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Acute urinary retention due to hematocolpos: Report of two cases

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ABSTRACT

Imperforate hymen may present as either hydrometrocolpos in neonatal period or as hematocolpos after menarche. Acute urinary retention due to hematocolpos is rare. We present the cases of two female adolescents who presented to our clinic with acute urinary retention and were diagnosed with hematocolpos. After literature review, the rarity of its presentation as urinary retention has emerged. In this study diagnosis, complications, and treatment of hematocolpos are discussed.

Hematocolpos is a rare condition caused by the obstruction of menstrual blood outflow when an obstructive anomaly of the genital tract is present. The most common cause is imperforate hymen with an incidence of 1:1000 to 1:16,000 [1]. In some cases a familial or hereditary incidence has been reported [2]. McKusick-Kaufman syndrome was first described in 1964 and it includes polydactyly, hydrometrocolpos and congenital heart disease [2].

Hymenal atresia may present at birth as hydrocolpos, mucocolpos or hydrometrocolpos, or at puberty when hematocolpos develops after menarche [3,4].

Acute urinary retention is a very rare presentation of hematocolpos with less than 10 reported cases in literature [5–8]. The aim of this study is to report two cases with this condition and also to discuss the necessity of a diagnostic algorithm so as to avoid complications.

1. Case report 1

The first patient was a 13-year-old girl with fully developed characteristics of gender but no menarche. She presented to our department's casualties with acute urinary retention. She reported similar symptoms one week prior to this incident, which resolved without medical intervention. She had cyclical monthly low abdominal and loin pain. A tender suprapubic swelling was present but no signs of peritoneal irritation. At examination of the genitalia, bulging of a bluish imperforate hymen was present which became more obvious with bimanual examination through rectal approach. The patient was catheterized with a 14f Foley catheter and 450 ml of urine was drained. Urine analysis and cultivation were normal.

Ultrasonography showed a large avascular tubular lesion with non-fixated hyperechoic content, 16 × 6 cm, in the space of Douglas. This lesion altered the shape of the bladder, pushing it upward and forward (Figs. 1 and 2). A mild dilatation of the right kidney calyceal system was also noticed.

The patient was managed with a vertical incision on the imperforate hymen and 400 ml of blood was drained. A Foley catheter was placed in the introitus through which we "washed" the vagina with normal saline.

Finally, the mucosal leafs of the hymen were sutured to the introital edge with interrupted absorbable sutures.

2. Case report 2

The second patient was a 12.5 year-old girl with a disease free history. She had fully developed characteristics of the gender but she had never menstruated. At examination we found: a) a painful suprapubic swelling (Fig. 3), b) no sighs of peritoneal irritation, c) bulging of the imperforated hymen through the vulva – the hymen was bluish and became more obvious during rectal examination. The urethra was catheterized and 450 ml of urine was drained. Urine analysis and cultivation were normal. Lower abdominal

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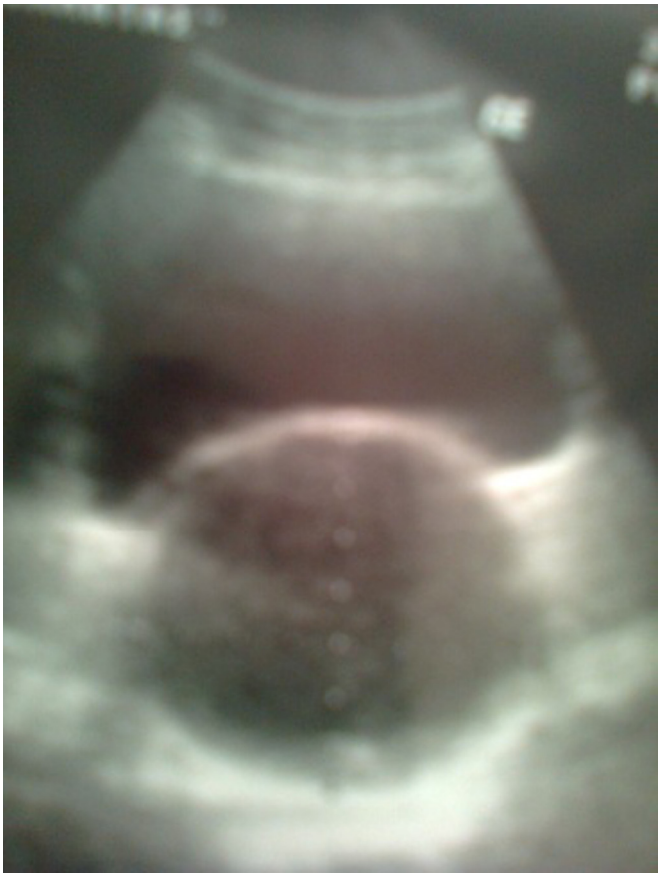

Fig. 1. Transverse ultrasonographic imaging of the hematocolpos compressing the bladder.

