Pyelonephritis complicated by a perirenal abscess in a pregnant woman: Exceptional cause of fetal death in utero

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ABSTRACT

Acute pyelonephritis is the most common bacterial infection during pregnancy. If not diagnosed and treated promptly, it can lead to serious maternal and fetal complications. In the literature, a few cases of perirenal abscess complicating acute pyelonephritis during pregnancy have been reported. Herein, we report a case of perirenal abscess in a pregnant woman complicated by intrauterine fetal death and discuss the diagnostic and therapeutic difficulties.

1. Introduction

Acute pyelonephritis complicates about 1–2% of pregnancies and is one of the leading causes of obstetric hospitalization.1 It is most frequently seen in the second trimester and usually affects the right kidney.1 Nulliparity and young age are important risk factors.1,2 It is a serious condition that can have severe maternal and fetal complications. Herein, we report a case of intrauterine fetal death secondary to pyelonephritis complicated by a perirenal abscess in a young pregnant woman.

2. Case report

A 24-year-old patient with no medical history, pregnant at 24 weeks of amenorrhea, consulted our department for right lower back pain, fever, and chills evolving for 5 days. Clinical examination showed an altered general condition, lumbar fossa tenderness, hypotension, and tachycardia. The gynecological examination showed minimal intra-vaginal bleeding and fetal bradycardia. After transfer to the intensive care unit and stabilization of the hemodynamic state, the biological analysis showed the presence of anemia, renal failure, and an elevated CRP level (Table 1). Ultrasound showed dilatation of the pyelocaliceal cavities without obstruction and a heterogenic appearance of the perirenal fat. After informing the family of the risk of maternal and fetal complications, the patient was put on antibiotics based on 3rd generation cephalosporins and she had drainage by a double-j stent. The initial urine culture was negative.

The evolution was marked by the persistence of fever and the appearance of severe pelvic pain on day 2 of treatment. Gynecological examination coupled with pelvic ultrasound confirmed the diagnosis of fetal death in utero. The patient had an induction of labor allowing the delivery of a fetus in an apparent state of death. After the delivery and in view of the persistence of the fever, the patient had a CT scan which showed the presence of a 7 cm right perirenal abscess (Fig. 1). Percutaneous drainage of the abscess was performed. Bacteriological examination of pus showed the presence of Escherichia coli.

The antibiotic therapy was prolonged for 4 weeks. The evolution was favorable and the patient was discharged after two weeks of treatment. She was referred to the department of psychiatry for psychological care.

3. Discussion

Urinary tract infections are the most common bacterial infections during pregnancy.1 This is due to the anatomical and physiological changes in the urinary tract in pregnant women.

During pregnancy, asymptomatic bacteriuria occurs in 3% of patients and may be complicated by pyelonephritis with the risk of serious maternal and fetal complications.2 It is more frequent in the last weeks of pregnancy. It is more often on the right because of the dextrorotation of the uterus.

Acute pyelonephritis is seen in 1–2.5% of cases during pregnancy with a risk of recurrence in 10% of patients.1 It represents a diagnostic and therapeutic emergency. Pyelonephritis in pregnant women can have serious and life-threatening complications. The most common symptoms are fever, back pain, chills, urinary frequency, and burning. The most common causative agents are enterobacteria.1,2 Escherichia coli is

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The contribution of imaging is fundamental. Ultrasound is the reference radiological examination for pregnant women. Ultrasound can recognize a physiological dilatation located upstream of the superior strait without dilatation of the underlying ureter from an obstruction, in particular lithiasis or malformation where the disparity in caliber is located either at the ureteropelvic junction or at the level of the lithiasis. Treatment is based on probabilistic antibiotic therapy based on the 3rd generation of cephalosporin, which is then adapted according to the antibiogram. Drainage of the urinary tract is indicated in case of severe obstruction, signs of gravity, or in case of unfavorable evolution. A total duration of 2–3 weeks is recommended. After pyelonephritis, a monthly ECBU until delivery allows the detection of asymptomatic bacteriuria, the treatment of which reduces the risk of recurrence.

In some cases, the evolution is not favorable with the persistence of fever despite a well-conducted treatment. This prompts a search for complications that may have serious maternal and fetal consequences. Renal and perirenal abscesses are rare and serious complications of pyelonephritis during pregnancy. The diagnosis will be suspected if there is a poor evolution and confirmed by the radiological examination. The perirenal abscess may appear as an irregularly shaped fluid mass. The presence of internal echoes or layers of cellular debris within a well-defined mass with an irregular inner wall suggests an abscess. An abscess appears on CT as a non-contracting mass with a swollen, irregular wall, which may have fluid and cellular detritus inside, as well as internal septa. However, a CT scan can be performed during the 3rd trimester of pregnancy. As MRI avoids the use of radiation, it is a widely used imaging technique in obstetrics. On MRI scans, the abscess has the appearance of a rounded lesion with a swollen wall, which has a low, inhomogeneous signal intensity on the T1-weighted image and an increased signal intensity on the T2-weighted image.

Treatment must be aggressive and based on a combination of intensive antibiotic therapy and percutaneous drainage or surgery in order to reduce the risk of serious complications particularly fetal ones. Indeed, the occurrence of acute pyelonephritis during pregnancy is associated with an increased risk of fetal morbidities, such as preterm birth, preeclampsia, stillbirth, fetal death in utero, and neonatal infections. In our case, the patient was consulted after 5 days of symptomatology onset. This can explain the occurrence of fetal death despite a well-conducted treatment.

4. Conclusion

Acute pyelonephritis in pregnancy is a therapeutic emergency. It must be treated promptly to reduce the risk of serious maternal and fetal complications. Prevention of this serious condition is based on the systematic detection and treatment of asymptomatic bacteriuria during pregnancy.

Declaration of competing interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

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Table 1

| Biochemical and hematomatological parameters | Value |
|---------------------------------------------|-------|
| Hemoglobin (g/dL)                           | 8.8   |
| White blood cells                           | 16,340|
| Platelets                                   | 169,000|
| Serum creatinine (umol/L)                   | 212   |
| CRP (mg/L)                                  | 284   |
| Calcium (mmol/L)                            | 2.4   |
| Albumin (g/L)                               | 32    |

Fig. 1. CT scan showing a right perirenal abscess.