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Case Report

A Lesser Thought of Cause of Abdominal Pain in Adolescent Girls. A Case Report of Hematocolpos in a 14-Year-Old Adolescent and Literature Overview

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Abstract

Hematocolpos and imperforate hymen are rare conditions. We report the case of a 14-year-old adolescent girl who was referred to our emergency room for suspected acute appendicitis. She was at Tanner Stage 4 (B4 - P5) and presented with a history of recurrent abdominal pain of long duration, along with primary amenorrhea. Initially, no gynecological examination was performed, and the diagnosis was ultimately made through pelvic ultrasound. Her symptoms resolved after undergoing a hymenectomy. This case serves as a reminder to junior doctors that thorough history-taking and clinical examination are essential before proceeding with imaging studies.

Keywords: *Abdominal Pain; Adolescent Girls; Hematocolpos*

Introduction

Acute as well as chronic abdominal pain is among the commonest complaints in childhood, leading many children to seek emergency care.

Diagnosing abdominal pain in children can be challenging due to its many causes, but most cases are benign and self-limiting, such as gastroenteritis, acute lymphadenitis, and constipation [1]. Do not miss surgical causes like acute appendicitis, ovarian cysts, incarcerated hernias, intussusception, volvulus, or rare solid abdominal tumors. Consider age, as many diagnoses depend on it. In older children and adolescents, pain could signal inflammatory bowel disease, dysmenorrhea, pelvic inflammatory disease, or rare causes like hematocolpos [1]. Hematocolpos results from menstrual blood or secretory fluid buildup due to vaginal obstruction, which can be mechanical or anatomical, acquired or congenital. Common obstructions are imperforate hymen, transverse vaginal septum, vaginal atresia, hemi-vaginal atresia, cloacal malformations (congenital), and vaginal stenosis (acquired). Imperforate hymen, with an estimated prevalence of 1:1000 to 1:2000, causes up to 90% of hematocolpos cases [2,3].

Clinically, this pathology can present under various pictures: amenorrhea associated with abdominal pain, urinary retention, hypertension, urinary tract infection, lower back pain, etc. Rare familial cases have also been reported [4-8].

We describe an adolescent girl who came to our emergency department with recurrent abdominal pain. Acute appendicitis was the initial suspicion, but ultrasound revealed hematocolpos. We urge clinicians, especially junior doctors, to focus on thorough history-taking and clinical examination in pediatric patients, including a gynecological assessment for adolescent girls with lower abdominal symptoms.

Clinical Case

A 14-year-old girl complaining of acute recurrent abdominal pain was referred to our emergency room by her pediatrician to rule out acute appendicitis. She had been experiencing cyclical lower abdominal pain for more than a week. She reported no urinary symptoms, no fever, no associated nausea, vomiting, or diarrhea. Furthermore, she had no history of altered bowel habits either.

Her medical and surgical histories were unremarkable. She was at Tanner stage 4 (B5-P4) but had not reached menarche. On examination, she appeared healthy and calm. Vital signs, including temperature, capillary refill time, heart rate, respiratory rate, and blood pressure, were normal for age and gender. Deep abdominal palpation showed peri-umbilical pain, without guarding or localized tenderness. No gynecological exam was done initially. The junior doctors ordered blood tests (White Blood Cell count, urea, nitrogen, electrolytes, C-reactive protein, liver function tests, and urinalysis), which were normal. They also ordered an abdominal ultrasound to rule out appendicitis, which revealed a multi-loculated, fluid-filled cystic mass in the vagina measuring 17 x 8 x 8 cm (Figure 1A and 1B).

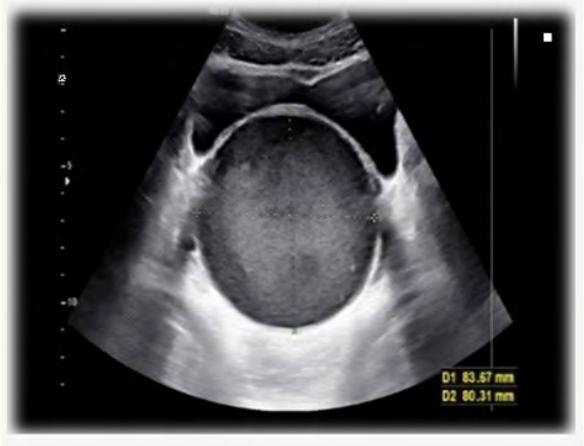


Figure 1A and 1B: *Axial and sagittal ultrasound images showing hypoechoic cystic mass below the bladder.*

It is only then that a thorough gynecological examination was performed, showing an intact pinkish bulging imperforate hymen (Figure 2).

