Renal-cell carcinoma in pregnancy

Krzysztof Tupikowski, Janusz Dembowski, Romuald Zdrojowy, Jerzy Lorenz
Department of Urology and Oncological Urology, Wrocław Medical University, Poland

KEY WORDS

kidney cancer ◗ pregnancy ◗ pregnancy complications ◗ nephron-sparing surgery

ABSTRACT

Kidney cancer is a rare event during pregnancy. Here we present a case report of a kidney cancer during pregnancy. A 26-year-old patient was operated in the 16th gestational week by nephron-sparing excision of a left kidney lower-pole tumor. Histological examination revealed a cystic clear-cell carcinoma. After surgery the patient delivered at term a healthy female infant. To our knowledge this is the first case of kidney cancer in pregnancy operated solely by kidney-sparing surgery.

INTRODUCTION

Kidney cancer is among the ten most common and most deadly malignancies. It usually occurs in the fifth to seventh decade of life and is more frequent in men than in women. Only a small number of cases occur in young adults [1]. Even less common is the coincidence of pregnancy and kidney neoplasm. Here we present a very rare case of a kidney cancer during pregnancy.

CASE REPORT

A 26-year-old pregnant patient in the 16th gestational week (2nd pregnancy, 2nd child) was admitted to our department (May 2004) for surgical treatment of a left kidney tumor. Her medical history before the pregnancy was negative. Since the 9th gestational week she had been suffering from general weakness, scotomas, occasional fainting, and slight left-flank pain. She also reported a feeling of presence in the left upper abdominal quadrant. In the 11th gestational week she was admitted to the obstetrics ward because of imminent abortion and abdominal ultrasound (US) was performed. The performing radiologist described a retroperitoneal cystic structure 9 x 8 cm in size connected with the lower pole of the left kidney. The interior was filled with echo-dense fluid, the walls were slightly uneven, but no septa were visible. It was interpreted as a kidney hematoma or an infected kidney cyst (Fig. 1, 2). All other abdominal organs were within the norm on US. After pregnancy stabilization she was referred to the primary obstetrics center. In a subsequent US performed two weeks later, no blood flow inside or surrounding the tumor was noted in Doppler US. Magnetic resonance imaging (MRI) was planned, but the patient refused the procedure. Further US examinations did not allow a definite diagnosis and differentiation of the lesion. Therefore it was decided to do a surgical resection.

On admission the patient was in good general condition. Physical examination revealed a palpable left upper quadrant abdominal tumor with low mobility relative to the surrounding tissues. Obstetric examination was without any pathological findings. Laboratory results showed that blood and urine parameters were all within the normal ranges. After preparation for the procedure she was operated on under general anesthesia. She was settled in the right flank position and retroperitoneal access through an incision in the 11th left intercostal space was generated. A partial nephrectomy (NSS) and excision of the tumor was carried out. The operative time was 2 h 20 min, with negligible blood loss. She was discharged on the fourth postoperative day in good general condition. No surgical, obstetric, or anesthetic complications were noted. Postoperative histological examination revealed a Fuhrman G1 pT2NxMx cystic clear-cell carcinoma with abundant cholesterol and hemosiderin deposits.

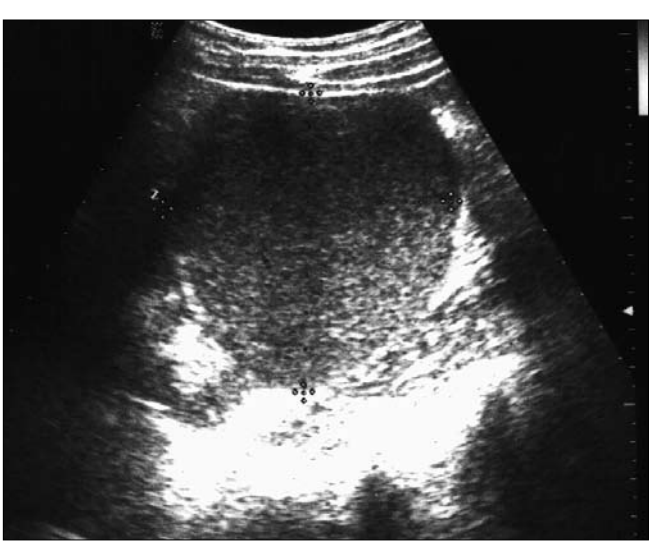

Fig. 1. Ultrasound image of the retroperitoneal cystic tumor. Note echo-dense filling of the cyst, suggesting either blood or pus.