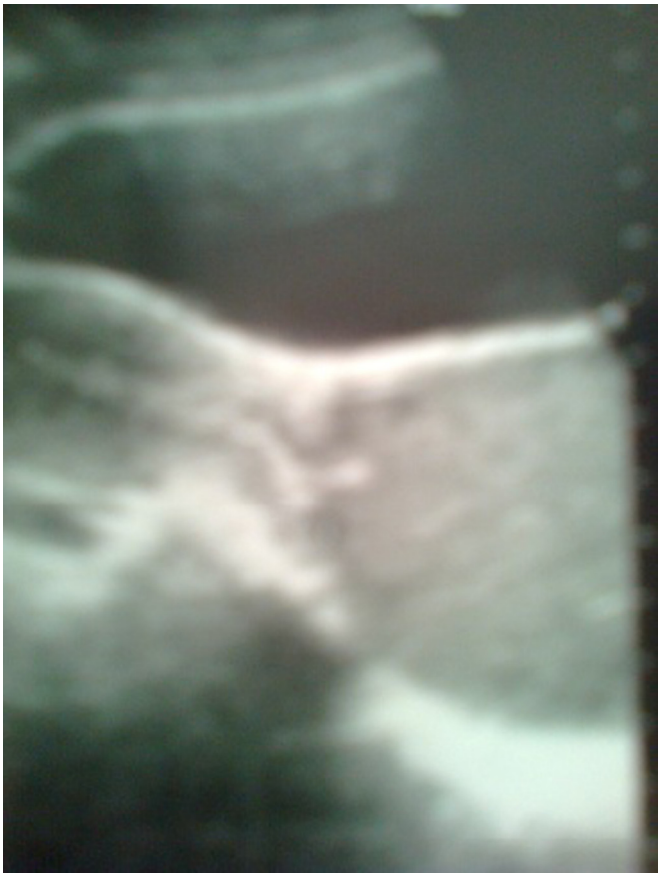

Fig. 2. Longitudinal capture at ultrasonography showing the hematocolpos compressing the bladder.

ultrasound scan showed a large lesion, 17 × 6.6 cm, with hyperechoic content.

After intubation, a circular incision was performed with simultaneous removal of the central part of the hymen and 300 ml of blood was drained. We did not put any external pressure on the uterus and the vagina was catheterized and rinsed with normal saline through a Foley catheter. Finally, the vaginal mucosa was sutured to the introital edge with interrupted absorbable sutures.

3. Results

The first patient had an uncomplicated postoperative period. The Foley catheter was removed on the 1st postoperative day and the patient was discharged on the following day. She returned for follow up 15 and 60 days later during which she had 2 menstrual periods. A month after the operation a lower abdominal ultrasonography was performed with normal findings. The dilatation of the calyceal system of the right kidney was noticed again on a repeated ultrasonography two months later. Further investigation with MAG3 scintigraphy was performed and obstructive uropathy was not present.

The second patient didn't present with postoperative complications. The catheter was removed from the vagina after 24 h and the patient was discharged on the next day. She was re-examined at our outpatient clinic 49 days later and in this time she had menstruated once.

4. Discussion

Congenital anomalies causing obstruction of the female genital tract may sometimes be diagnosed by prenatal ultrasonography [9]. Hydrocolpos, hydrometrocolpos or mucocolpos may be visualized. Adaletti, Ozer, Kuruguglou et al (2007) report a 22 gestational week female fetus with hydrocolpos due to imperforate hymen diagnosed by magnetic resonance tomography [10].

Correct evaluation of the introitus is necessary for early diagnosis of an imperforate hymen. At newborn period the hymen is subject to the effect of the maternal estrogens and is therefore thickened, elastic and fimbriated. This, along with the small size of the genitalia may lead to difficulties in diagnosing various anatomical differentiations e.g., anterior ectopia, micro-perforated hymen, septum, etc. [4,11,12]. Sometimes, small fimbriae are present making it impossible to evaluate the presence of small openings on the hymen [4,11]. In this case, the placement of a small caliber feeding tube in the vagina may be useful [4,11,12].

In the case of hydrometrocolpos the thickened hymen usually protrudes through the introitus having a characteristic yellowish color. A bimanual approach through the rectal examination is often necessary for a better evaluation of the bulging hymen. Hydrometrocolpos may present as a pelvic mass that causes obstruction to of the lower urinary tract or the large intestine. In extreme cases respiratory distress may develop.

Differential diagnosis should include [4,13,14]:

a) Conditions that cause obstruction of the female genital tract such as labia adhesions, hymenal atresia, transverse vaginal septum, vaginal agenesis or atresia.
b) Conditions that present as protruding introital masses such as epithelial inclusion cysts, embryonic rhabdomyosarcomas, urethral prolapse, prolapsing ectopic ureteroceles etc.
c) Pelvic masses such as ovarian cysts, mesenteric cysts, anterior meningoceles, sacrococcygeal teratomas with an intrapelvic component, lymphomas.

