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## Case report

# Imperforate hymen as an unusual cause of non-urological urine retention – A case report



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### KEYWORDS

Imperforate hymen;  
Urinary retention;  
Haematocolpos;  
Ultrasonography

### Abstract

**Introduction:** Imperforate hymen is a rare condition but it is the most frequent obstructive anomaly of the female lower genital tract. In most cases the diagnosis is missed in childhood and is made after puberty when the patient presents with haematocolpos and haematometra. The patient presented with uncommon symptoms of urinary retention apart from delayed menarche and pain.

**Patient:** Here we present a 14-year-old girl who presented with lower abdominal pain and acute urinary retention.

**Intervention:** She was diagnosed clinically and by ultrasound as imperforate hymen with haematocolpus. She was treated by a virginity preserving hymenotomy.

**Conclusion:** This case is presented to address clinicians the possibility of imperforate hymen as a differential diagnosis in acute urinary retention and the ultrasound diagnoses of imperforate hymen.

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### Introduction

An imperforate hymen results from failure of the endoderm of the urogenital sinus to completely canalize. Imperforate hymen itself is relatively rare with the incidence of about 0.1% of all new born

female babies [1–3] but it is the commonest lower female genital tract obstructive abnormality.

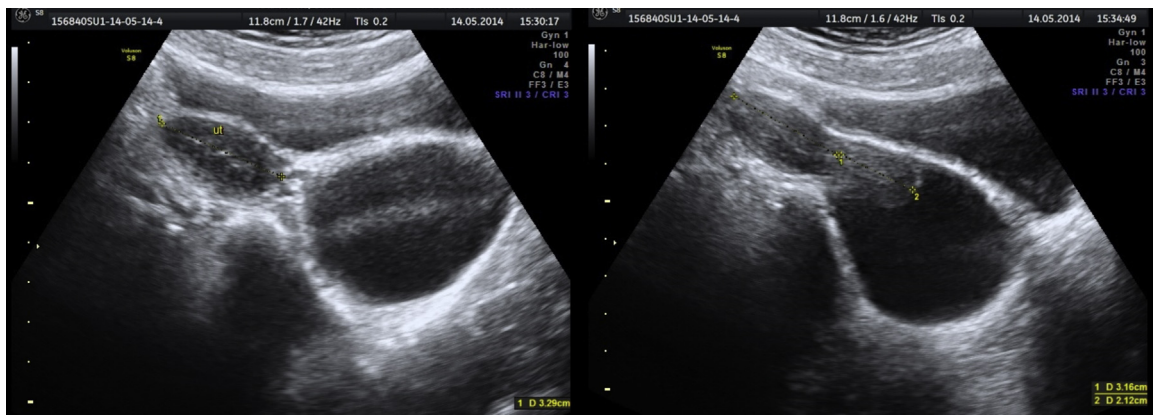
The presentation of imperforate hymen may be challenging. Patients may present with a lower abdominal mass simulating pelvic tumour or acute urinary or bowel obstruction due to massive accumulation of blood in the vagina or uterus [4].

In this case report, we describe a case of imperforate hymen in a 14-year-old girl who presented with acute urinary retention and a lower abdominal mass. This case report is presented to address

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**Figure 1** Normal size empty uterus with haematocolpos (left). Normal cervix floating in haematocolpos (right). The urinary catheter was removed during examination for abdominal scan.

to clinicians the possibility of imperforate hymen as a differential diagnosis in acute urinary retention.

### Case study

A 14-year-old girl was referred to our hospital with urine retention. She gave history of lower abdominal pain prior to the onset of inability to pass urine. The girl admitted not to have attained menarche but have been experiencing cyclic lower abdominal pain over the past 2 years.

She was healthy, afebrile but in pain. She was of normal stature and secondary sexual characteristics. Abdominal examination revealed a supra-pubic mass equivalent to 16 weeks pregnancy. Pelvic inspection showed a normal vulva but with bluish bulging membrane in the introitus (Fig. 3).

