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CONTINUOUS PERCUTANEOUS CYST DRAINAGE FOR MULTICYSTIC KIDNEY

KENITIRO KANEKO, HISAMI ANDO, and TAKAHIRO ITO

Department of Surgery, Branch Hospital, Nagoya University School of Medicine, Nagoya, Japan

ABSTRACT

We report a patient with a multicystic kidney treated successfully by continuous percutaneous drainage. This method may be an alternative to surgical resection of a multicystic kidney that has not involuted after one year of follow-up.

Key Words: Multicystic kidney, Percutaneous drainage

INTRODUCTION

Excision has been the standard treatment of a multicystic kidney (MCK).[1,2] Recent improvements in diagnostic imaging reveal, however, that many MCKs involute or disappear spontaneously.[3–5] Nevertheless, cases without involution require excision. The purpose of this paper is to report our experience of a patient treated successfully with continuous percutaneous cyst drainage after spontaneous involution failed to occur during one year of observation.

CASE REPORT

A female fetus at 28 weeks' gestation was found to have several cysts in the abdomen on prenatal ultrasonographic examination. After normal delivery at 35 weeks' gestation, the lesion was diagnosed as a right MCK by ultrasonography (US) and enhanced computed tomography (CT). Because she was asymptomatic, the patient was followed without intervention. At the age of one year the cysts had not changed in size and she was admitted to our department for further evaluation. Blood pressure on admission was normal. US showed one large cyst 6 cm in diameter, several smaller cysts, and a slightly echogenic mass posterior to the cysts in the right flank (Fig. 1B). CT scan also showed the large cyst and several small cysts (Fig. 1A). Renal scan demonstrated complete lack of isotope uptake by the right kidney. A percutaneous drainage tube made of vinyl chloride was inserted into the large cyst using ultrasonographic guidance in the hope of involution of the cysts. Injection of contrast material showed a large cyst communicating with a small cyst through a tortuous tubule (Fig. 2). Neither the renal pelvis nor the ureter was demonstrated. Approximately 20 ml per day of yellow serous fluid drained from the tube, but the drainage decreased to zero within two weeks. The drainage tube was removed after one month. Two months later, CT showed only small cysts (Fig. 3A). Four months later, US showed an almost undetectable cyst and a slightly echogenic small mass (Fig. 3B). The patient remained asymptomatic eight months later without re-expansion of the cysts.

Correspondence: Dr. Kenitiro Kaneko, Department of Surgery, Branch Hospital, Nagoya University School of Medicine, Daikominami 1-1-20, Higashi-ku, Nagoya, 461, Japan.

