Actas Urol Esp. 2017;41(1):62–67

Actas Urológicas Españolas

www.elsevier.es/actasuro

ORIGINAL ARTICLE

Multicystic dysplastic kidney: Assessment of the need for renal scintigraphy and the safety of conservative treatment☆

M.E. Carazo-Palacios[a,*], M. Couselo-Jerez[a], A. Serrano-Durbá[b], B. Pemartín-Comella[a], C. Sangüesa-Nebot[c], F. Estornell-Moragues[b], C. Domínguez-Hinarejos[b]

[a] *Cirugía Pediátrica, Hospital Universitario y Politécnico La Fe, Valencia, Spain*
[b] *Urología Infantil, Hospital Universitario y Politécnico La Fe, Valencia, Spain*
[c] *Radiología Infantil, Hospital Universitario y Politécnico La Fe, Valencia, Spain*

Received 7 February 2016; accepted 17 May 2016
Available online 8 December 2016

KEYWORDS
Multicystic kidney;
Nephroblastoma;
Renal scintigraphy

Abstract

Objectives: To assess the need for implementing renal scintigraphy in the diagnosis of the multicystic dysplastic kidney (MCDK) and the safety of its conservative treatment.

Material and methods: A retrospective study of patients with unilateral MCDK was conducted at our center from January 2005 to August 2015. We calculated the positive predictive value (PPV) of ultrasonography, taking renal scintigraphy and pathology as the gold standard. We calculated a survival curve according to the Kaplan–Meier method to assess the annual probability of spontaneous resolution of the multicystic kidney.

Results: Fifty-six patients were identified, 48 (85.7%) of whom had a prenatal diagnosis. Thirty eight (67.9%) of the patients were males, and the left side was affected in 33 (58.9%) of the patients. We observed associated urological abnormalities in 22 (39.29%) patients, with vesicoureteral reflux the most common (8, 14.29%). Seven patients (12.5%) developed renal failure. Forty-nine (87.5%) patients developed compensatory contralateral renal hypertrophy. Of the 33 patients who underwent surgery, the pathology results confirmed the MCDK diagnosis in 32. Compared with scintigraphy and pathology, the PPV of ultrasonography was 100% and 97%, respectively.

The rate of spontaneous involution was 5.4% at 3 months of life, 11.3% at 2 years and 38.4% at 5 years.

☆ Please cite this article as: Carazo-Palacios ME, Couselo-Jerez M, Serrano-Durbá A, Pemartín-Comella B, Sangüesa-Nebot C, Estornell-Moragues F, et al. Displasia renal multiquística: evaluación de la necesidad de la gammagrafía renal y seguridad del tratamiento conservador. Actas Urol Esp. 2017;41:62–67.

* Corresponding author.
E-mail address: hellencarazo@gmail.com (M.E. Carazo-Palacios).

Conclusions: In our experience, the conservative treatment of MCDK, until at least 5 years of age, is safe. Our data suggest that performing scintigraphy is not required for these patients, which means lower radiation exposure, as well as financial savings.

PALABRAS CLAVE
Riñón multiquístico;
Nefroblastoma;
Gammagrafía renal

Displasia renal multiquística: evaluación de la necesidad de la gammagrafía renal y seguridad del tratamiento conservador

Resumen

Objetivos: Evaluar la necesidad de la realización de la gammagrafía renal en el diagnóstico de la displasia renal multiquística (DRMQ), así como la seguridad de su tratamiento conservador.

Material y métodos: Estudio retrospectivo de los pacientes con DRMQ unilateral en nuestro centro desde enero de 2005 hasta agosto de 2015. Calculamos el valor predictivo positivo (VPP) de la ecografía tomando la gammagrafía renal y la anatomía patológica como *gold standard*. Realizamos una curva de supervivencia según el método de Kaplan-Meyer para evaluar la probabilidad de resolución espontánea del RM anualmente.

Resultados: Se han identificado 56 pacientes, 48 (85,7%) con diagnóstico prenatal, 38 (67,9%) fueron varones y en 33 (58,9%) el lado afecto fue el izquierdo. En 22 (39,29%) observamos anomalías urológicas asociadas, el reflujo vesicoureteral la más frecuente (8 [14,29%]). Siete pacientes (12,5%) han desarrollado insuficiencia renal, y 49 pacientes (87,5%) desarrollaron hipertrofia renal contralateral compensatoria. De los 33 pacientes que se intervinieron el resultado de anatomía patológica confirmó el diagnóstico de DRMQ en 32. En comparación con la gammagrafía el VPP de la ecografía fue del 100% y del 97% al compararla con la anatomía patológica.

La tasa de involución espontánea fue del 5,4% a los 3 meses de vida, del 11,3% a los 2 años y del 38,4% a los 5 años.

Conclusiones: En nuestra experiencia el tratamiento conservador de la DRMQ, hasta al menos los 5 años de edad, es seguro.

Nuestros datos sugieren que la realización de la gammagrafía no es precisa en estos pacientes, lo que supone una menor exposición a la radiación, así como un ahorro económico.

Introduction

The multicystic dysplastic kidney (MCDK) is a congenital anomaly characterized by the existence of multiple non-communicating cysts of various sizes, without identifying renal parenchyma of normal characteristics. The first description was made by Cruveilhier in 1836.[1,2] In the 1960s, after the description of the nephrectomy, this was the treatment of choice for all patients with MK. In the 1980s, the first publications that described that the MK can regress spontaneously appeared.[3,4] Currently, the treatment of MCDK remains controversial. The therapeutic approach lies at the crossroads between nephrectomy or conservative attitude.[5] Doubts remain about the possibility that these patients develop high blood pressure (HBP), or that these dysplastic kidneys are at risk of malignancy.[6] In addition, as the coexistence of urinary tract malformations is known in these patients, there is controversy in the precise complementary tests in patients with MCDK.

The aim of this study is to assess whether it is necessary to perform a renal scintigraphy in the diagnosis of MCDK and if conservative treatment up to 5 years of age (attitude that we currently have in our center) is safe.

Material and methods

Retrospective study of patients monitored in our center with diagnosis of unilateral MCDK from January 2005 to August 2015. We collected demographic variables, personal history, prenatal diagnosis, associated comorbidities, and contralateral kidney disease. The diagnosis of MCDK was established with the sonographic appearance of several non-communicating cysts in varying number and size, non-medial location of the largest cyst (to differentiate with the stenosis from the ureteropelvic junction) and without visualization of the healthy renal parenchyma or renal sinus.[7] It was defined as compensatory renal hypertrophy if the contralateral kidney had a renal size larger than 2 standard deviations according to the average size, given the age of the patient. These ultrasounds were performed by pediatric radiologists. The ultrasound scanner used was a Siemens Acuson S 2000 with linear 9–4 MHz and 6–2 MHz curve probes. During the examination, the study was performed in B mode and with doppler technology. The examination was performed with the patient in prone position and the measures taken were renal length and the transverse distance to the hilum. Renal scintigraphy was performed with dimercaptosuccinic acid (DMSA) in all patients to confirm the functional annulment.