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CASE REPORT

Delayed Diagnosis of Imperforate Hymen Causing Hematocolpos and Hematometra in an Adolescent with Type II Female Genital Mutilation: A Case Report

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Background: Imperforate hymen is the most common congenital obstructive anomaly of the female genital tract and an important cause of primary amenorrhea; however, delayed diagnosis may occur in low-resource and culturally sensitive settings, especially when coexisting genital findings such as type II female genital mutilation (FGM) complicate clinical assessment.

Case Presentation: A 17-year-old nulliparous adolescent from a rural area, married for two months, presented with primary amenorrhea since puberty, severe cyclic lower abdominal pain, and avoidance of sexual intercourse because of discomfort. She had normal secondary sexual characteristics, and genital examination demonstrated a tense, bluish bulging hymenal membrane, with coexisting type II FGM noted on examination. Pelvic ultrasonography confirmed hematocolpos and hematometra. The patient underwent hymenectomy using a cruciate incision, with evacuation of approximately 700 mL of retained menstrual blood. Her postoperative course was uneventful, and her symptoms resolved on follow-up.

Conclusion: This case highlights that imperforate hymen should be suspected in adolescents presenting with primary amenorrhea and cyclic pelvic pain, particularly when diagnosis is delayed in rural or culturally complex settings. The coexistence of type II FGM adds clinical relevance to the case and should prompt careful genital examination and thoughtful surgical planning. Early recognition and timely hymenectomy are curative and help prevent avoidable physical and psychosocial complications.

Keywords: imperforate hymen, primary amenorrhea, hematocolpos, hematometra, female genital mutilation, delayed diagnosis

Background

Imperforate hymen is the most common obstructive congenital anomaly of the female genital tract and an important cause of primary amenorrhea in adolescents, with an incidence of 0.014–0.1% in newborn females.[1,2]

It results from failure of canalization of the inferior vaginal plate during embryologic development and remains asymptomatic until puberty, when retained menstrual blood causes progressive genital outflow obstruction.[1,2] Patients present with primary amenorrhea, cyclic pelvic pain, abdominal distension, hematocolpos, or hematometra.[1,3] Delayed diagnosis leads to urinary retention, hydronephrosis, infection, pelvic adhesions, endometriosis, and avoidable reproductive morbidity.[2–4]

Careful genital examination is central to diagnosis, the typical finding is a tense, bluish bulging hymenal membrane, while pelvic ultrasonography helps confirm retained blood products and exclude other obstructive Mullerian anomalies.[1,5,6]

Although most cases are sporadic, recent reports of affected twins, sisters, and mothers suggest that imperforate hymen may occasionally have a familial basis.[7,8] This makes family history relevant when assessing adolescents with primary amenorrhea and cyclic pelvic pain.

The present case is clinically important due to coexistence of imperforate hymen with type II female genital mutilation. Female genital mutilation has been associated with a wide range of gynecological, urological, sexual, psychological, and

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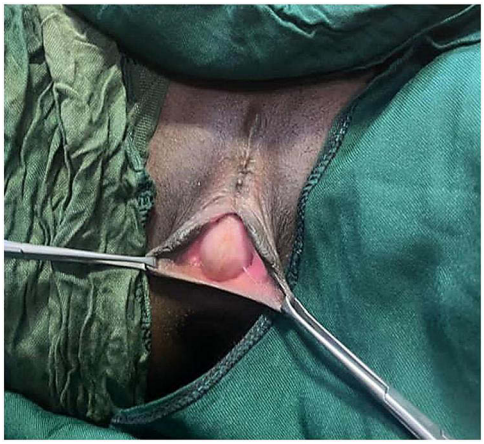

Figure 1 Intraoperative image showing a distended, tense imperforate hymen exposed with retractors before incision.

obstetric complications, and altered external genital anatomy complicates examination and delay recognition of other underlying pathology.[9,10]

This issue is particularly relevant in low-resource and culturally sensitive settings, where genital examination is delayed or incomplete.

This report describes delayed diagnosis of imperforate hymen causing hematocolpos and hematometra in a 17-year-old adolescent with type II female genital mutilation and highlights the importance of careful examination, appropriate differential diagnosis, and timely surgical treatment.

Case Presentation

A 17-year-old nulliparous adolescent, married for two months, presented with primary amenorrhea and severe cyclic lower abdominal pain occurring monthly. She reported progressive worsening of symptoms over four years and avoidance of sexual intercourse after marriage because of pain.

