Prenatal Diagnosis of Isolated Fetal Hydrocolpos Secondary to Congenital Imperforate Hymen

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A 32-year-old primigravida was referred to our hospital at 36 weeks of gestation with a fetal pelvic mass. Ultrasonography showed the fluid-filled area to be a 9 × 4 × 5-cm pear-shaped retrovesical mass with a funnel-shaped blind pouch at the distal end of the fetal vagina. Marked left hydronephrosis resulting from mass compression was also detected. Fetal magnetic resonance imaging further defined a pelvic lesion extending cephalically into the abdomen and caudally into the vagina. Membranal protrusion of the introitus was clearly identified. Therefore, the diagnosis of congenital imperforate hymen with hydrocolpos was established. At 38 weeks of gestation, a 2,966-g female infant was delivered vaginally with good Apgar scores. Physical examination of the neonate revealed a bulging membrane covering the vaginal opening. The presence of syndromic disorders (McKusick-Kaufman, Ellis-van Creveld or Bardet-Biedl syndromes), genitourinary and anorectal anomalies were excluded. The karyotype was 46,XX. A hymenotomy was performed on the second day of life. The infant recovered fully after hymenotomy. [*J Chin Med Assoc* 2008;71(6):325–328]

Key Words: congenital, hydrocolpos, imperforate hymen, magnetic resonance imaging, prenatal diagnosis

Introduction

The incidence of congenital imperforate hymen in term infants has been reported to be 0.1%.[1] Prenatal diagnosis of isolated hydrocolpos secondary to congenital imperforate hymen is a rare condition in prenatal ultrasound examination. It is important to prenatally confirm the presence of associated anomalies, which helps in the provision of proper counseling for the parents and planning of postnatal management. Here, we report a case of isolated hydrocolpos secondary to congenital imperforate hymen antenatally diagnosed and characterized by ultrasonography and magnetic resonance imaging (MRI).

Case Report

A 32-year-old primigravida was referred to our hospital for prenatal care at 36 weeks of gestation because of a fetal pelvic mass. Ultrasonography showed the suspicious area to be a 9 × 4 × 5-cm pear-shaped retrovesical mass. The fluid-filled lesion presented as a blind pouch at the distal end of the fetal vagina (Figure 1A). The urinary bladder was of normal appearance (Figure 1B). Marked left hydronephrosis possibly resulting from compression by the pelvic mass was concomitantly detected. Fetal MRI defined a pelvic lesion with homogeneously low signal intensity on coronal T1-weighted image (Figure 1C). The mass extended cephalically into the abdomen and caudally into the vagina. The fetal uterus without fluid accumulation was visible on the top of the mass. Membranal protrusion of the introitus was identified. Furthermore, the presence of meconium extending down to the rectum and appearing as a hyperintense signal on axial T1-weighted sequence was detected (Figure 1D). The spine and sacrum were not unusual. Therefore, the diagnosis of congenital imperforate hymen with isolated hydrocolpos was established.

At 38 weeks of gestation, a 2,966-g female infant was delivered vaginally with good Apgar scores. Physical examination of the neonate revealed a bulging

