatic cystocele (Aa - 2, Ba -2), with an excellent suspension of central compartment (C -5, D -6) and maintained perineal thickness. No infection or rejection of the mesh occurred.

The patient underwent a check every six months with stable good results.

In September 2009, 15 months after the pelvic floor repair operation, she started her third pregnancy. During pregnancy obstetrical visits are scheduled monthly, with evaluation of POP-Q score and control of front and back mesh insertion; the results were:

- unmodified vaginal profile during the whole pregnancy
- excellent flussimetric controls of uterine plexus and of placental, umbilical and fetal compartment;
- regular intra-uterine fetal growing curve

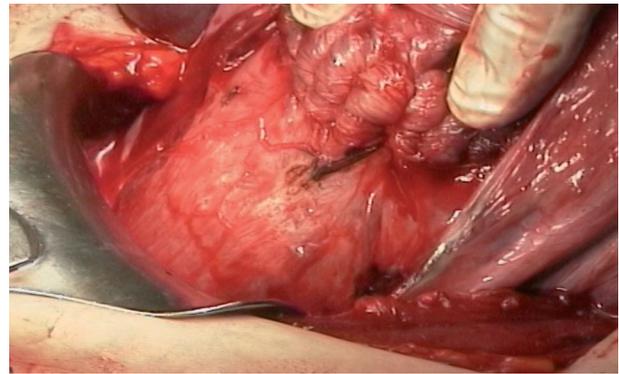


Figure 3. – Lower uterine segment during cesarean section, the peri-cervical mesh cranial insertion is never reached, even with a good preparation of the bladder-uterine space.

Considering her previous trans-vaginal operation, in April 2010, the patient had an elective cesarean section, with transversal incision using Pfannenstiel and extraction of an healthy baby weighting 3220 g. During the preparation and incision of lower uterine segment, the peri-cervical mesh cranial insertion (implanted in 2008) is never reached, even with a good preparation of the bladder-uterine space (Figure 3). The post-operative period was regular and the patient was discharged on the third day.

During the puerperal control on 30<sup>th</sup> day, the patient was asymptomatic, with an uro-gynecological objectivity unmodified in respect to the previous controls before pregnancy. She presented an asymptomatic cystocele second stage (POP-Q, Ba: -1). No relevant bladder-urethral or colon-proctologic symptomatology, only an occasional gas incontinence.

Her last visit about 2 years after caesarean section revealed that the mesh still remained intact and the suspension of the anterior and posterior vaginal walls and uterus was also maintained, without erosion of the vaginal wall or fornix.

## DISCUSSION

Advanced pelvic floor repair using CR-mesh (A.M.I., Austria), described firstly by Bruce Farnsworth, involves comprehensive reconstruction of all three levels of pelvic support and the combination of this technique together with the new lightweight low density macroporous CR mesh results in very good outcomes for patients and a significant reduction in mesh related complications<sup>10-11</sup>. The characteristics of this ultra- light macroporous mesh, specifically designed to minimize fibrosis and retraction after surgery, permit to combine excellent strength, durability, surgical adaptability, sufficient porosity for necessary tissue ingrowth with a very good elasticity. This is very important in those patients who have pregnancy after the implantation of the mesh. 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 ligaments supporting the uterus enlarge and elongate. On the other hand, vagina tissue softens with an increased elasticity of the pelvic floor's structures. As the CR-mesh create a sort of ring around the cervix and the two meshes are placed in the vesico-vaginal space and in the recto-vaginal space to support and repair the prolapsed vaginal wall during the operation, it must have sufficient strength while maintaining excellent elasticity.

The patient's successfully delivery via caesarean section without recurrence of prolapse proved that pelvic floor reconstruction with vaginal mesh could be a positive significance for young patients who desire uterine preservation

for future pregnancies. 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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