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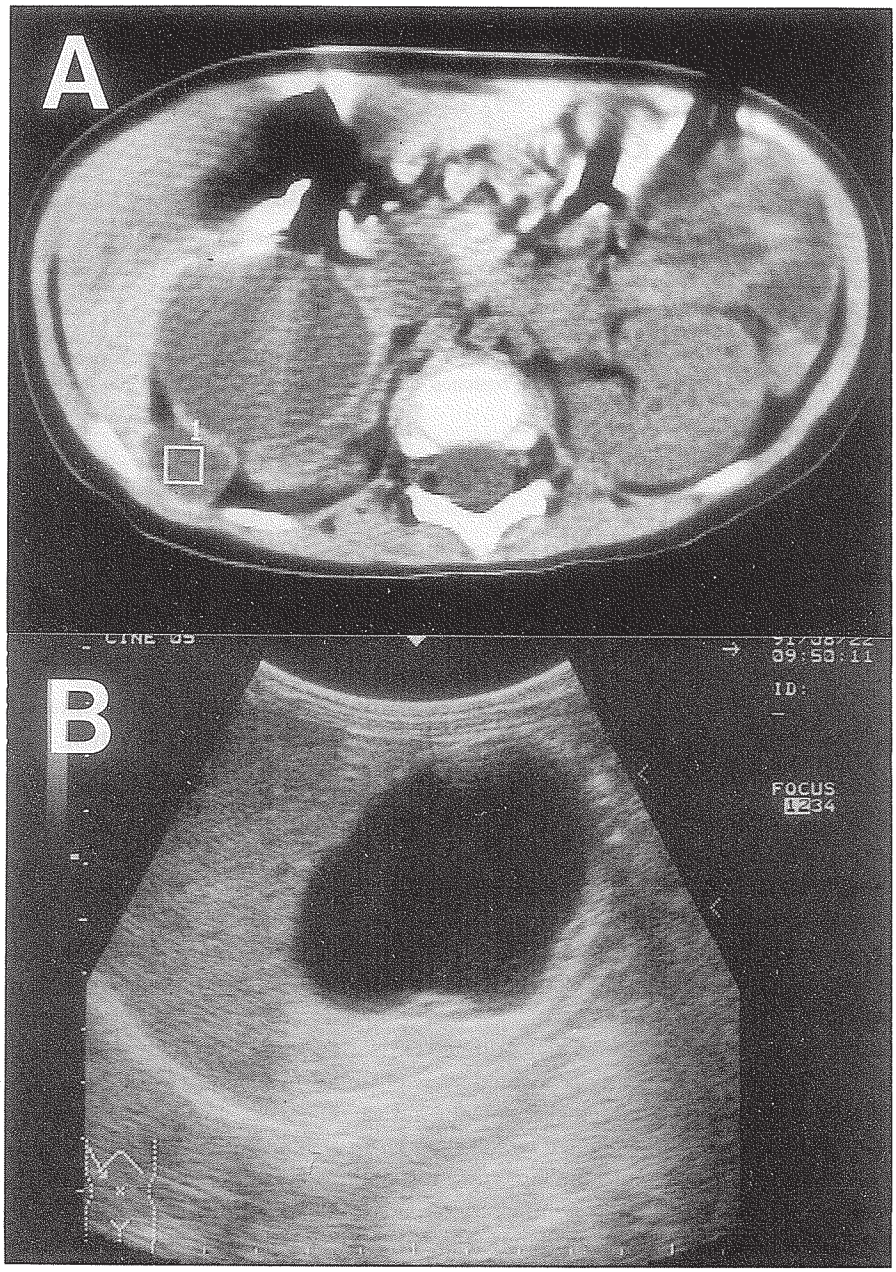

Fig. 1. Computed tomography (A) and ultrasonography (B) at the age of one year show several cysts and a mass in the right renal fossa.

