

Imperforate hymen presenting with massive haematocolpos and acute urinary retention in a teenage girl: A case report

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Abstract: Imperforate hymen is relatively rare but it is the most frequently encountered obstructive anomaly of the female lower genital tract. The clinical presentation vary significantly from patient to patient depending on the age at diagnosis but in most cases the diagnosis is missed in early childhood and therefore the diagnosis is made after puberty when the patient present with haematocolpos, heamatometra or both. When this happens, the presentation could even be tricky because the patient may presents with unlikely symptoms apart from cryptomenorrhoea like, urinary retention or bowel obstruction or both. Here we present a 16 years old girl with imperforate hymen and presented with history of lower abdominal pain and distension associated with acute urinary retention. She was treated by hymenotomy and improved dramatically and was discharge 6th day post operatively. This case report is presented to address to clinicians the possibility of imperforate hymen with haematocolpos as a differential diagnosis in adolescent girls particularly those who have not started having their menses in their teens and present with acute urinary retention so that their external genitalia are carefully examined to exclude the possibility of imperforate hymen as a cause of acute urinary retention due to the haematocolpos.

Keywords: Imperforate hymen, urinary retention, haematocolpos, hymenotomy, Tanzania

Introduction

Normal vaginal development requires the fusion of components that are derived from two embryologic structures, the mesodermal Müllerian ducts and the endodermal urogenital sinus (UGS). The upper half of the vagina develops from the Müllerian ducts while the lower half develops from the UGS. This is normally followed by canalization to form a normal patent vagina. The hymen represents the junction of the sinovaginal bulbs with the UGS; hence it is formed from the endoderm of the urogenital sinus epithelium (Golan *et al.*, 1989; Moore *et al.*, 2003). By the fifth month of gestation, the canalization of the vagina is complete while the hymen usually ruptures (perforates) before or shortly after birth and remains as a thin mucous membrane (Acien, 1992). An imperforate hymen therefore results when there is failure of the tissues of the endoderm of the urogenital sinus to completely canalize. Imperforate hymen itself is relatively rare

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with the incidence of about 0.1% of all newborn female babies (Edmonds, 2000) but by far it is the commonest lower female genital tract abnormalities.

The presentation of imperforate hymen may be challenging in some cases such that the diagnosis may initially be missed. Patients may present with a lower abdominal mass mimicking pelvic tumour or sometimes presenting with acute urinary or bowel obstruction due to massive accumulation of blood in the vagina and/or uterus (Posner & Spandorfer, 2005). In this case report, we describe a presentation of imperforate hymen in 16 years old school girl who presented with acute urinary retention and a lower abdominal mass at the Dodoma Regional Hospital in central Tanzania.

Case History

A 16 years old primary school girl was referred to Dodoma Regional Hospital from Kondoa District Hospital 160km away with a diagnosis of bladder tumour with urine retention. She was seen at casualty and she further gave history of lower abdominal pain which started few days prior to the onset of inability to pass urine. Basing on the presented history and diagnosis in the referral letter, the doctors at casualty section admitted her in the surgical ward. Being a young girl, two more possible diagnosis were thought to be likely (Pregnancy or ovarian tumour) but urine for pregnancy test was negative, and the ultrasound revealed fluid collection in the lower abdomen though the exact location was not pin pointed. The uterus and ovaries couldn't be seen on ultrasound. Based on these findings she was then transferred to Gynaecological Ward for further evaluation.

Further questioning, the girl admitted not to have yet attained menarche but to have been experiencing rather cyclic lower abdominal pain over the past two to three years. She further gave history she never have had penetrative vaginal sexual intercourse. Upon general clinical examination it was noted that she was healthy, pink, afebrile but in pain. She was also of normal stature and development of secondary sexual characteristics. Abdominal examination revealed a supra-pubic mass equivalent to 20-week pregnancy that was tense and tender on palpation. Pelvic inspection showed a normal vulva but with brownish bulging membrane in the introitus (Figure 1A). Bimanual pelvic examination through the rectum also revealed a markedly distended vagina bulging into the anterior rectal wall (Figure 1B). Urinary catheterization was performed and about 1300ml of clear urine was drained from the urinary bladder and the abdominal mass diminished to about 16 weeks (gestation equivalent) but the bulging membrane in the introitus was still there.

Based these findings in history and examination the diagnosis of imperforate hymen was reached. This diagnosis was communicated to the patient and the mother who escorted the girl. It was further explained to them the definitive treatment of the

condition for which both the mother and the girl consented for both the procedure and its outcomes in terms of socio-cultural implications bearing in mind that the virginity of the girl will be lost after the procedure. Preparations for hymenotomy were done for the next day. On the day of operation the patient was taken to theatre for the operation. She was placed in the dorsal lithotomy position, the bladder was drained, and a sterile perineal preparation performed.

