

**CLINICAL CASE: RENAL CARBUNCLE IN A PREGNANT WOMEN**

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Article Received on 25/07/2018

Article Revised on 15/08/2018

Article Accepted on 05/09/2018

**ABSTRACT**

Despite the advances in the treatment of inflammatory urinary system diseases during pregnancy, one of the possible complications still include renal carbuncle, which often leads to kidney loss, and, in severe cases, - to the death of a pregnant women/ puerperas. Relevance of studying the etiopathogenetic and diagnostic aspects of kidney carbuncle in pregnant women is determined not only by kidney carbuncle prevalence, but also by clinical significance, in particular, the high disease growth rates and severe complications rates.<sup>[1]</sup> Kidney disease complicates the course of pregnancy in 3-17% of women and tends to increase.<sup>[2,3]</sup>

**KEYWORDS:** Pregnancy, pyelonephritis, kidney carbuncle.

Renal carbuncle can arise as a primary disease due to massive bacterial invasion from a distant purulent focus. In this case, a bacterial thrombus is formed in a large blood vessel of the kidney cortex, or in several small vessels located close to each other. Renal carbuncle, purulent inflammation of the kidney, caused by the fusion of small purulent foci in a confined space breaking in aggressive cases into the pelvis, perineal tissues, abdominal cavity or intestines. The most frequent causative agents of renal carbuncle are *S. aureus* and white colonies thereof, *E. coli*. In addition, the disease is contributed by incomplete embolus overlap in renal artery and a subsequent infection. Kidney diseases during pregnancy are multifactorial; the leading factors are disorders of urodynamics and hemodynamics that arise during pregnancy against the background of changes in hormonal status and compression factors, which disrupts the course of pregnancy, increases the risk of intrauterine infection, maternal and perinatal mortality.<sup>[4,5]</sup>

**OBJECTIVE**

To analyze the course of asymptomatic bacteriuria leading to renal carbuncle and subsequent nephrectomy.

**MATERIALS AND METHODS**

A 24 y/o patient enrolled for prenatal case at 16 weeks with a first and wanted pregnancy.

Anamnesis: chronic gastritis within last two years. Clinician observed: 166 cm tall, 52 kg, BMI 18, blood pressure, pulse and body temperature within normal range.

Laboratory tests at 16 weeks: CBC: hemoglobin 109 g/l, urinalysis: protein 0.033 g/l, bacteria +++, leukocytes 17-18 per field of view, urine culture - *E. coli* 10<sup>5</sup>CFU/ml, sensitive to ceftriaxone, cefazolin. The patient was examined by a therapist and prescribed Ginotardiferone 1 tablet b.i.d, an uroseptic (Monural) 3 mg q.d., Urostin 1 tablet b.i.d for 14 days.

20 weeks of pregnancy: TBC: hemoglobin 111g/l, platelets 329x10<sup>9</sup>/l, leukocytes 11.3x10<sup>9</sup>/l, urinalysis: protein - negative, leukocytes 3-4 per field of view, squamose epithelium 6-8 per field of view, urine culture *Eherihii colii* 10<sup>5</sup> CFU/ml, PCR from cervical canal: chlamydia, cytomegalovirus, candida. Referred to a venereologist.

28 weeks of pregnancy: TBC: hemoglobin 117g/l, platelets 237x10<sup>9</sup>/l, leukocytes 11.1x10<sup>9</sup>/l, total protein

59.5 g/l, sugar 5.0 mmol/l, ALT 15.8, AST 27.9, alkaline phosphatase 102 U/l. urinalysis: protein - negative, leukocytes 1-3 per field of view, squamous epithelium 3-4 per field of view.

On November 11, 2017, at 32 weeks of pregnancy, patient complained about increased body temperature, repeated vomiting and a loose stool. CVAT positive, dysuria was revealed during examination. Patient was referred to the infectious diseases hospital.

Infectious pathology is not confirmed, and patient is referred to Urology Unit of the Central Railway Hospital.

Laboratory tests as of November 11, 2017: TBC: hemoglobin 113g/l, leukocytes  $18.7 \times 10^9/l$ , erythrocytes  $3.6 \times 10^{12}g/l$ , ESR 17 mm/p; biochemical: total protein 61,9 g/l, urea 3.9 mmol/l, creatinine 70 mmol/l, sugar 10.0 mmol/l, total bilirubin 47.6, ALT 13 u/l, AST 17 u/liter. Urinalysis: protein 1.6 g/l, leukocytes - large amount, ketones +++. Kidney ultrasound: right-sided pyeloectasia.

Diagnosis: 32-week pregnancy. Gastroenteritis. Pyelonephritis? Chlamydia carriers, CMV. Hyperglycemia, unspecified. Patient stayed in the inpatient unit for 4 days.

