

—Report on Experiments and Clinical Cases—

Characteristic Prenatal Ultrasonographic Findings of Patent Urachus: A case report

Yoshio Shima¹, Mari Hayashida², Takashi Hayashi³,
Yoshimitsu Kuwabara³ and Tsutomu Araki³

¹Department of Premature and Neonatal Medicine, Japanese Red Cross Katsushika Maternity Hospital, Tokyo

²Department of Pediatrics, Nippon Medical School

³Department of Obstetrics and Gynecology, Nippon Medical School

Abstract

A characteristic prenatal ultrasonographic finding of patent urachus is described. Routine obstetrical ultrasonography first revealed a cystic mass in the umbilical cord at 16 weeks of gestation. The mass spontaneously decreased in size and was undetectable at full term on serial ultrasound examination. The male newborn infant was delivered uneventfully at 38 weeks of gestation, weighing 2,774 g. He was noted to void urine from the umbilicus soon after birth, and the diagnosis of patent urachus was confirmed. On the 8th day of life, complete surgical removal of the urachus was performed, and the postoperative course was uneventful. An umbilical cystic mass which diminishes in size over the course of pregnancy is a suggestive prenatal sonographic finding for urachal anomalies. (J Nippon Med Sch 2003;70:172–174)

Key words: patent urachus, prenatal diagnosis, ultrasonography

Introduction

Patent urachus is a rare umbilical anomaly that has an incidence of 0.02 in 1,000 live births¹. Prenatal detection is possible by ultrasonography^{2,3}.

Essentially most cases of patent urachus diagnosed prenatally are initially suspected to be omphalocele because of the cystic structure in the umbilical cord⁴. However, certain ultrasound findings are suggestive of this anomaly. Here we describe a case of a male newborn infant confirmed to have congenital patent urachus in the postpartum period, and its characteristic ultrasonographic findings over the course of pregnancy.

Case report

A 34-year-old Japanese woman, gravida 0, para 0, was referred to our maternity hospital for a routine obstetrical check-up at 16 weeks of gestation. Ultrasonographic examination revealed a large cystic mass in the umbilical cord, measuring 5×6 cm, adjacent to the fetal anterior abdominal wall (**Fig. 1**). MRI at 28 weeks of gestation demonstrated that an extra-abdominal mass appeared to communicate with the fetal bladder⁵ (**Fig. 2**). No other fetal structural abnormalities were identified, and amniotic fluid volume was normal. Close monitoring by periodic ultrasonography showed the cystic mass spontaneously reducing in size until it was

Correspondence to Yoshio Shima, MD, Department of Premature and Neonatal Medicine, Japanese Red Cross Katsushika Maternity Hospital, 5-11-12 Tateishi, Katsushika-ku, Tokyo 124-0012, Japan

E-mail: shima-p@nms.ac.jp

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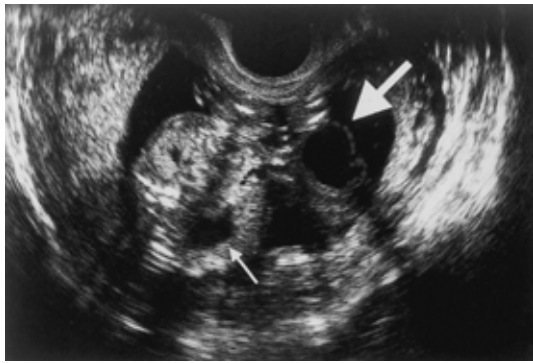


Fig. 1 Transvaginal fetal echography at 16 weeks of gestation.
 large cystic mass in the umbilical cord (large arrow) is connected with the fetal body.
 Small arrow shows the fetal bladder.



Fig. 2 MRI at 28 weeks of gestation.
 An extra-abdominal mass (large arrow) appeared to communicate with the fetal bladder (small arrow).

undetectable at 35 weeks of gestation. After an uneventful pregnancy, a 2,774 g male infant was delivered vaginally at 38 weeks' of gestation. Apgar scores were 9 and 10 at 1 and 5 minutes, respectively. Upon initial physical examination, the baby was noted to have an anomaly at the base of the umbilical cord with protruding mucosa, from which he voided urine. No other congenital anomalies were seen, and a diagnosis of patent urachus was made. The baby was transferred to the surgical unit, where the urachus was excised at the 8 days of age. His recovery was uneventful and he has experienced no further complications from the patent urachus.

Discussion

The urachus is the intra-abdominal portion of the allantois extending from the umbilicus to the vertex of the bladder. A failure of the allantois to involute can result in several types of abnormalities: patent urachus, umbilical urachal sinus, vesicourachal diverticulum, urachal cyst, or alternating sinus⁶. Complete patent urachus is easily diagnosed in the early days of life because the leakage of urine from the umbilicus can be seen. However, other urachal abnormalities are often overlooked in this period, because they are usually asymptomatic unless infection develops. Babies with such anomalies are sometimes suspected to have refractory omphalitis until the true diagnosis is made.

Although patent urachus is not life threatening, chronic urinary infection and stone formation may result if the disorder is left untreated. In addition, malignant neoplastic changes developing in urachal remnants have been reported in later life⁷. In light of these potential complications, early detection of urachal abnormalities will enable the baby to be closely followed. Previous reports concerning the prenatal diagnosis of urachal abnormalities describe the presence of a cystic mass in the umbilical cord close to the fetal anterior abdominal wall as the most characteristic sonographic finding. In addition, a reduction in the size of the mass over the course of pregnancy is highly suggestive of patent urachus; as it was in the present case^{38,9}. Careful examination for concomitant fetal structural anomalies should be considered in order to differentiate other fetal abdominal wall anomalies of omphalocele, omphalomesenteric duct cyst or bladder exstrophy.

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