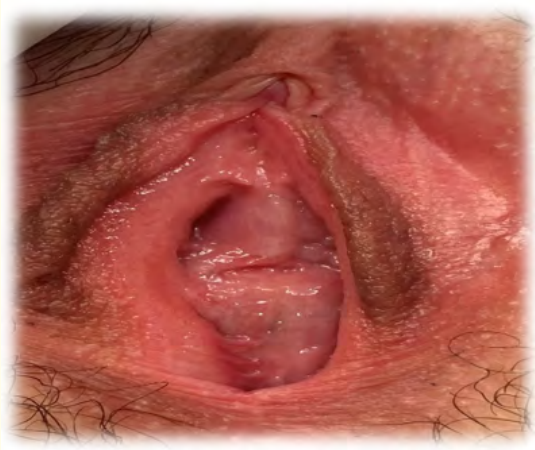
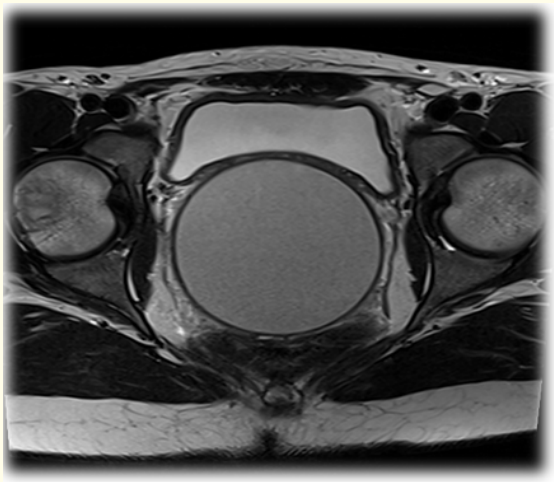
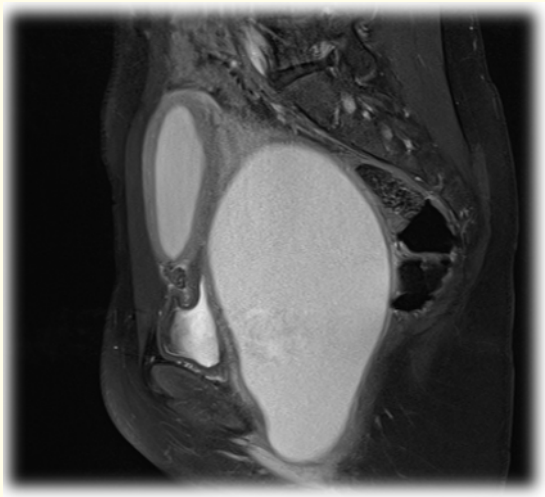


Figure 2: *Imperforated hymen.*

A pelvic MRI was ordered to refine the anatomical analysis. It confirmed a distended vagina and uterus filled with T1 hyperintense and T2 hypointense fluid collections suggestive of hemorrhagic collection in both vagina and uterus, consistent with the diagnosis of hematocolpos. No other associated genitourinary malformations were identified (Figure 3A and 3B).



3A



3B

Figure 3A and 3B: *Pelvic MRI. 3A: Hematocolpos pushing up the uterus (axial T2 sequence). 3B: Marked distension of the uterus and vagina (sagittal T2 sequence).*

The patient was entrusted to our pediatric surgery team for care. Hematocolpos was punctured, allowing the evacuation of 200 ml of blood, followed by hymenectomy with a cruciate-shaped incision that, additionally, led to the evacuation of more than 500 ml of blood. The girl was kept under monitored surveillance for 24 hours and was discharged the following day in stable clinical condition after an uneventful post-operative period. Her follow-up remains symptom-free.