General examination showed normal secondary sexual characteristics, including normal breast development and pubic hair distribution. Local genital examination revealed type II female genital mutilation, a closed vaginal opening, and a tense bluish bulging membrane at the introitus (Figure 1), suggestive of imperforate hymen with retained menstrual blood.

Transabdominal pelvic ultrasonography demonstrated a large elongated cystic lesion measuring 14 cm by 7 cm, containing internal echogenic material with clot retraction and a fish-net appearance. Both ovaries were normal, and no free fluid was seen in the pouch of Douglas (Figure 2A–C).

A diagnosis of imperforate hymen causing genital outflow obstruction was made. The patient underwent hymenectomy using a cruciate incision (Figure 3), and 700 mL of retained menstrual blood was drained (Figure 4A and B). Her postoperative recovery was uneventful, with complete resolution of symptoms on follow-up.

Discussion

Imperforate hymen is the most common congenital obstructive anomaly of the female genital tract and a recognized cause of hematocolpos and primary amenorrhea in adolescents with normal secondary sexual characteristics. In the present case, the main clinical relevance lies not only in the diagnosis itself but in the delayed presentation and the coexistence of type II female genital mutilation, which represents the most important distinguishing feature of this report.[3,4]

Although imperforate hymen is classically diagnosed in adolescents presenting with cyclic pelvic pain, primary amenorrhea, and a bulging hymenal membrane, delayed recognition still occurs in practice, particularly when genital examination is incomplete or when patients present in low-resource or culturally sensitive settings.[11,12] This patient had

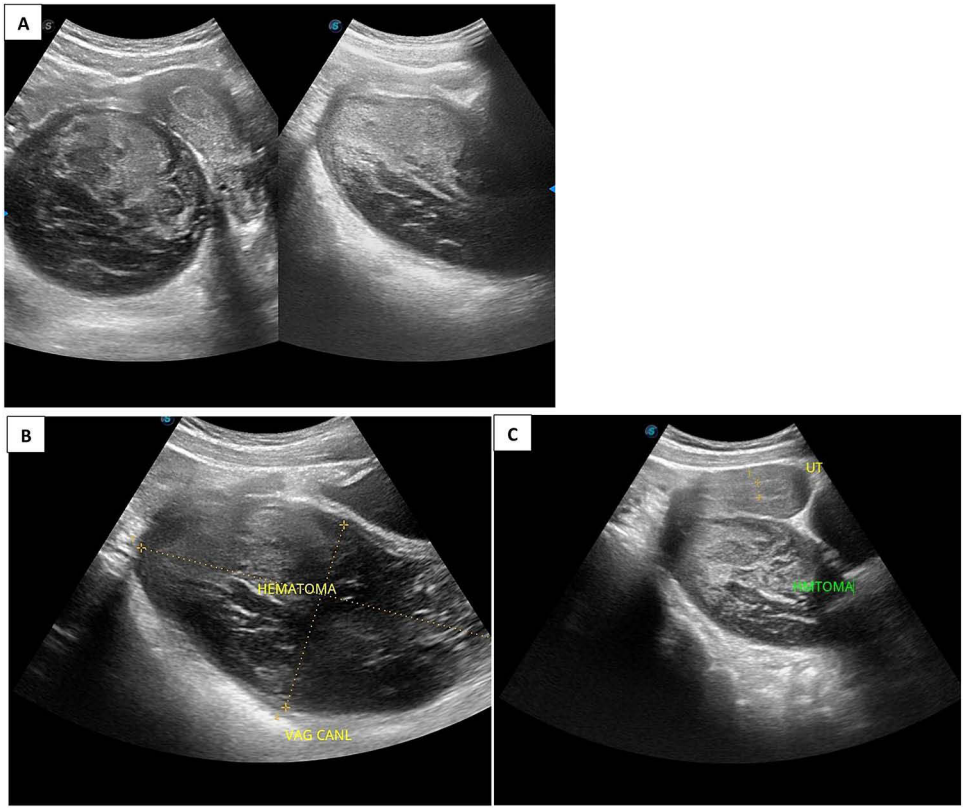

Figure 2 Transabdominal pelvic ultrasound showing (**A**) a large heterogeneous cystic vaginal mass posterior to the urinary bladder with internal low-level reticular echoes ("fish-net" appearance), (**B**) the distended vaginal collection measuring 134.5×69.8 mm, and (**C**) an anteverted uterus (UT) with endometrial thickening (7–8 mm) and a heterogeneous collection inferior to the uterus.

