Case Report

Bilateral multicystic dysplastic kidney diagnosed at antenatal period

Gun I¹, Salman MC¹, Kucukodaci Z²

Maresal Cakmak Military Hospital, ¹Departments of Obstetrics and Gynecology, and ²Pathology, Erzurum, Turkey

Abstract. The incidence of ultrasonographically detected congenital urinary system abnormalities is between 0.14-0.67 percent. In the fetus of a 24-year-old, gravida 2, para 0 woman was diagnosed bilateral multicystic dysplastic kidney, which the ultrasonographic examination was performed at 16 gestation weeks. Additionally, fetus has 6 fingers for both hands and feet. Past medical history of our patient revealed an ectopic pregnancy treated with a single dose methotrexate 10 months ago. Also, she was married with one of her first degree relatives. Routine laboratory evaluation and ultrasonography was within normal limits at her first visit. Genetic amniocentesis yielded a normal fetal karyotype. Medical abortion was indicated using misoprostol. The aim of this study is to discuss a case of bilateral multicystic dysplastic kidney detected by ultrasonography at 16th gestational week.

Key words: Prenatal diagnosis; bilateral multicystic dysplastic kidney; ultrasonography.

Introduction

The incidence of ultrasonographically detected congenital urinary system abnormalities is 0.14-0.67% [1-3]. However, the incidence may rise up to 8% among patients with a positive family history [4]. These abnormalities include renal dysplasia, hypoplasia, and aplasia, polycystic kidney, and multicystic dysplastic kidney, obstruction of ureteropelvic junction, posterior urethral valve, and ectopic ureter [5]. Among them, multicystic dysplastic kidney represents a serious abnormality.

The ultrasonographic detection of urinary system abnormalities during pregnancy is especially important to distinguish cases requiring immediate intrauterine intervention or cases requiring termination of pregnancy because of severe abnormalities incompatible with future life.

The aim of this study is to report a case of bilateral multicystic dysplastic kidney detected by ultrasonography at 16th gestational week which was terminated and subjected to both macroscopic and microscopic examination and to discuss the diagnostic approach and management options in fetuses with multicystic dysplastic kidney.

Figure 1. Ultrasonographic view of bilateral multicystic dysplastic kidney

Figure 2. Hand (a) and foot (b) having 6 fingers

Correspondence to: I. Gun, MD, e-mail: drsmetgun@yahoo.com
Case

Twenty-four-year-old, gravid 2, para 0 woman was first seen at outpatient clinic at 8th gestational weeks. Past medical history reported an ectopic pregnancy treated with a single dose methotrexate 10 months ago. Also, she was married with one of her first degree relatives. Routine laboratory evaluation and ultrasonography was normal at her first visit. Fetal nuchal translucency was measured to be 1.2 mm at 12th gestational weeks. Detailed ultrasonographic examination performed at 16 weeks, which is consistent with bilateral multicystic dysplastic kidney (Figure 1). Also, fetus has 6 fingers for both hands and feet (Figure 2). Amniotic fluid volume was extremely low. There were no additional abnormalities. Genetic amniocentesis yielded a normal fetal karyotype. The family was informed that chronic renal failure was inevitable at postpartum period and termination of pregnancy was offered. The family accepted termination and medical abortion was done using misoprostol. Gross morphologic and microscopic examination of aborted fetus confirmed the findings detected by prenatal ultrasonography (Figures 3-4).

Discussion

Congenital urinary system abnormalities are not so uncommon. These abnormalities may easily be detected by ultrasonographic fetal examination. Detection of abnormalities is extremely important especially for cases requiring intrauterine interven-

The kidneys in this abnormality consist of cysts with some connective tissue and lack detectable renal tissue. Ureteric bud abnormality leading atresia or absence of ureter is the primary reason. The severity of renal dysplasia is determined by the degree of obstruction of ureter.

Figure 3. (a) Abdominal distention due to enlarged kidneys, (b) Kidneys occupying a significant portion of fetal abdomen, (c) Section of fetal kidney
Histological finding is cysts of various dimensions formed by urine filled primitive nephrons. The dysplasia is frequently unilateral and left-sided, other kidney is usually normal, however, rotational or positional abnormalities or hypoplasia may be seen. The incidence is 1 per 3000 live births and male fetuses are affected more than female fetuses [11]. Ultrasonography revealed a kidney larger than expected and abnormal in shape, which ureter is atrophic or absent. Amniotic fluid is normal in unilateral disease, however severe oligohydramnios is seen in cases with bilateral involvement since there is no fetal urine production. On the contrary, 40% of cases have vesicoureteral reflux, ureteropelvic junction obstruction, or renal agenesis [12].

Multicystic dysplastic kidney should first rule out from other renal abnormalities causing cystic appearance. For this purpose, other structural abnormalities possibly associated with some syndromes should be investigated. Other kidney should also be examined in order to determine the prognosis. In unilateral cases without any additional abnormality, conservative follow-up with periodic ultrasonographic examinations is sufficient and long term prognosis is favorable. Routine removal of the affected kidney is not recommended any more since risk of hypertension, infection and malignancy is low [13]. Nearly half of the affected kidneys disappear in years by means of atrophy as well [14]. If both kidneys are involved or other abnormalities are present at opposite side, prognosis is worse and risk of chronic renal failure is high. As seen in our case, termination of pregnancy should be kept in mind in such cases and detailed information should be given to the family.

As a conclusion, congenital abnormalities of urinary system are not uncommon especially in patients with a positive family history. Whether family history is positive or not, urinary system should be carefully examined during detailed ultrasonographic evaluation performed at the second trimester of pregnancy. Thus, cases requiring intrauterine intervention or pregnancy termination may easily be detected.

References

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