Discussion

Hymeneal imperforation and consequent hematocolpos are rare, but old entities that were first described by Ambroise Paré as early as 1633 [9].

Embryologically, the upper and lower parts of the vagina are derived from the Müllerian ducts and the sino-vaginal bulbs, respectively. The hymen, a thin mucosal tissue located between the urogenital sinus and the sino-vaginal bulb, is a remnant of mesodermal tissue that normally perforates during the later stages of embryological development. In case of non-perforation, the hymen is termed imperforate. Although the exact cause remains unknown, an imperforate hymen is likely due to a lack of apoptosis or to an inappropriate hormonal environment [9].

This condition can incidentally be diagnosed as early as in utero or in the immediate postnatal life in female neonates [10,11]. Most cases of imperforate hymen are present in adolescent girls aged between 13 and 15 years. The reported mean age at presentation varies between 12 and 13.2 years [12,13]; this age can be extended to 17 years as reported by Mariko., *et al*. [14].

Hematocolpos presents most commonly at puberty in menarcheal adolescents, when menstrual blood outflow is obstructed, and therefore, accumulates in the vagina and uterus. The presenting clinical picture associates primary amenorrhea with poorly localized recurrent cyclical abdominal pain, often of long duration. It is of note that menstrual cycles being often irregular during the first two years post-menarche, the painful attacks may not be cyclical during this period in affected girls.

Patients may also present with various other symptoms such as urinary retention, urinary tract infection, lower back pain, tenesmus, constipation, pelvic mass, and systemic hypertension [12,15-23].

In a study of 27 cases of hematocolpos by Lazanyi., *et al*. in 23/27 (85%) cases, pain was the chief presenting symptom, and 15/27 (56%) patients had symptoms considered of importance. Of note, 81% (22/27) of patients consulted more than one health care professional before the final diagnosis could be made [11]. Moreover, in 19/27 (70%) patients, imaging was ordered before clinical diagnosis, as encountered in our case. In another report of seven cases by Lahfaoui., *et al.* [17], pain was the main symptom in all cases; it was cyclic in only 4/7 cases (57%), 3/7 patients had associated urinary retention, and in 5/7 (71%) cases a clinically palpable pelvic mass was present.

In a review from Hong Kong, Lui., *et al*. reported associated urogenital malformations in 4 of their 15 cases; these were septal vagina, bifid left pelvicalyceal system, bilateral vaginal cysts, and right renal agenesis [22]. This constitutes a reminder that associated Müllerian malformations should be explored in all patients diagnosed with hematocolpos, by pelvic ultrasound and/or MRI.

Our case report reveals a non-unusual pitfall in our modern practice of medicine, with junior doctors evoking commoner diagnoses and limiting their clinical reasoning, thus avoiding the wrongly considered embarrassing genital examination in teens. Although the diagnosis was not delayed in our patient, we failed as clinicians to be complete in our approach. The use of modern tools to make a diagnosis is beneficial, yet we need to preserve our clinical skills and resort to imaging modalities only as additional aids.

Symptoms and signs of hematocolpos are often nonspecific, a gynecological cause is frequently overlooked, and several laboratory and imaging tests are ordered, leading to delayed diagnosis. We, therefore, suggest that hematocolpos be included in the differential diagnosis of lower abdominal pain in adolescent girls, and a prompt gynecological examination be performed systematically after obtaining consent from the patient and her family. Early diagnosis of this condition is essential; its ignorance or delay in management can lead to serious complications. The pressure exerted on the upper urinary system by urinary retention and bladder distension is likely to induce uretero hydronephrosis. The stasis of both vaginal and uterine fluids can lead to ascending infection and cause endometritis, salpingitis, pelviperitonitis, tubal infection and infertility. Other possible complications are hematometria, hematoslpinx, constipation, systemic hypertension, endometriosis, hemoperitoneum, tubo-ovarian abscesses, recurrent urinary tract infections, etc. [17,24].

Conclusion

Hematocolpos is rare; its diagnosis can be tricky, and it requires a thorough clinical examination that should be performed without delay in a menarcheal adolescent presenting with non-specific cyclic abdominal pain associated with primary amenorrhea, contrasting with fully developed secondary sexual characteristics as illustrated in this report.

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