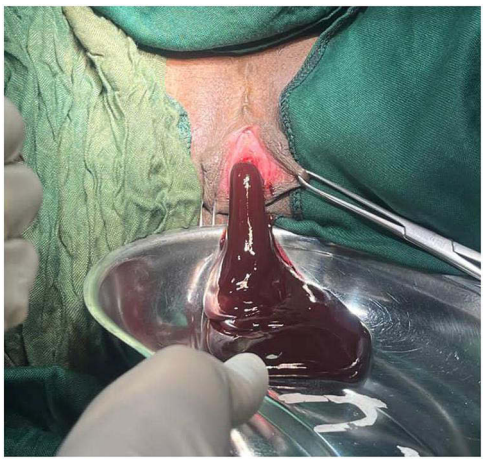

Figure 3 Intraoperative view after cruciate incision of the hymenal membrane, showing drainage of dark retained menstrual blood consistent with hematocolpos due to genital outflow obstruction.

longstanding symptoms for several years before diagnosis, demonstrating how a readily treatable cause of genital outflow obstruction remains unrecognized despite typical clinical features.

The coexistence of type II FGM is a clinically important finding that should not be considered incidental. It raises the possibility that altered genital anatomy or previous scar tissue may have contributed to delayed recognition or influenced clinical assessment and surgical planning, although this could not be fully determined from the available case details. This uncommon association adds relevance to the case and highlights the need for careful genital examination in similar patients.

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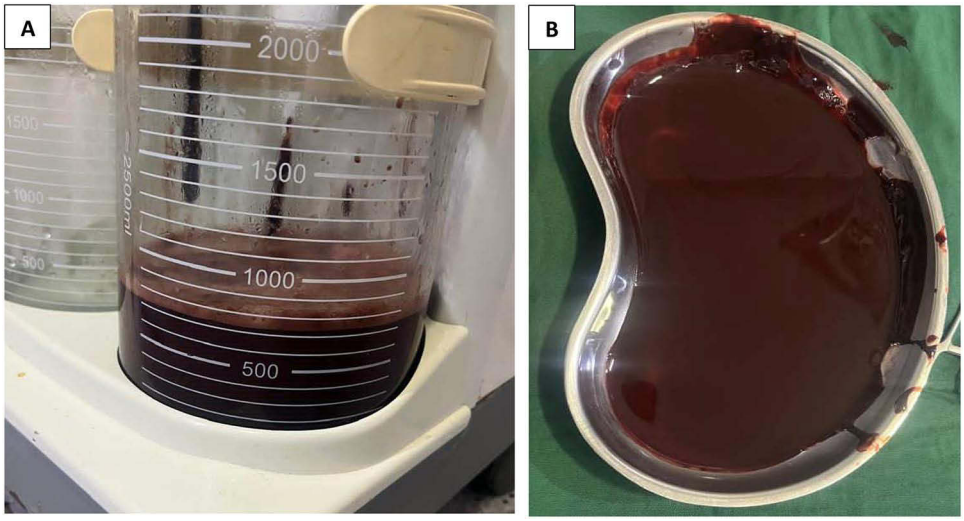

Figure 4 Retained menstrual blood evacuated during the procedure: (**A**) 700 mL collected in a suction canister and (**B**) additional blood collected in a kidney dish following hymenectomy.

A limitation of this report is that the precise impact of type II FGM on the diagnostic process and surgical approach cannot be fully established. Nevertheless, this case emphasizes that adolescents with primary amenorrhea and cyclic pelvic pain require careful genital examination and timely pelvic ultrasonography to avoid preventable diagnostic delay.

Conclusion

Imperforate hymen is an important and treatable cause of primary amenorrhea in adolescents presenting with cyclic pelvic pain and normal secondary sexual characteristics. This case is clinically notable because delayed diagnosis occurred in the setting of coexisting type II FGM, an under-addressed factor that may complicate assessment and warrants greater clinical attention. Early diagnosis and prompt hymenectomy are curative and help prevent avoidable physical and reproductive complications, particularly in rural and low-resource settings where delayed presentation may be more common.

Data Sharing Statement

The data supporting this case report's findings are available from the corresponding author upon reasonable request.

Ethical Approval and Consent

Ethical approval for this case report was obtained from the institutional ethics committee of Dr. Sumait Hospital, SIMAD University, Mogadishu, Somalia. Written informed consent was obtained from the patient's guardian (father) for the publication of this case report and any accompanying images. All procedures were conducted in accordance with the ethical standards of the institutional and national research committee and the Declaration of Helsinki.

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Author Contributions

All authors made a significant contribution to the work reported, whether in the conception, data collection, analysis, or interpretation; participated in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare no conflicts of interest in this case report.

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