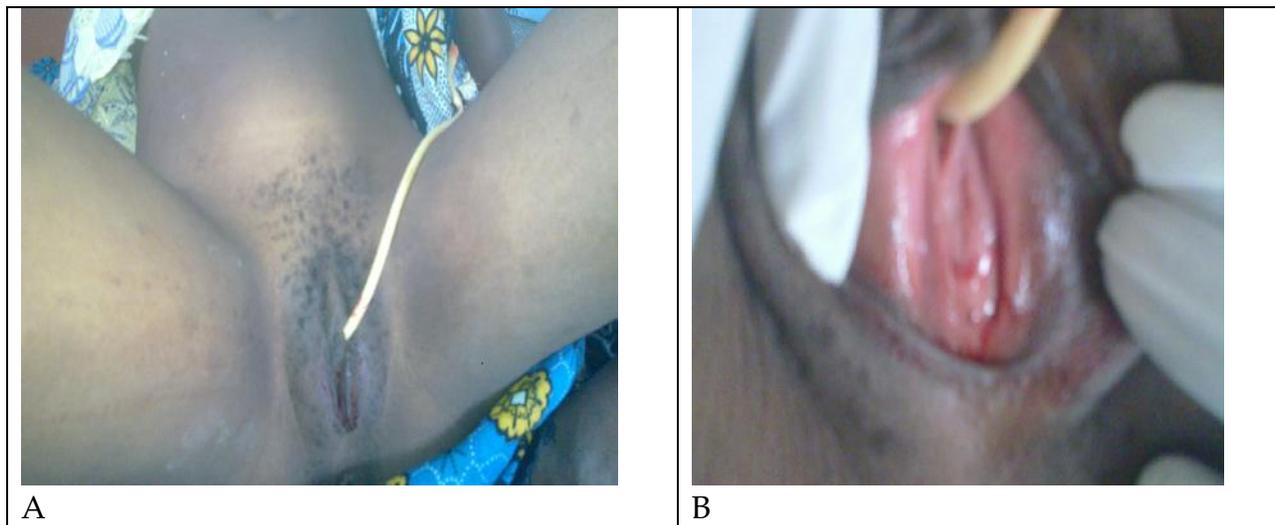


Figure 1: Haematometra/haematocolpos presenting as a supra-pubic mass after catheterization to drain the retained urine (A); Bulging of the hymen due to massive haematocolpos (B)

Hymenotomy was performed under local anaesthesia where a cruciate incision was made on the hymen and about 1500mls of viscous chocolate-coloured blood was drained. After that the hymeneal leaflets were then trimmed sharply from the hymeneal ring and the cut edges of the leaflet bases were then over sewn with interrupted absorbable sutures.



Figure 2: The appearance of the external genitalia on 4th day post operation

Post operatively the girl improved remarkably and was discharged home on 6th day. Because she was coming from far, she was instructed to go back to the referring district Hospital after 2 weeks for follow up. Report so obtained 4 months after the operation during supervision visits gave a success story that the patient attended their hospital and she was doing fine (Figure 2).

Discussion

Imperforate hymen is generally a rare occurrence in clinical practice of gynaecology. Literature has reported incidences of around 0.1% of all newborn female babies (Edmonds, 2000). It is this rarity that brings the difficulty in making the diagnosis easily at birth compounded by a bizarre presentation in some cases whose diagnosis is made at puberty. In most cases the diagnosis is reached when the girl reaches menarche and start having accumulation of blood in the vaginal (haematocolpos) and the uterus (haematometra). This accumulation of blood compresses the bladder and the urethra to cause urine retention (Buick *et al.*, 1999). At times other unusual clinical features may show up and further complicate the picture making the diagnosis even more challenging. These include low back pain and/or constipation due to massive haematocolpos (Buick *et al.*, 1999; Isenhour *et al.*, 1999).

Our patient presented with an acute urine retention of about two days duration and because it is very likely that a thorough clinical examination was not done at birth nobody had a clue of imperforate hymen and again pelvic examination was not done

when she arrived at the hospital hence, the diagnosis was missed for the second time and pregnancy and urinary bladder tumour were given a priority. From this picture it becomes evident that an imperforate hymen should also be thought as a cause of urine retention in young girls who present with acute urine retention. This should be accompanied by a carefully pelvic examination to substantiate the diagnosis.

The diagnosis of imperforate hymen may be reached at birth from a thorough clinical examination or in early childhood when the little girl presents with mucocolpos or hydrocolpos but more frequently the diagnosis is made at puberty when the girl presents with haematocolpos or hematometra or both (Posner & Spandorfer, 2005). Commonly imperforate hymen is asymptomatic and therefore the diagnosis is often missed before puberty and it is made when the girl reaches menarche. In our case the diagnosis was only reached about a year after the onset of irregularly cyclic abdominal pain when she had a massive haematocolpos. This delay came because nobody had in mind the presence of the condition. A good clinical examination at birth would have helped to have the diagnosis at hand before this massive haematocolpos appeared (Posner & Spandorfer, 2005).

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 (Adaletli *et al.*, 2007). This can be a tool because the diagnosis is already in the thought of an attending doctor. But it is obvious that the use of MRI cannot be considered to be a diagnostic tool of choice in resource constrained countries and therefore clinical examination is critically important.

The clinical presentation in patients with imperforate hymen and transverse vaginal septum may be similar in many aspects 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 these patients (Wall *et al.*, 2003). In our patient, bulging of the membranes at the introitus clearly differentiated between the imperforate hymens from transverse vaginal septum.

Thorough physical pelvic inspection and examination in patients with imperforate hymen with haematocolpos and/or haematometra with its obstructive symptoms 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 pin pointed (Frates *et al.*, 2004.). When ultrasound is chosen, the rectal route is preferred for it provides a better visualization (Kushir *et al.*, 1997).

Conclusion

Adolescent girls with acute urinary retention particularly those who have not yet stated menstruation in their mid-teens, imperforate hymen with haematocolpos should be considered as a possible differential diagnosis and a critical inspection of the external genitalia are performed so that the diagnosis is reached the earliest and prompt treatment provided.

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