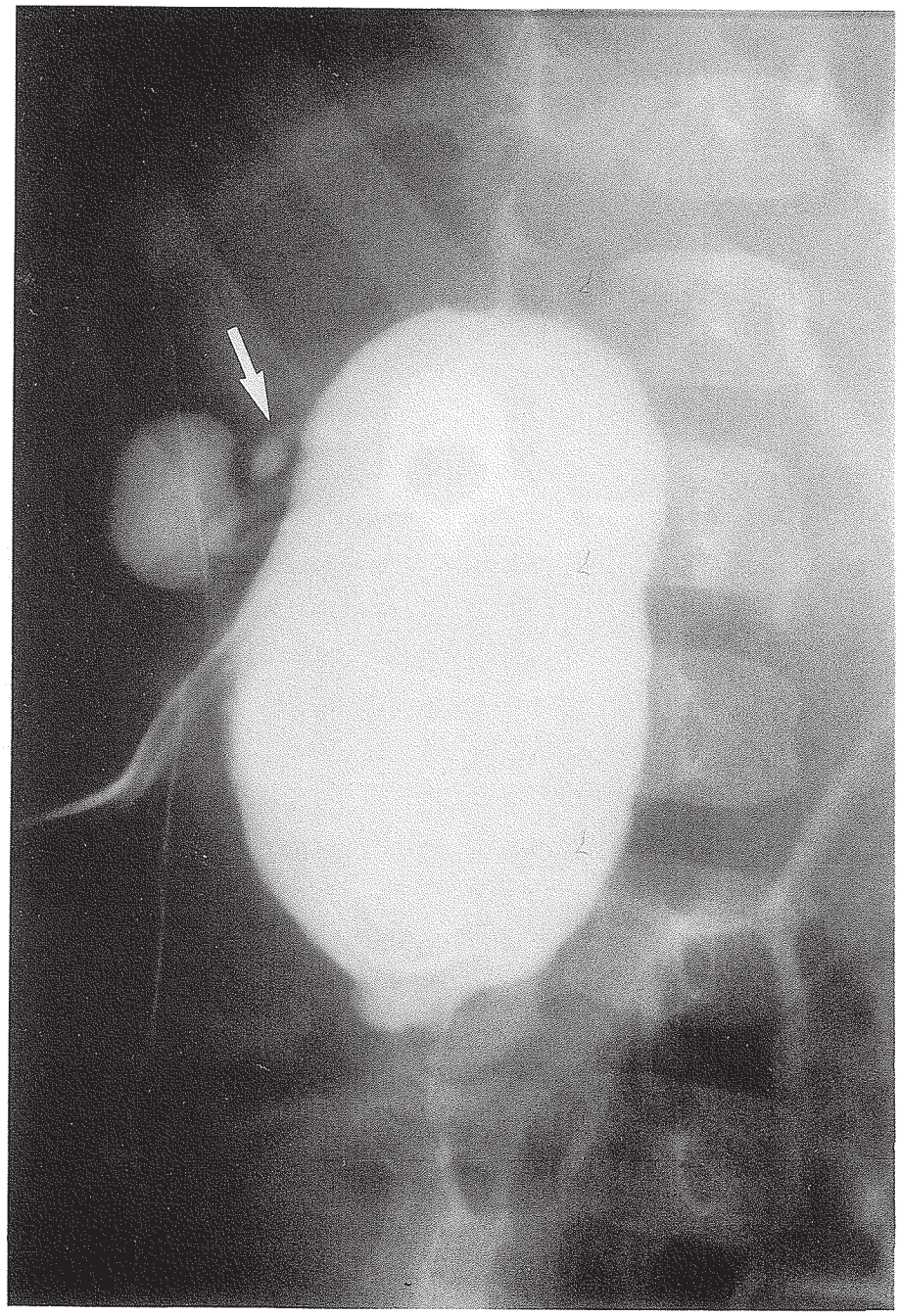

Fig. 2. A tube cystogram demonstrates initially a large cyst communicating with a small cyst through a tortuous tubule (arrow).

