

Pregnancy and delivery after vesico ileocystoplasty – a case report

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Summary

Neobladder is continent urinary reservoir made from a detubularized segment of bowel, with implantation of ureters and urethra. The most common indication for this operation is bladder replacement after cystectomy following bladder cancer in elderly or cervical cancer Stage IV patients. Nowadays indications are expanded to many benign diseases (interstitial cystitis (IC), neurogenic bladder, chronic pelvic pain) in reproductive age. Pregnancy in women with neobladder is a rare condition, hence published experience is limited. Most of the published cases were delivered by cesarean, due to the concern for possible complications. The authors report a case of a 36-year-old woman who underwent a vesico ileocystoplasty for IC, became pregnant six years after the operation, and delivered a healthy baby vaginally. Her obstetric and urologic outcomes were assessed, during, and after pregnancy. Careful antenatal monitoring by both an obstetrician and a urologist, awareness of potential complications, and their prompt treatment, can result in a successful pregnancy and vaginal delivery where neither fetus or mother nor neobladder are endangered.

Key words: Neobladder; Vesico ileocystoplasty; Pregnancy; Delivery.

Introduction

Interstitial cystitis (IC) is a chronic inflammatory disease of the bladder with unknown etiology characterized by suprapubic pain, urinary frequency, and urgency that renders patients socially incapacitated [1]. Many terms that refer to IC or IC-related conditions have been used: painful bladder syndrome, chronic pelvic pain syndrome, and bladder pain syndrome. Treatment is mostly non-curative because of its yet unknown etiology. Bladder substitution by ileal neobladder for women who suffer from IC can be a satisfactory option after failure of conservative treatment but is the last resort [2, 3]. About 90% of IC patients are women, median age thirties and forties, hence within reproductive age range. Surgical procedure cannot only improve their quality of life, but consequently lead to pregnancy desire [3]. In pregnancy, glomerular filtration rate (GFR) and renal plasma flow increase by 40% to 65% and 50% to 85%, respectively, and roughly parallel to change in cardiac function. Marked dilation of the ureters is caused by hormonal influences and pressure from the enlarged uterus on the ureters. On the other hand, reduced absorptive bowel capacity (due to functional loss of those segments required for reservoir construction), its highly unphysiological exposure to urine, and specialized secretory properties, predisposes patients to various metabolic, nutritive, and functional disturbances and complications [4].

Scanty literature available presents rare cases of pregnancy after augmentation cystoplasty, orthotopic neobladder,

Indiana pouch and vaginoplasty, gastrocystoplasty, Mitrofanoff procedure, but not after vesico ileocystoplasty [5, 6].

The authors present a case of pregnancy and delivery management after vesico ileocystoplasty, with assessment of the obstetric and urological outcomes during and after pregnancy.

Case Report

A 36-year-old woman was diagnosed IC by transurethral resection and biopsy of bladder, and she underwent surgical treatment with bladder reconstruction. Since the operation was complicated with post-surgical stenosis of the bladder neck and urethra, she was put on clean intermittent self-catheterization and had normal renal function. Six years later, she became pregnant. This was her third pregnancy but the first one after urology surgical treatment. Pregnancy course was unremarkable, with normal renal sonogram obtained in 24th week of gestation. She used urinary antiseptic prophylaxis and had no episodes of urinary tract infections. Patient was admitted in our hospital in 28th week of gestation for experiencing lower abdomen and back pain. Obstetrical and ultrasound assessment revealed cervical length of 16 mm and consulted urologist advised continuous indwelling catheter instead of self-catheterization procedure every three hours. Laboratory test showed no anemia, nor electrolyte or renal disturbances and no pathological bacterial growth in urine culture. Cervical and vaginal swabs revealed *Candida* spp. Her serum urea, creatinine, and electrolyte levels were followed up every three to four weeks and ultrasonography weekly. At the third day of hospitalization, painful sensation progressed despite bed rest and gestagen therapy. Transvaginal sonography revealed further cervical shortening to six mm. The authors administered concomitantly