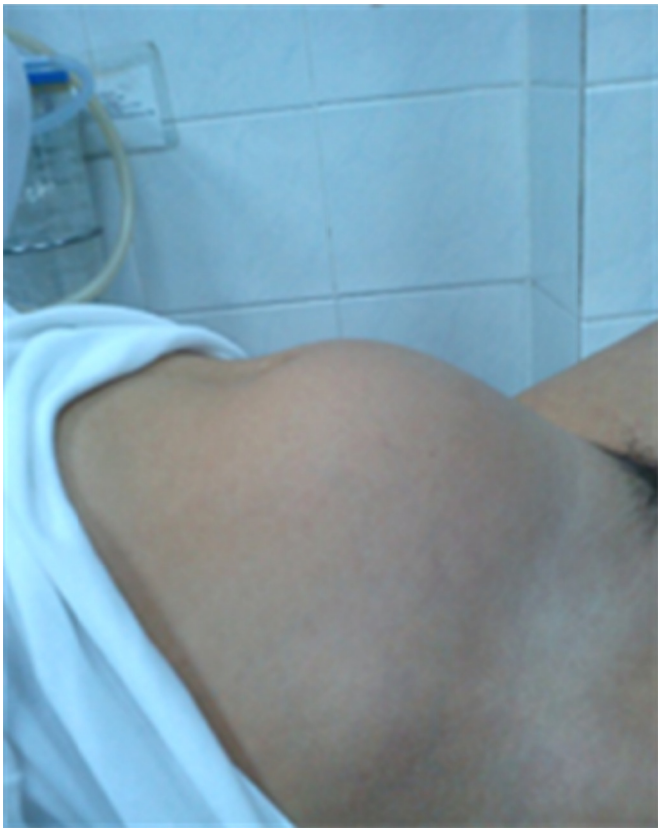

Fig. 3. Abdominal mass.

If hymenal atresia is not diagnosed in the newborn period it becomes symptomatic in the adolescence period. The menstrual blood accumulates initially in the vagina (hematocolpos) and later on in the uterus (hematometrocolpos), the fallopian tubes (hematosalpinx) and in neglected cases in the peritoneal cavity (hemoperitoneum) [5].

In our report diagnosis was confirmed with ultrasonography that showed the hyperechoic, non-fixated pelvic mass. We also performed an ultrasound examination of the internal genital organs and urinary system that were normal. Ultrasound may be performed via a transabdominal –as in our cases–, transperineal or transrectal approach. Transrectal ultrasonography is used for measuring the thickness of the hymen [15]. Clinical presentation of both our patients was enough to exclude hypoplastic or obstructed duplication anomalies of the genital tract: this would lead to menstruation from the "normal" uterine horn and hematocolpos from the obstructed one. In addition, as renal and urologic anomalies are associated with obstructing anomalies of the genital tract in 25%–90% [16], imaging of the urinary system is necessary.

In females, the urethra has a small length, straight course and large diameter and urinary retention is therefore very rare [1–4,11]. Every girl with acute urinary retention should be investigated for a pelvic mass. In both of our patients, hematocolpos behaved as a pelvic mass that caused either stretching or angulation of the urethra leading to its obstruction. An alternative explanation is that hematocolpos may be the cause of a diminished extruding capacity of the extruder muscle or an increased contractility of the urethral sphincter through the irritation of the sacral plexus [7].

If a patient is diagnosed with an imperforate hymen in preschool or school age, the optimal time for surgical repair is after the onset of puberty and prior to menarche, as the produced estrogens may limit the development of scarring and therefore the possibility of relapse [17].

The most common surgical techniques used are:

a) A circular hymenotomy.
b) A cruciate incision with excision of the hymenal flaps.
c) A vertical incision.

The vaginal mucosa should be sutured to the introital edge to avoid adhesions and stenosis [4,5]. Carbon dioxide laser has also been used for the hymenal incision. During decompression, a surgeon should not apply pressure externally on the uterus because of the possibility of reverse blood flow into the ovarian tubes thus leading to endometriosis and formation of adhesions into the tubes' lumen [5]. The genital tract returns to its normal dimensions after a period of 1–6 months [5,7].

5. Conclusion

In conclusion, besides reporting this rare presentation of hematocolpos as acute urinary retention we would like to emphasize that:

- An early diagnosis of this condition during the neonatal period is feasible through a routine and carefully performed examination of the external genitalia. Otherwise the manifestation of imperforated hymen after menarche is accompanied with complications leading to infertility [5,7].
- During examination of pubertal female patients presenting with symptoms from the urinary system, constipation, lower abdominal, lumbar or perineal pain, one should always include the inspection of the external genitalia [6,7].

Conflict of interest

The authors would like to state no conflict of interest.

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