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SHORT COMMENTARY

Congenital Hydrocolpos: Diagnostic Journey and Management—A Case Report

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Congenital hydrocolpos is cystic distention of the vagina, secondary to vaginal obstruction with an estimated occurrence of 1 in 16,000 female births [1]. It may be an isolated finding or may be associated with persistent urogenital sinus or cloacal dysgenesis. After birth, delay in diagnosis and management can be life-threatening with associated sepsis, renal failure or intestinal obstruction [2].

A 30-year-old third gravida with one previous caesarean section (LSCS) was referred to our hospital at 36 weeks of gestation. Her previous antenatal visits were unremarkable, and all her antenatal scans (NT/NB screening, anomaly and growth scans) were normal.

On admission to our centre, a foetal ultrasound revealed a midline retro-vesicular mass of 7×5 cm with fluid debris level (Fig. 1). Pressure effect of the mass was resulting in bilateral hydro-ureter and moderate renal pelvic dilatation. The amniotic fluid index was 12 cm. Differential diagnosis at this point included hydrocolpos, ovarian mass, reduplication of sigmoid, mesenteric cyst and sacrococcygeal teratoma. The possibility of urogenital malformations—persistant urogenital sinus and cloacal dysgenesis, was kept in mind. The parents were counselled about the need for further investigations and surgical intervention after delivery.

A female baby of 2.7 kg and good Apgar score was delivered by LSCS at term. Examination revealed a cystic swelling covering the vaginal opening and an infra-umbilical mass of 6×5 cm (Fig. 2). Anal and urethral openings were normal as was examination of other systems. Urine analysis was sterile for culture, serum creatinine, electrolytes and total counts were normal. Ultrasound suggested hydrometrocolpos and bilateral hydro-ureteronephrosis. MRI abdomen and pelvis reported a distended vaginal cavity measuring 6×4 cm filled with fluid and debris suggestive of hydrocolpos due to an imperforate hymen with compression of the urinary bladder resulting in bilateral mild hydro-ureteronephrosis. Comprehensive clinical examination with imaging thus confirmed the diagnosis of isolated congenital hydrocolpos, ruling out other abnormalities of the genito-urinary system, coacal malformations and some syndromes which on rare occasions maybe associated with hydrocolpos (Mckusick Kaufman, Ellis-van-Creveld and Bardet Biedl syndromes).

Hymenectomy was performed on day 2 of life, by giving a cruciate incision over the vaginal bulge followed by marsupialisation of the edges. About 50–60 ml of whitish fluid was drained. Vaginal length of about 3–4 cm was identified, separate from the urethral and anal opening. The vaginal fluid was sterile in culture. Post-operative period was uneventful. At one month follow-up, the vaginal opening was patent with total resolution of the hydro-ureteronephrosis.

Vagina has a dual source of origin. The upper one-third arises from the caudal fused mullerian ducts, and the lower two-thirds from canalisation of the vaginal plate developing from the sinovaginal bulbs which are cranial evaginations of the urogenital sinus. Hymen is the thin tissue plate that separates the lumen of the vagina from the urogenital sinus. At around 20 weeks of gestation, the central portion of the hymen begins to degenerate and establish a connection between the vaginal lumen and the perineum. When this fails to occur, the hymen is imperforate (0.014–0.1%) [2]. Other causes of vaginal outflow tract obstruction include vaginal atresia, transverse vaginal septum, persistent urogenital sinus and cloacal dysgenesis. In response to maternal oestrogen, the vagina and cervix of the female foetus secrete copious mucus which collect in the obstructed vagina [2]. This may be evident in the prenatal scans as a midline cystic mass with echogenic debris. In our case, we detected a midline

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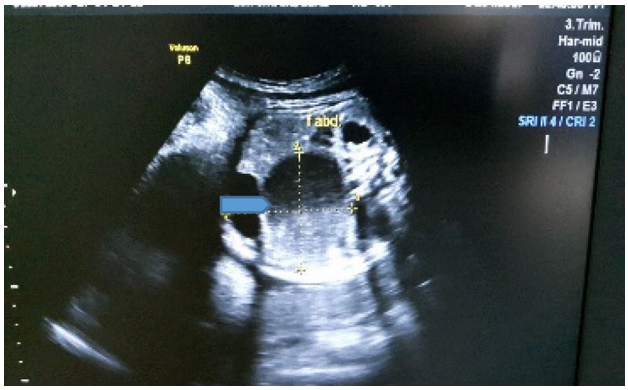

Fig. 1 Arrow marking cystic mass with echogenic fluid

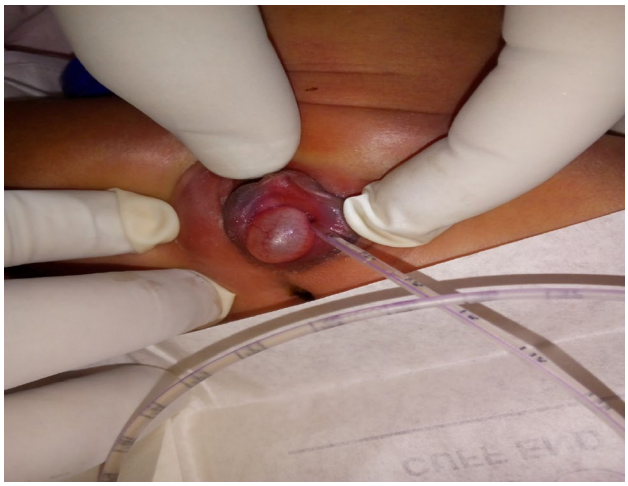

Fig. 2 Congenital hydrocolpos with normal urethral and anal orifice

abdomino-pelvic mass with echogenic fluid and pressure effect resulting in bilateral hydro-ureteronephrosis.

At birth, hydrocolpos due to imperforate hymen presents as a fluid filled bulge between the labia covered by a thin translucent membrane, the urethral and anal openings can be identified separate from this bulge, as was seen in our case. MRI is the most helpful in giving accurate anatomical information with respect to type, site and depth of vaginal obstruction with differentiation of imperforate hymen from transverse vaginal septum, vaginal atresia, estimated length of atresia and the presence or absence of the cervix [3]. In our case, MRI was suggestive of hydrocolpos due to imperforate hymen.

Symptoms associated with large hydrocolpos include those due to urinary, venous or intestinal obstruction with or without superimposed infection and sepsis [2]. Surgical management of hydrocolpos due to imperforate hymen requires an elliptical or cruciate incision on the membrane, followed by suturing of the vaginal mucosa to the hymenal ring to prevent adhesion and recurrence of obstruction [2]. Prognosis and outcome of this surgical correction are excellent and are accompanied with complete resolution of the obstructive pathology as seen in our case [2].

Congenital hydrocolpos, although rare, should be considered in the differential diagnosis of abdominal masses in a female foetus or neonate. Early diagnosis and simple incision of the membrane correct this condition.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Human and Animal Rights Statement All procedures performed involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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