Revised manuscript accepted for publication August 1, 2013

dexamethasone six mg/12 hours for two days, for fetal lung maturation, with parenteral β_2 adrenergic agonist therapy. Interdisciplinary team (obstetricians, urologist) made a decision about expectative management, continuation of gestagen therapy, along with intensive maternal and fetoplacental unit monitoring. Signs of preterm delivery withdraw. During hospitalization, she had three episodes of afebrile asymptomatic bacteriuria (*Escherichia Colli*, *Pseudomonas aeruginosa*, *Morganella morganii*), treated promptly by adequate antimicrobial medications. Although closely observed, neither renal function impairment nor electrolyte imbalance appeared. In 36th week of gestation, obstetric assessment revealed cephalic presentation and cervical effacement with advanced dilatation. Serum urea, creatinine, uric acid, total proteins, albumins, sodium, potassium, chloride and calcium were within the normal range. Diuresis was 2,700 ml/24 hours, with slightly increased proteinuria (0.49 g in 24-hour urine collection), and normal urea and creatinine clearances. Urologist and obstetrician made interdisciplinary decision about spontaneous vaginal delivery with constant indwelling catheter during delivery and seven post-delivery days. She gave birth to a term, healthy child, body weight 3,200 g. After delivery, the authors started antibiotic prophylaxis with broad spectrum antibiotic. Post-delivery urine culture showed no pathological bacterial growth, and markers of urologic function were normal. Her recovery was uneventful, with levels of inflammation markers typical for puerperium. She was discharged with her baby on the fifth post-delivery day after normal clean intermittent catheterization was resumed.

Discussion

Antenatal care, delivery, and post-delivery care of pregnant patients after ileocystoplasty, must involve obstetrician and urologist with knowledge and awareness of potential complications. These short and long-term complications include: urinary tract infections, electrolytes abnormalities, malabsorption, diarrhea, hypochloremic metabolic acidosis, impaired renal function, continuation of intestinal mucus production, and abnormal drug kinetics. Interdisciplinary approach should provide prevention of those complications when possible, their early detections, and prompt treatment.

Mucus produced in ileocystoplasties has potential influence on upper urinary tract drainage and emptying of the bladder reservoir [7]. Most common complication is urinary tract infection reported in 60% patients and also presented in the presented case. Intermittent and constant indwelling catheter may play an important role [8]. The bacterial strains growing in the novel reservoir change spontaneously and correlates poorly with increased antibody levels, thus indicating colonization rather than infection. However, asymptomatic bacteriuria must be treated in pregnancy, because of its association with preterm delivery [9]. Intestinal secretory loss and renal wasting result in electrolyte abnormalities such as hypokalemia, hypocalcemia, and rarely hypomagnesemia. Hypochloremic metabolic acidosis may appear, caused by reabsorption of ammonium chloride and secretion of bi-

carbonate [9]. Fortunately, none of these disturbances were observed in the present case. According to the literature, stenosis of anastomosis, recurrent infection, and urinary lithiasis (due to the presence of hyperchloremic metabolic acidosis, presence of foreign materials - sutures and staples and intestinal mucus) might impair renal function. Long-term annual monitoring of renal function is mandatory as it has been shown that glomerular filtration rate might decrease 15–25%, years after urinary diversion. Use of renal ultrasound and assessment of serum creatinine level is considered a screening method. In the present case, renal ultrasound was performed in 24th week of gestation, was within the normal range, and subsequent ultrasonographic evaluation was scheduled after the delivery. Patient was closely observed for potential problems associated with prescribed medications which are secreted in urine and, therefore, can be reabsorbed by the intestinal segments that are incorporated in the urinary tract. None of them occurred. Neurological deficits and megaloblastic macrocytic anemia, due to the possible long-term vitamin B₁₂ malabsorption, were not present in the present case. One of the main reasons for poor quality of life after urinary diversion is diarrhea due to diminished bile salt and fat absorption. No stool problem appeared.

As the authors have shown, regular bacteriological analysis of urine and rapid aggressive treatment at an early stage are indicated to reduce the incidence of premature labor and fetal morbidity. Renal function must be followed carefully with serum creatinine levels monitored monthly and if increased, the upper tract promptly evaluated by renal ultrasound. Management of labor needs to be assessed individually. Although concern about previous surgery results in most patients having an elective cesarean section, successful and safe vaginal delivery is possible.

Conclusion

Pregnancy and vaginal delivery are not contraindicated after ileocystoplasty, and in selected cases might be considered safe both for mother and baby. Good obstetric and urological outcomes can be achieved by close interdisciplinary monitoring of the pregnant patient and her fetus, and mutual decision-making.

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