Full-term pregnancy in a patient with cystectomy and urinary diversion

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Abstract

Case report of a young female patient with cystectomy and uretero-sigmoidostomy that was able to carry full term pregnancy four years after. The cesarean intervention was complicated by a colonic lesion leading to colectomy, hysterectomy and right cutaneous ureterostomy. From our information it is the first case reported in Romania of a full-term pregnancy in a patient without a urinary bladder.

Key words: cystectomy, urinary diversion, pregnancy

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Introduction
The first case described in literature of pregnancy in a woman with ureterosigmoidostomy was made by Knauf in 1922. In large medical centers, just one in 10,000 obstetricians had dealt with such cases [5]. There are only 188 cases of women with urinary diversion with a total of 252 pregnancies published in medical literature, with 222 newborn babies alive, seven pregnancies needed to be interrupted, and a total of 14 abortions and 9 deceased newborn babies [8].

Materials and Methods
In June 2007, a 28 years old female patient underwent an en-bloc excision, cystectomy and anterior colpectomy, with a bilateral Le Duc Camey ureterosigmoidostomy, for a tumour affecting the base of the urinary bladder and the anterior wall of the vagina (dysembrioma).

Post-procedural follow-ups reveal stage III ureterohydronephrosis on the right side, a good clinical tolerance of the urinary diversion, marked by a few episodes of acute pyelonephritis.

Fig. 1 – Computer tomography scan: aspect of the pelvic tumour

Fig. 2 – Magnetic resonance imaging: aspect of the pelvic tumour

Fig. 3 – Intravenous pielography: grade 3 ureterohydronephrosis on the right kidney.

Approximately four years later, in January 2011 she is diagnosed with an ongoing pregnancy, deciding to carry the pregnancy to full term. The pregnancy had a normal evolution up to the 23rd week, when she developed cervico-isthmic incompetence that led to continuous hospitalization in an obstetrical clinic with permanent antibiotics administration.

In October 2011 the patient gives birth to a baby girl by segmental transverse cesarean. The intervention is complicated by a sigmoid colon lesion (plated on the anterior wall of the uterus), which is sutured. On the 7th postoperative day the patient develops stercoral leakage from the wound. The surgical intervention consists of a Hartman colectomy, with the closure of the rectal stump and left colostomy, hysterectomy and anexectomy and right cutaneous ureterostomy. Later in March 2012 the bowel continuity is restored. From our information it is the first case reported in Romania of a full-term pregnancy in a patient without a urinary bladder.

Discussions
Important urological aspects during pregnancy in woman with intestinal conduit diversion
The population of pregnant women with urinary diversion is not a homogeneous one. Some present with cystectomy and others not. Cystectomy is inevitable if ileal neobladder is taken into consideration, but in other benign conditions cystectomy is not mandatory. Possible urinary diversion complications during pregnancy:

- Ureteral and intestinal conduit compression from the uterus;
- Low perfusion of the intestinal conduit and uterus growth may lead to chronic mesenteric and intestinal conduit tension;
- Intestinal occlusion may appear in 10% of patients with urinary diversion [3,6];
- Ureterostomy stenosis and prolaps;
- Metabolic complications (vitamin B12 and folic acid deficiencies, electrolyte disturbances).

The impact of the primary condition on the evolution of the urinary diversion
A number of 188 patients with urinary diversions got pregnant until 2005 [8]. Most of them presented with bladder extrophy or neurologic urinary bladder of different etiology (trauma, myelomeningocele, iatrogenic).
Birth

The type of birth in patients with urinary diversions is elected taking into consideration aspects like: the likelihood of urinary diversion deterioration in case of cesarean, pelvic diaphragm impairment after vaginal birth, special anatomical configuration of the mother and fetal conditions. Hill and Kramer [2] reported 10 cases of women with cystoplasty and continent diversion that were able to have vaginal birth. Only one woman became incontinent after birth. In other case, vaginal birth – vacuum extraction in a woman with ileum bladder augmentation for interstitial cystitis lead to urinary and fecal incontinence because of diaphragm destabilization. Moreover, any lesion in the pelvic wall or at the level of fecal continence in women with ureterosigmoidostomy mechanism will cause severe urinary and fecal incontinence. The advantage of vaginal birth consists of a low risk of injuring the neobladder mesenteric pedicle.

- Vaginal birth contraindications:
- Narrow pelvis;
- Artificial sphincter or bladder cervix reconstruction;
- Coxarthrosis.
- Vaginal birth may be indicated in situations like:
- Ureterosigmoidostomy;
- Malpresentation;
- Cervical prolapsed.

a) Cesarean - Hensle and associates [1] consider that cesarean is the gold standard for patients with urinary diversion, mostly in patients with continent diversion. Hill and Kramer [2] state the same idea, taking into consideration the fact that an urologist can be present at the time of birth in order to make any anatomic reconstruction after child delivery. It has been estimated that bladder lesions can occur in 0.1/1000 vaginal births and in 1.4/1000 cesarean births [7]. The obstetrician decides the cesarean section approach.

What type of urinary diversion should be recommended to a woman who desires a pregnancy?

Data based on medical literature say that all types of urinary diversions are compatible with pregnancy. Authors recommend that the type of urinary diversion should be a personal decision and then after be taken into account the desire of having a child.

Is there any medical indication for ending pregnancy?

Therapeutic abortion is necessary if renal function deteriorates during pregnancy. The indication was dismissed in 2006 because of the fact that under special care the renal function can improve during pregnancy.

What examinations should be performed before, during and after pregnancy?

Kennedy et al. [4] recommended an ultrasonogram every 20 weeks in order to evaluate hydronephrosis or recurrent pielonephritis. Urologic evaluation – urine analysis, urine culture, kidney ultrasound especially when hydronephrosis is present, storage and emptying function assessment of the urinary diversion - should be performed as well using the same protocol.

What should an obstetrician know about urologic reconstruction?

Complete patient medical history including surgical procedures undertaken is mandatory. The site of urinary diversion must be known by the obstetrician.
The urologist should be present during labor, in order to help identifying the lower urinary tract anatomy, rapid recognition of urinary tract injuries and treatment.

Is antibiotic prophylaxis necessary during pregnancy in a patient with urinary diversion?

Symptomatic urinary tract infection is an important issue for women with urinary diversion. Factors associated with urinary tract infection are stasis, difficulty in self catheterization and urethral compression. In a population study 21% of patients had premature labor due to increased incidence of urinary tract infection and acute pielonephritis. Authors support the aggressive antibiotic therapy for all urinary tract infections. Hensle et al [1] also recommend antibiotic therapy for women with urinary diversion and small dose antibiotic prophylaxis for:

- Patients with medical history of urinary tract infections;
- Patients with hydronephrosis;
- Patients with altered renal function;
- Patients with urethral reflux;
- Patients who perform self catheterization;
- Patients with ureterosigmoidostomy.

Conclusions

The woman with urinary diversion becomes fully aware of her anatomy.

All these patients have undergone at least one major surgical intervention and present with large abdominal and pelvic scars.

A vast majority of women with incontinent urinary diversion have a urostomy bag attached to their skin, making a pregnancy harder to cope with from psychological point of view.

They deal with the uncertainty of a marriage, therefore being unable to accept a possible pregnancy complication.

They must receive special advice from doctors and be aware of their problems and possible pregnancy related complications.

The surgical team must include an urologist if cesarean is proposed.

References