Case Report

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Radiological Diagnosis of Neonatal Hydrometrocolpos- A Case Report

Radiology Section

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ABSTRACT

A three-day-old female child presented to us with abdominal distension and lower limb swelling. On ultrasound examination, there was a cystic mass contiguous with the uterus in the lower abdomen and pelvis which showed fluid- debris level. This mass was causing displacement of the urinary bladder anteriorly. MRI confirmed the findings of ultrasound. A diagnosis of hydrometrocolpos secondary to imperforate hymen was made following physical examination. Neonatal hydrometrocolpos is a rare condition which requires a high index of suspicion for diagnosis. Hydrometrocolpos refers to the accumulation of secretions within the endometrial and endovaginal canal. Diagnosis can be made prenatally or post natally using ultrasonography and magnetic resonance imaging. Early diagnosis reduces the incidence of complications.

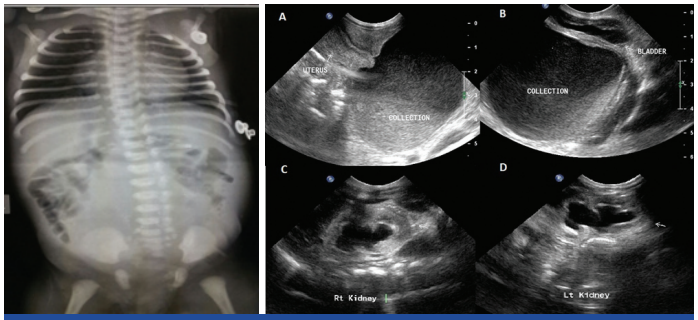
Keywords: Imperforate hymen, MRI, Ultrasound

CASE REPORT

A three-day-old female child with history of a full term, normal delivery presented to us with abdominal distension and lower limb swelling. The pregnancy though uncomplicated was poorly followed and no antenatal ultrasonograms were available. The delivery was conducted in the hospital affiliated to our institute. The child had passed meconium and was micturating normally since birth. On physical examination, the child was of appropriate weight for gestational age and had no dysmorphic features.

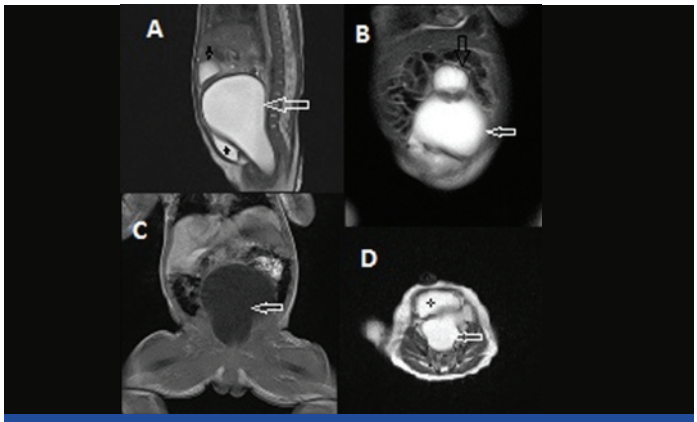
On clinical examination, the child had a palpable mass in the lower central abdomen. The superior margins of the mass were appreciated. Both lower limbs had mild pitting pedal oedema. The child was referred to Department of Radio- diagnosis for evaluation of the abdominal mass. A plain radiograph of the abdomen was initially obtained. Plain radiography of the abdomen showed homogenous soft tissue opacity in the suprapubic region of the abdomen that was causing peripheral displacement of the gas filled bowel loops [Table/Fig-1]

Ultrasound of the abdomen was carried out in the Philips iU22 machine using a paediatric sector probe (5-8 MHz). On ultrasound examination, there was a cystic structure in the lower abdomen and pelvis which showed fluid- debris level. This mass was causing displacement of the urinary bladder anteriorly. Uterus with endometrial collection was seen at the cranial end of the above structure and appeared to be continuous with it. Bowel loops were being displaced peripherally. There was mild dilation of bilateral renal pelvicalyceal systems. Rest of the intra- abdominal organs appeared to be normal. Following ultrasound, a preliminary diagnosis of neonatal hydrometrocolpos was made [Table/Fig-2].

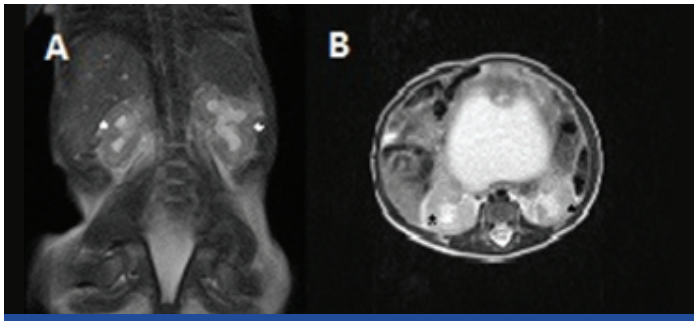


[Table/Fig-1]: Figure showing plain radiograph of the abdomen showing homogenous soft tissue opacity in the suprapubic region causing displacement of the bowel loops. **[Table/Fig-2]:** Figures 2a and 2b showing the cystic structure inferior to the uterus and posterior to the urinary bladder. The cystic lesion shows fluid- debris level. Figures 2c and 2d show bilateral hydronephrosis.