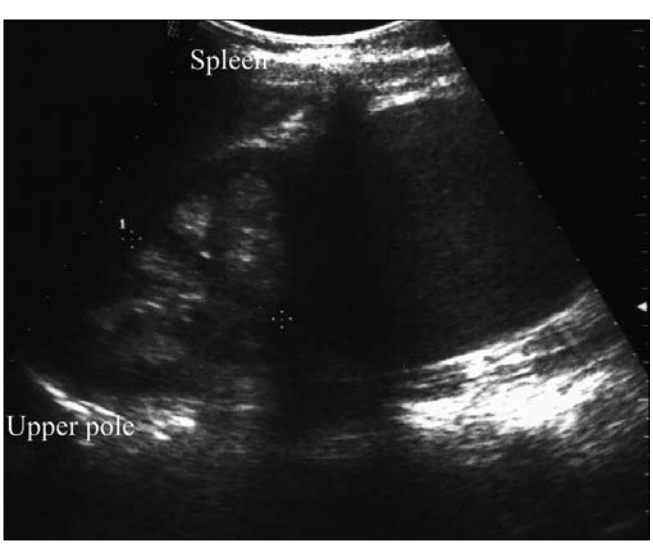

Fig. 2. Ultrasound image of the tumor showing its relation to the surrounding organs and left kidney.

The rest of the pregnancy was uneventful. She delivered at term a healthy female infant. The last follow-up was in April 2009. Both mother and child are healthy and in good condition. No radiological signs of metastatic disease are present. She had delivered two more children. Both of these pregnancies were uneventful.

DISCUSSION

Malignancy during pregnancy is a rare event. It is estimated that less than 0.1% of pregnancies are complicated by any type of neoplasm and only 0.0013% (approx. 13 in 1,000,000 pregnancies) by urinary cancer [2]. These estimates are based on a linkage of the Californian Cancer Registry and data obtained from maternal/neonatal hospitals of California in the USA. If data are similar for Poland we should encounter approximately 4-5 urinary malignancies a year (376,035 births in Poland in 2006) [3]. Kidney cancer is the most common of those, which means that 2-3 pregnant women should present with it every year [4].

Our patient presented the first symptoms of the disease at a very early stage of pregnancy, in the first trimester, and the primary ultrasound diagnosis was made in the 11th gestational week. Differentiation of the lesion between a malignant and a nonmalignant growth was challenging because of several factors. The patient refused abdominal MRI and radiological evaluation was thus US-based only; the tumor itself was of cystic nature, which is often difficult to differentiate; and kidney malignancies in young women are also extremely rare. Surgical excision of the lesion was carried out because of the symptoms (left-flank pain and discomfort in the left upper abdominal quadrant), the size of the tumor, and the possibility that the lesion might be of cancerous origin, i.e. cystic cancer. The method, i.e. nephron-sparing excision of the lower-pole renal tumor, was chosen because of the favorable location, the favorable US features of the tumor in which no signs of infiltration of the surrounding organs were evident, and the young age of the patient. The right flank position was safe for the patient as the uterus in the 16th gestational week is still not large enough to compress the inferior vena cava in that position. Additionally, the second trimester is the safest time during pregnancy to perform surgical procedures as the risk of miscarriage and obstetric complications is lowest. To our knowledge our patient is the first case of kidney cancer in pregnancy operated solely by the NSS method.

Our patient demonstrated typical symptoms of a large kidney tumor: a palpable left upper quadrant tumor and flank pain. No hematuria or erythrocyturia were present on admission. In the largest review in the literature, Walker and Knight describe the most common symptoms and laboratory findings in pregnant women with kidney cancer: a palpable mass in 88%, pain in 50%, hematuria in 47%, fever in 21% hypertension in 18%, and weight loss in 9% of patients. The classical symptom triad of palpable mass, pain, and hematuria was present in 21% of cases [5].

Although kidney cancer in pregnant women is a rare event, we believe all women should undergo ultrasound evaluation during pregnancy. The standard procedure is obstetric evaluation, but US of the abdomen should also be performed. This examination is fast, not cumbersome for the expecting mother, and safe for the fetus. This modification in prenatal evaluation might allow for the early diagnosis of not only cancers of the urinary tract and other organs, but also other diseases that might be asymptomatic but jeopardize the wellbeing of the mother and child in the future.

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Correspondence
Krzysztof Tupikowski
Department of Urology and Oncological Urology
213 Borowska Street
50-556 Wrocław, Poland
phone: +48 71733 10 10
tupik@epf.pl