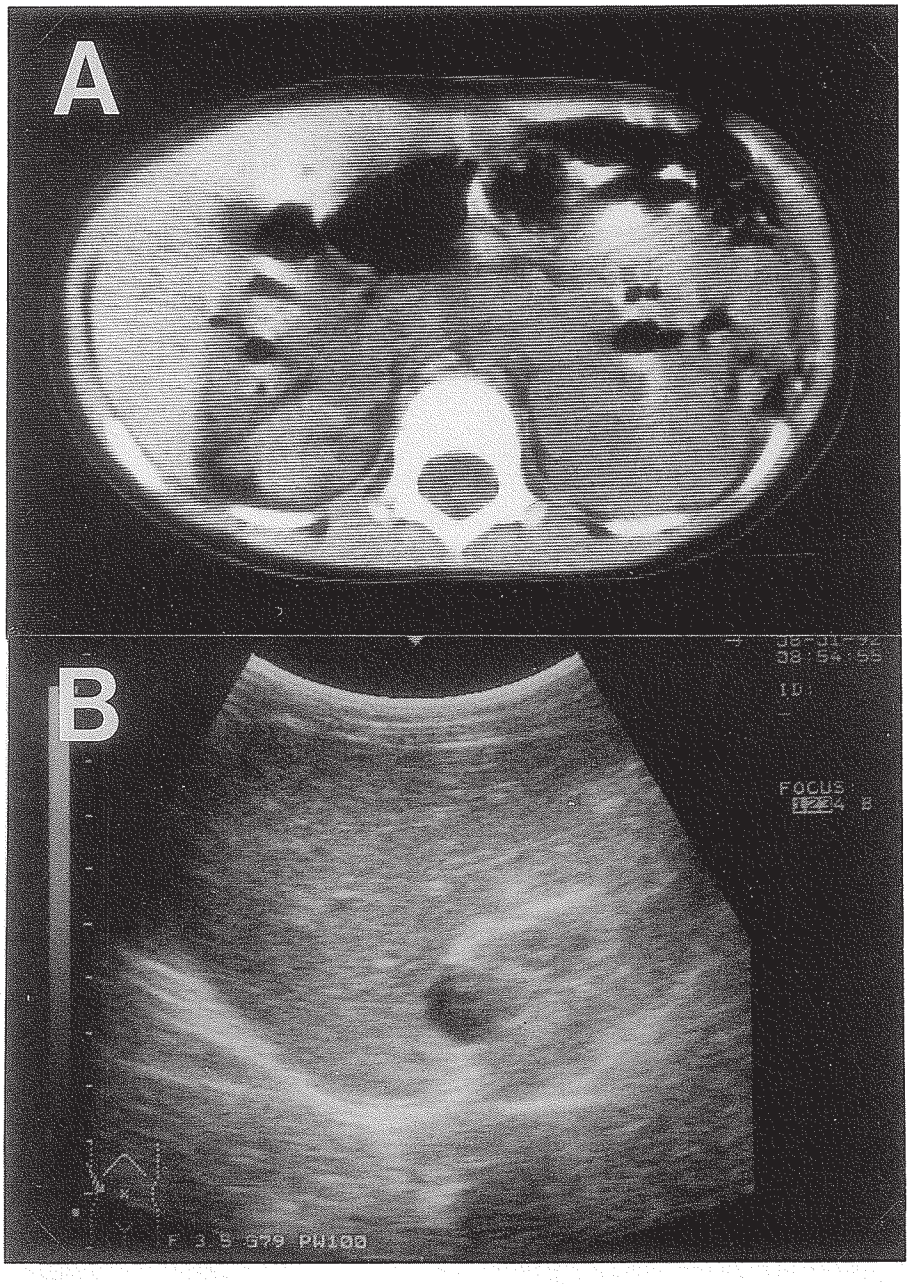

Fig. 3. Computed tomography two months after drainage (A) and ultrasonography four months later (B) show nearly undetectable cysts.

DISCUSSION

Excision has been the treatment of MCK in order to prevent complications such as infection, pain, hypertension, and malignant tumors.[1,2] However, the widespread use of US has revealed a marked increase in the number of MCKs, which has resulted in a re-evaluation of its complications. With regard to infection, the accompanying atresia of the ureter[1] and related anomalies of the contralateral urinary system[5,8] make the route and focus of infection unclear. There is little bacteriologic or pathologic evidence of the involvement of the MCK. Pain, although reported to be a common presenting complaint in adult MCK, is rare and of unclear etiology.[1] Only six cases of malignant transformation have been reported[1,2] and, according to Noe's estimation, approximately 2,000 nephrectomies would be necessary to prevent one Wilms tumor from occurring.[7] In six out of 13 reported cases complicated by hypertension, blood pressure did not normalize after nephrectomy.[1,6] Frequency of hypertension in reported cases is low,[1] and its relationship to MCK is unclear. The majority of recently reported cases show that complications of MCK including infection, pain, malignancy and hypertension are rare; therefore no aggressive treatment may be required.

The availability of US and the infrequency of complications have increased the number of cases of long-term follow-up of MCK.[3–5] Half of the cases reported in the literature during the past six years involuted or disappeared. Since regression rarely occurs after one year, treatment is indicated in cases where MCKs do not involute after one year of observation.

When percutaneous drainage was performed in this case of MCK without involution after one year, the cysts involuted and did not recur after removal of the drainage tube. This may be the result of the adhesion resulting from the reaction to the drainage tube as a foreign body, which prevented the reaccumulation of fluid that some residual normal nephrons are considered to produce[3,9] in the cavity of the cysts. Puncture and aspiration of the fluid without prolonged drainage would be inadequate in provoking adhesion,[9] and injection of alcohol into the cyst may be dangerous for children in case of leakage into circulation because the lethal serum value of alcohol is 400 mg/dl,[10] i.e., 3 ml leakage could cause the death of a one-year-old child. Therefore, it is best to keep the drainage tube in place for a definite period.

Since the lesion consists of many cysts that may not communicate with each other, all cytsts of a MCK can not possibly be drained. However, as cysts communicate through tortuous tubules,[9] a single catheter can decompress most cysts adequately. This method seems to be effective for the treatment of cases without involution after one-year follow-up.

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