



ORIGINAL ARTICLE

Acute Urinary Retention – It is not About the Bladder

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Abstract

Chronic cyclical abdominal pain in an adolescent female is indeed a rare occasion. Nevertheless, concomitant presence of acute urinary retention in the background history delayed menarche will give clues towards possibility of imperforate hymen (IH). Nevertheless, adequate physical examination, especially abdominal and gynaecological assessment in the adolescent female is indeed important in making the conclusion. We shared a case of a 12-year-old girl who came to us with recurrent lower abdominal pain for three months associated with inability to pass urine on the day of presentation. Perineum inspection showed bulging hymen with inability to catheterize the urethral opening. Bedside ultrasound was performed and revealed a fluid filled lesion in her vagina showing features of hematocolpos. A diagnosis of imperforate hymen was made clinically, and she was referred urgently to the gynaecology team for surgical intervention. Hymenotomy was done and she was saved from further morbidity. This case highlights the importance of identifying gynaecological causes in a female patient with acute urinary retention especially if the patient had prior episodes of recurrent cyclical symptoms that may be highly associated with imperforate hymen.

Keywords: Hematocolpos, Bladder, Acute Urinary Retention

Introduction

Chronic abdominal pain occurs in 10 to 19 percent of children in which the prevalence is highest in children aged four to six years and early adolescents (Fishman, 2021). Imperforate hymen (IH), one of the causes of the cyclical abdominal pain in adolescents, had a worldwide incidence of 0.05 to 0.1% (Lee et al, 2019; Sloane & Anne-Marrie, 2019). IH obstructs the vaginal opening, causing impairment in the flow of the vaginal and uterine secretions known as hematocolpos, which will cause cyclical pelvic pain and amenorrhea. Majority of cases are not associated with congenital developmental anomalies but occur sporadically without any genetic mutations (Lee et al, 2019; Sloane & Anne-Marrie, 2019). The first symptom of IH typically occurs in adolescent

females in the age that is usually had attained menarche. Clinically it mainly presents with lower abdominal pain and acute urinary retention in the background of amenorrhoea (Lee et al, 2019; Sloane & Anne-Marrie, 2019). To diagnose IH, proper and adequate clinical examination together with bedside ultrasound assessment would be sufficient. Per-speculum examination would enable the medical doctor to identify a bulging hymenal membrane. A simple abdominal ultrasound may accurately visualize fluid accumulation in the pelvic area, often described as cystic-like lesions (Lee et al, 2019; Sloane & Anne-Marrie, 2019). Therefore, thorough abdominal assessment including vaginal examination in a highly suspicious case is indeed important before confining the case to gynaecological causes. Accurate probable diagnosis made at first visit at primary care level would save any child from further morbidity and mortality. This is because IH is treatable with surgical intervention, especially by hymenotomy and has a good prognosis post-surgery.

Case Report

A 12-year-old girl without known medical illness was brought in by her mother to our health clinic for sudden onset of lower abdominal pain associated with inability to pass out urine since morning on the day of illness. Surprisingly, she had a similar presentation a day before and had sought medical attention at the emergency department of a nearby tertiary centre and was discharged well after undergoing urinary catheterization.

She had no fever, constipation, nausea, or vomiting. She was able to pass flatus as usual. She had no current history or previous history of other lower urinary tract symptoms such as hesitancy, urgency, haematuria, or dysuria. She had no history of fall or abdominal trauma. She is not sexually active and had never been involved in such high-risk behaviour. She had no significant birth and childhood history.

Surprisingly, the mother claimed that she also had similar symptoms two months prior to the current presentation and was treated with urinary catheterization as well at the emergency department. Her symptoms resolved after that. She had no recent issue with family, siblings and has good academic performance. On examination, the child was afebrile with stable vital signs except tachycardia with pulse rate was 108 beats per minute. Her blood pressure is 108 / 68 mmHg. She has good hydration. Abdominal examination reveals suprapubic mass extended up to the umbilical level. The mass is not mobile, firm in consistency, smooth in surface and non-tender on superficial palpation. Her bowel sound is active and normal. There are no significant findings from other systems of examinations. Genitalia examination reveals appropriate sexual development correlates with Tanner stage 3. Inspection of the perineum reveals bulging hymen with inability to catheterize the urethral opening.

Bedside ultrasound reveals presence of fluid accumulation in the uterus with mixed echogenicity as shown in Figure 1 below. Possible diagnosis of hematocolpos secondary to imperforate hymen is made. She was referred to the gynaecology team for surgical intervention urgently. Her diagnosis is confirmed surgically, and she was managed well.



Figure 1: An abdominal ultrasound image shows enlarged vagina with mixed echogenicity fluid.

Results and Discussion

Recurrent abdominal pain in children is indeed alarming in which pathological causes need to be ruled out before diagnosis of functional abdominal pain is made (Fishman, 2021; Lee et al, 2019; Sloane & Anne-Marrie, 2019; Reust & Williams, 2018). Therefore, adequate history taking and physical examination is indeed important in a primary care level before treatment can be initiated and appropriate referral can be made. Even though essential, adequate menstrual history is often missed by clinicians when dealing with early adolescents in view of their misconception of the younger age group to be less likely related with reproductive causes. Surprisingly, the pain can be associated with the onset of menses as occurred in our patient (Lee et al, 2019; Sloane & Anne-Marrie, 2019; Mwenda, 2013).