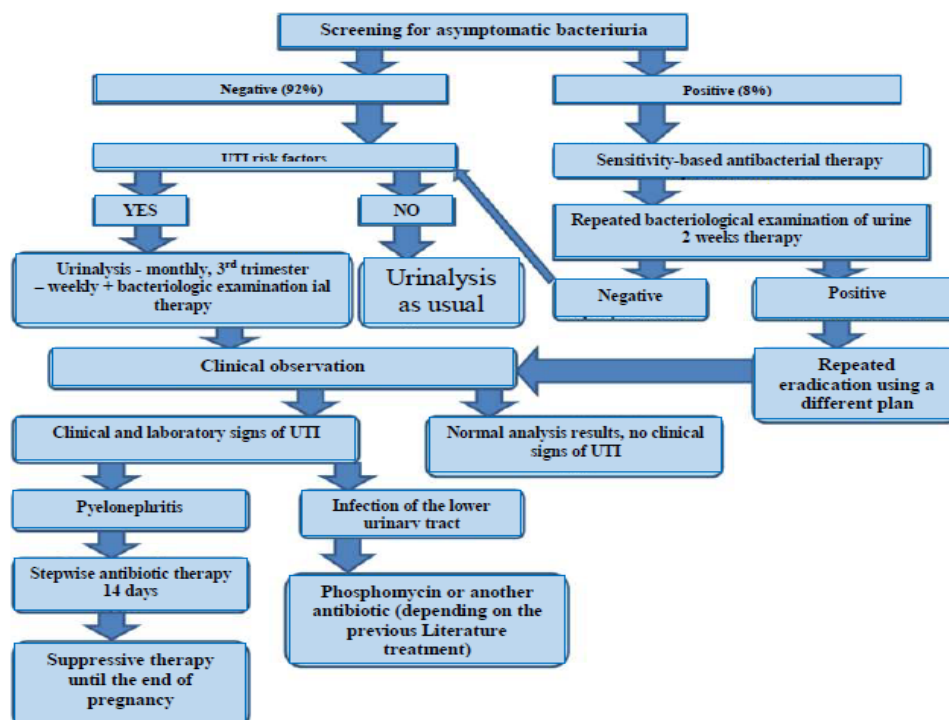
Laboratory tests on day 4 (November 18, 2017): TBC: hemoglobin 96g/l, leukocytes  $20.9 \times 10^9/l$ , erythrocytes  $3.0 \times 10^{12}g/l$ , ESR 48 mm/p; biochemical: total protein 45,4 g/l, urea 27 mmol/l, creatinine 592 mmol/l, sugar 6.6 mmol/l, total bilirubin 63.7, ALT 39 u/l, AST 37 u/liter.

Urinalysis: protein 1.4 g/l, leukocytes all over the place, erythrocytes 8-7 per field of view.

Follow-up kidney ultrasound: none.

Due to deterioration of the condition on day 8 from the onset of the disease, patient was referred to Perinatal Center for delivery diagnosed with 33-week pregnancy. HELLP syndrome? Acute pyelonephritis. ARF, prerenal and renal form, oligoanuria. Urosepsis. Cesarean section is done: a live male fetus, weight 2,160 grams, height 41 cm, 6-7 points Apgar. On day 2 of the postpartum period the puerperium is transferred to a multidisciplinary hospital diagnosed with acute pyelonephritis, urosepsis, multiple organ failure (acute renal failure in the anuria stage, acute liver failure, acute vascular insufficiency). Surgical preterm labor at 34 weeks for organ replacement therapy.

Additional examinations in the multidisciplinary hospital find right renal carbuncle, acute pyelonephritis, urosepsis, mixed hepatitis, hepatic cell failure, two-sided pleurisy, polyserosite, DIC syndrome, postpartum, post-surgery period. On day 2 of stay in the multidisciplinary hospital, right-sided nephrectomy is performed (November 23, 2017). Histology confirms renal carbuncle. In the post-surgical period, on November 24, 2017 lumbody is performed due to removed renal bed bleeding, revision of the retroperitoneal space, diagnostic laparoscopy, thoracocentesis. Hemodialysis continues. On November 28, 2017, on day 9 of the postpartum period, vacuum aspiration of the uterine cavity is done for hematometra. On day 1 after the surgical removal of the infection focus, the patient is transferred from the Intensive Care Intensive Care Unit to the Urology Unit. On day 17, patient is discharged and advised follow-up with urologist, gynecologist, and surgeon.



## DISCUSSION

According to the existing evidence base, asymptomatic bacteriuria in pregnant women requires appropriate sensitivity -based antibiotic therapy. Follow-up bacteriological examination of urine should be repeated after 2 weeks. Urinalysis and urine bacteriological analysis should be done every week during the third trimester (Attachment).

The conclusion that can be made from this clinical case is that pregnancy is one of the risk factors for bacteriuria, exacerbation of chronic pyelonephritis. Urinary tract infections are the most common type infections during pregnancy and are characterized by recurrence. Pyelonephritis causing no complaints previously as being latent and having no clinical manifestations, may manifest itself during pregnancy or in the early postpartum period. Exacerbation of chronic pyelonephritis during pregnancy is a risk factor for complications dangerous for both a woman and a child.

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