Magnetic Resonance Imaging (MRI) of the abdomen and pelvis was done in the Siemens Avanto 1.5 Tesla MRI machine to confirm the above diagnosis. MRI confirmed the findings of ultrasound. There was accumulation of fluid intensity T1 hypointense, T2 hyperintense contents within the vagina and endometrial cavity. The resulting distended vagina was extending above the level of umbilicus. There was no obvious narrowing of distal vagina on magnetic resonance imaging. Bilateral hydronephrosis and pitting lower limb oedema was likely secondary to mass effect from the above structure [Table/Fig-3,4].



[Table/Fig-3]: MRI: Figure 3a (sagittal) and 3b (coronal) showing hydrometrocolpos on T2 weighted imaging. White and black open arrows are pointing at hydrocolpos and hydrometra respectively. Figure 3c showing hydrocolpos as hypointense collection on coronal T1 weighted imaging. Figures 3a & 3d showing bladder (*) anterior to hydrometrocolpos.



[Table/Fig-4]: Complications of neonatal hydrometrocolpos. Coronal T2 weighted (4a) and axial T2 weighted (4b) images showing bilateral hydronephosis(*)

On clinical examination of the vaginal introitus and canal, a bulging imperforate hymen was noted. Hymenectomy and drainage of milky intravaginal collection was done. There was resolution of bilateral hydronephrosis and lower limb oedema following surgery. The child did well following surgery.

DISCUSSION

We have reported one case of hydrometrocolpos in a three-day-old female child with imperforate hymen. The child underwent plain radiography, ultrasonography and magnetic resonance imaging of the abdomen. The final diagnosis in this case was hydrometrocolpos secondary to imperforate hymen.

Neonatal hydrometrocolpos is a rare condition which requires a high index of suspicion for diagnosis. Hydrometrocolpos refers to the accumulation of secretions within the endometrial and endovaginal canal. It occurs secondary to a combination of stimulated secretions as well as distal vaginal obstruction [1]. The causes of retention of cervico-vaginal secretions are varied and include imperforate hymen, transverse vaginal septum, abnormal vaginal opening, vaginal atresia and malformations of cloaca including urogenital sinus [2].

The most frequent cause is an imperforate hymen. The incidence of imperforate hymen is 0.0014 to 0.1 % in full term newborns and hydrometrocolpos is even rarer with an incidence of 0.006% [3].

A child with hydrometrocolpos presents clinically with increasing abdominal distension. Antenatal ultrasonography and in particular magnetic resonance imaging can be useful in the diagnosis of congenital hydrometrocolpos [4]. Magnetic resonance imaging is especially helpful when hydrometrocolpos is secondary to cloacal malformation. Magnetic resonance imaging is also preferred when ultrasonography is limited by the presence obesity or oligohydramnios [5].

Antenatal diagnosis of congenital hydrometrocolpos has been reported as early as 25 weeks. Associated anomalies may be isolated such as imperforate anus or persistent urogenital sinus or multiple and forming part of a syndrome or association. Such syndromes and associations include McKusick Kaufman syndrome, Ellis van Creveld syndrome, Bardet- Biedl syndrome, VACTERL association (vertebral, anal, cardiovascular, tracheooesophageal, renal and limb anomalies), and MURCS association (Mullerian duct aplasia/hypoplasia, renal agenesis/ectopia and cervicothoracic somite dysgenesis such as Klippel Feil abnormality, anomalous ribs or Sprengel deformity). McKusick Kaufman syndrome is an autosomal recessive disorder which includes vaginal atresia and secondary hydrometrocolpos, hexadactyly, congenital cardiac anomalies and hydrops fetalis [6]. Bischoff et al., reported a high incidence of hydrometrocolpos in patients with cloacal malformations (28%). In this group of patients there was persistence of hydrometrocolpos or reaccumulation following treatment [7].

The complications of congenital hydrometrocolpos include urinary tract obstruction, renal failure, repeated urinary tract infections, rupture and peritonitis. Urinary tract obstruction can lead to oligohydramnios antenatally. Sepsis leading to death can occur secondary to either urinary tract infection or rupture and secondary peritonitis [1, 2].

There can be significant reduction in obstructive uropathy following drainage of the collection as was seen in our case. This drainage can be performed by an interventional radiology under ultrasound guidance [1].

CONCLUSION

Neonatal hydrometrocolpos is rare and occurs secondary to a combination of stimulated cervico- vaginal secretions and vaginal obstruction. Diagnosis can be made prenatally or post natally using ultrasonography and magnetic resonance imaging with magnetic resonance imaging being of particular use in the presence of other cloacal abnormalities due to its superior soft tissue resolution. Early diagnosis reduces the incidence of complications such as infection, rupture and renal failure.

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