Bimanual pelvic examination through the rectum revealed a distended vagina bulging into the anterior rectal wall. Urinary catheterization was done and clear urine was drained from the urinary bladder with relief of pain.

Drainage of urine through catheterization for pain relief and ultrasonography assessment. Ultrasonography revealed huge haematocolpos with normal uterus and cervix. Ovaries were free. The hymen was seen measuring about 2 mm in thickness. Both kidneys were normal. The catheter was removed during examination for easy assessment (Figs. 1 and 2).

Based on history, examination and imaging, the diagnosis of imperforate hymen was reached.

The condition was explained to the parents and consented for both the procedure and its outcomes in terms of virginity of the girl that might be lost after the procedure.

She was prepared for virginity preserving hymenotomy and placed in the dorsal lithotomy position, the bladder was drained, and a sterile perineal preparation performed. Hymenotomy was performed under regional anaesthesia where a cruciate incision was made in the thick central part of the hymen avoiding injury of the urethra and the rectum. Viscous chocolate-coloured blood was drained (Fig. 3). Then, the hymeneal leaflets were trimmed sharply leaving the base of the hymen intact (not fully deflorated) and the cut edges were over sewn with interrupted absorbable sutures.

Post operatively the girl improved remarkably and was discharged home.

### Discussion

Imperforate hymen is a rare condition. Literature has reported incidences of 0.1% of all newborn female babies [3]. In most cases the diagnosis is reached at menarche with accumulation of blood in the vaginal (haematocolpos) and the uterus (haematometra) compressing the bladder and the urethra to cause urine retention and making the diagnosis more challenging [5].

Our patient presented with acute urine retention of 1 day duration and because clinical examination was not done at birth, no diagnoses was reached. From this picture it is evident that an imperforate hymen should be thought as a cause of urine retention in young girls who present with acute urine retention [4].



**Figure 2** Imperforate hymen thickness measured around 2 mm (left). Normal right kidney (middle) and normal left kidney (right).



**Figure 3** Bulging imperforate hymen by haematocolpos (left). Chocolate like altered retained blood drained out on incising the hymen (right).

Usually imperforate hymen is asymptomatic and the diagnosis is missed before puberty and made at menarche. In our case the diagnosis was reached about a year after the onset of irregularly cyclic abdominal pain when she had a massive haematocolpos [4].

In countries where Magnetic Resonance Imaging (MRI) can be done examination of the pregnant woman is done, the diagnosis of imperforate hymen may be reached prenatally where there is a protrusion of the hymen into the introitus depending on the amount of fluid accumulation in the vagina [6].

The clinical presentation of imperforate hymen and transverse vaginal septum may be similar but in cases with transverse vaginal septum there is usually no bulging at the outlet as well as the location of the obstruction which may be high in these patients [7]. This could be identified by ultrasound for level of obstruction and thickness to be a guide in surgery. In our patient, bulging of the membrane at the introitus and the ultrasound clearly differentiated between the imperforate hymen from transverse vaginal septum.

Thorough physical pelvic inspection and examination should be sufficient to make the diagnosis though imaging studies may add value. Ultrasound is in most cases a diagnostic tool but MRI may be employed in complicated cases where the location of the collected fluid cannot be pinpointed [8].

When ultrasound is chosen, the rectal route, transperineal or trans-abdominal (as in our case) is preferred as it provides a better visualization [9].

The hymenal tissue in this condition was somewhat thicker than normal hymen. So, incision and sutures will form a thick hymenal posterior rim that could be suitable for defloration during coitus. There is no exact function of hymen. It may be a barrier to infections during prepubertal period. Actually, desire for virginity is seen in Islamic and many non-Islamic cultures [10–15].

### Conclusion

In adolescent girls with acute urinary retention (particularly if associated with amenorrhoea), imperforate hymen with haematocolpos should be considered. A critical inspection of the external genitalia

with ultrasound by experienced doctors should be performed so that the diagnosis is reached the earliest and prompt treatment provided.

### Ethical approval

Written informed consent was obtained from the parents of the patient for publication of this case report and accompanying images.

### Conflict of interest

The authors had no conflicts of interest to declare.

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