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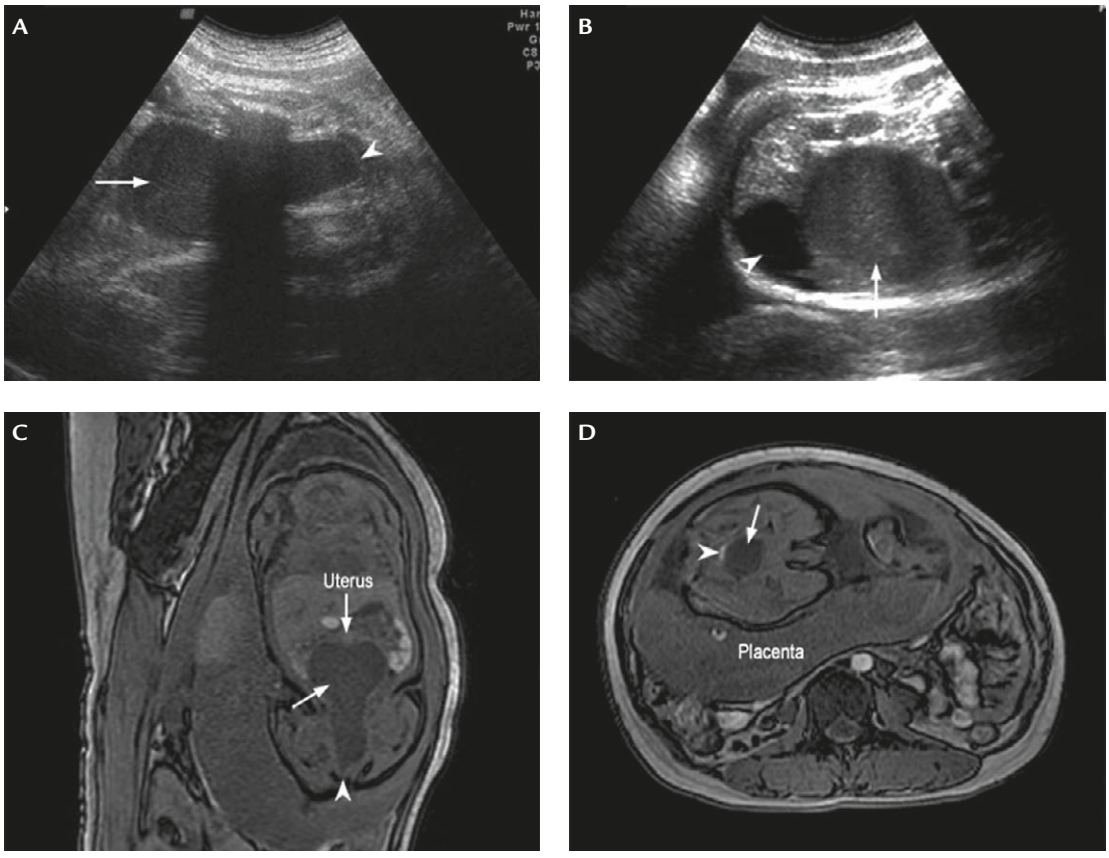

Figure 1. (A) Sagittal ultrasonography of the fetal pelvis shows a pear-shaped mass (arrow) presenting as a blind pouch at the distal end of the fetal vagina (arrowhead). (B) Transverse ultrasonography demonstrates a fluid-filled mass (arrow) behind the urinary bladder (arrowhead). (C) Coronal T1-weighted magnetic resonance imaging (MRI) identifies the uterus without fluid accumulation visible at the top of the mass (arrows). The arrowhead indicates the membranal protrusion of the introitus. (D) Axial T1-weighted MRI shows a hyperintense intrarectal signal (arrowhead) behind the hydrocolpos (arrow).

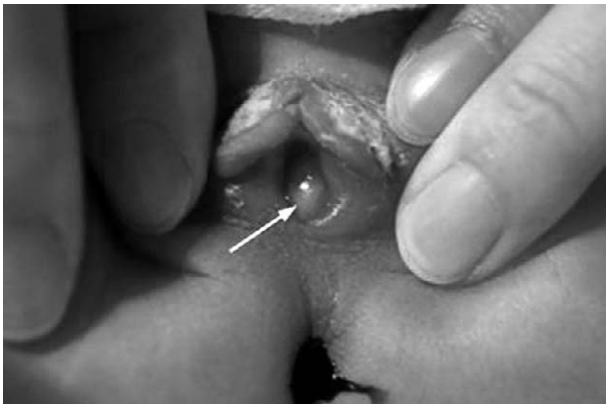

Figure 2. The neonate has a bulging membrane covering the vaginal opening (arrow).

membrane covering the vaginal opening (Figure 2). After detailed examination, the presence of syndromic disorders (e.g. McKusick-Kaufman, Ellis-van Creveld or Bardet-Biedl syndromes), genitourinary (e.g. persistent urogenital sinus) and anorectal (e.g. cloacal dysgenesis) anomalies were excluded. The infant's karyotype was 46,XX. Umbilical venous estradiol concentration was 8,157 pg/mL (normal range in Asian subjects delivered at term is 5,480–8,020 pg/mL).[2]

Hymenotomy was performed on the second day of life to relieve compression-induced hydronephrosis, and 80 mL of yogurt-like whitish fluid was subsequently drained. Microscopically, intracellular glycogen content was detected by periodic acid-Schiff (PAS) stain in the desquamated cells from the vaginal discharge. The infant recovered fully after hymenotomy, which was followed by resolution of hydronephrosis.

Discussion

Failure of the hymen to rupture during the perinatal period results in imperforate hymen.[3] It is most commonly an isolated finding and usually remains asymptomatic until puberty. The incidence of congenital imperforate hymen in term infants has been reported to