Our patient presented with symptoms suggestive of lower urinary tract obstruction as she had the inability to pass out urine. Practically, most clinicians would correlate the causes to be urological in origin. However, it is important to realize that urological causes of urinary tract obstruction in children are indeed rare in which other common causes need to be ruled out first. This includes the assessment of the surrounding anatomical structure that may lead to the compression or obstruction of the urinary tract such as by gynaecological mass or malignancy (Lee et al, 2019; Sloane & Anne-Marrie, 2019; Mwenda, 2013). Nevertheless, palpable suprapubic mass would generally represent an enlarged bladder in which it would obscure the findings of underlying adnexal mass on hand palpation. Thus, a simple and available bedside investigation such as abdominal ultrasound would be helpful to support the probable diagnosis of IH (Lee et al, 2019; Sloane & Anne-Marrie, 2019; Mwenda, 2013). A fluid-filled vagina with mixed echogenicity can be identified easily in most cases (Lee et al, 2019; Sloane & Anne-Marrie, 2019; Mwenda, 2013). The ultrasound is also useful to rule out the presence of other probable compressing masses such as ovarian mass, uterine mass or structural obstruction by renal calculus.

Hematocolpos can be defined as a blood-filled dilated vagina due to accumulation of menstrual blood in the setting of an anatomical obstruction (Lee et al, 2019; Sloane & Anne-Marrie, 2019; Mwenda, 2013). It is indeed a rare finding, mostly occurs in young adolescents that could be caused by atresia or agenesis of the vagina or imperforate hymen. It typically presents at early puberty with unspecified cyclical abdominal pain and amenorrhoea (Sloane & Anne-Marrie, 2019). Other associated symptoms include urinary retention, nausea, constipation and low back pain. Hymen is a structure consisting of a few layers of stratified squamous epithelium covering the vaginal opening. Hymen is expected to be detached or opened spontaneously during the early development period of neonates and infant, physical activity and movement. However, some would remain imperforate till puberty (Lee et al, 2019; Sloane & Anne-Marrie, 2019; Reust & Williams, 2018; Mwenda, 2013). Therefore, on examination of the genital introitus, the goal is to differentiate an imperforate hymen from other obstructing anatomic etiologies, such as labial adhesions, urogenital sinus, transverse vaginal septum, or distal vaginal atresia (Lee et al, 2019; Sloane & Anne-Marrie, 2019; Mwenda, 2013). This is because the definitive treatment is different for each cause.

Imperforate hymen is usually not detectable prior to puberty until the patient presents with symptoms suggestive of closure of the female genito-urinary tract mainly cyclical abdominal pain and amenorrhea ((Lee et al, 2019; Sloane & Anne-Marrie, 2019; Mwenda, 2013). They may present with acute urinary retention if the blood accumulates in vagina in a huge amount within short duration and obstructs the urethra. If left unattended, the menses will be accumulated due to this imperforate hymen in which on-going retrograde bleeding can lead to acute endometritis, salpingitis or peritonitis. Therefore, best to be done whenever a person presented with urinary retention other than relieving the obstruction temporarily is by identifying the underlying cause as early as possible before allowing the patient to be discharged unnecessarily. Our patient had benefited from adequate assessment at primary care after through history taking in identification

of the chronic and recurrent symptoms. Rather than confining towards inserting a catheter for bladder drainage, the underlying causes have been identified immediately and proper referral had been arranged urgently.

IH need to be managed surgically especially when the patient has achieved pubertal age as in this case report. This is because conservative management is only applicable in the prepubertal phase while waiting for adequate hormonal reaction to take place during puberty and may cause the hymen to be open spontaneously. However, if the bulging hymen is found during puberty, it is shown that the hymen is failed to be open on its own despite adequate estrogenization ((Lee et al, 2019; Sloane & Anne-Marrie, 2019). Although IH is considered as a benign condition, however late detection and diagnosis may result in severe morbidity due to infections, subfertility, endometriosis, or hydronephrosis and renal failure in severe cases ((Lee et al, 2019; Sloane & Anne-Marrie, 2019; Mwenda, 2013). The treatment of choice is based on cruciate incision (hymenotomy) or excision of the hymen (hymenectomy). Both procedures are rarely associated with complications. Thus, if treated, IH always had a good prognosis. However, due to its low incidence and nonspecific symptoms, its diagnosis is often missed especially with insufficient physical examination. Therefore, when adolescent girls present with abdominal pain or acute urinary retention, clinicians must conduct thorough abdominal and gynecological examinations to rule IH.

Conclusion

Acute urinary retention is indeed rare in early adolescents. Even though urological causes need to be ruled out, the possibility of gynaecological causes in origin should be decided during first visit in female patients especially if the patient had recurrent cyclical symptoms that may be related with imperforate hymen.

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