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Laparoscopic Management Of Imperforate Hymen Associated With Large Hematometra And Uterine Fibroid: A Rare Case Report

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Abstract

Introduction: Imperforate hymen is a rare congenital anomaly that can lead to obstructed menstrual flow, resulting in hematometra, hematocolpos, dysmenorrhea, and menstrual irregularities. It is typically diagnosed during adolescence, but in rare cases, it may be associated with other gynecological conditions such as fibroids, complicating its management. **Objectives:** This case report aims to present the diagnostic challenges, surgical management, and postoperative complications of a patient with imperforate hymen and a large uterine fibroid. **Aims:** To emphasize the importance of early diagnosis, appropriate imaging, and minimally invasive surgical approaches in managing complex gynecological conditions. **Methodology:** A 23-year-old female presented with severe lower abdominal pain, progressive dysmenorrhea, and increased menstrual flow. Clinical examination, ultrasound, and CT imaging confirmed a large hematometra (2500-2550cc) due to an imperforate hymen, along with an 11x12 cm submucosal uterine fibroid. The patient underwent laparoscopic myomectomy and hymenectomy. Postoperatively, she developed tachycardia and tachypnea, requiring ICU admission and further management. Histopathological examination confirmed leiomyoma. **Results:** The surgical intervention successfully relieved the obstruction, and the fibroid was excised. However, postoperative complications included pleural effusion and an inflammatory response, necessitating intensive care and prolonged monitoring. The patient was managed with IV antibiotics, blood transfusions, and respiratory support. She was later discharged with follow-up advice. **Conclusion:** This

case highlights the significance of timely diagnosis and management of obstructive Müllerian anomalies and coexisting gynecological pathologies. Laparoscopic myomectomy and hymenectomy provided an effective resolution, but postoperative complications necessitate vigilant monitoring. Further research is needed to explore the correlation between congenital anomalies and fibroids to improve clinical outcomes.

Keywords : Fibroid Uterus, Myomectomy (Laparoscopic/Open), Microwave Ablation, Hysterectomy Risk, Pleural Effusion.

Introduction

Imperforate hymen is a rare congenital anomaly of the female reproductive tract caused by the failure of complete canalization of the Müllerian ducts during fetal development. It is one of the most common obstructive anomalies of the female genital tract, typically presenting during adolescence with primary amenorrhea, cyclic pelvic pain, and hematocolpos. However, in rare cases, it may remain undiagnosed until adulthood, leading to complications such as hematometra, endometriosis, and infertility. Uterine fibroids, or leiomyomas, are benign smooth muscle tumors of the uterus, commonly seen in reproductive-age women, but their coexistence with an imperforate hymen is unusual and poses additional diagnostic and surgical challenges. This case report describes a 23-year-old female presenting with severe abdominal pain, progressive dysmenorrhea, and abnormal menstruation, found to have an imperforate hymen with a large hematometra and a concurrent uterine fibroid. Timely diagnosis using imaging modalities and appropriate surgical intervention are crucial in preventing complications. This case highlights the role of laparoscopy as an effective minimally invasive approach in managing complex gynecological conditions while emphasizing the need for vigilant postoperative monitoring to prevent complications.

Case Presentation

A 23-year-old nulligravida female presented with severe lower abdominal pain, progressive dysmenorrhea, increased menstrual flow for 1.5 months, and a sensation of fullness in the lower abdomen for 1.5 weeks. She also reported white vaginal discharge, weakness, and occasional palpitations. Her menstrual history revealed menarche at 13 years, initially regular cycles, but progressively worsening dysmenorrhea and heavy menstrual bleeding. She had no prior gynecological interventions before her initial diagnosis. Four years ago, she was diagnosed with an imperforate hymen and a large uterine fibroid, leading to a massive hematometra (~2500-2550cc), for which she underwent laparoscopic myomectomy and hymenectomy. Postoperatively, she developed pleural effusion and an inflammatory response, requiring ICU admission, IV antibiotics, blood transfusions, and respiratory support. On her current admission, general examination revealed stable vitals (BP 110/70 mmHg, HR 82/min, afebrile), while abdominal examination showed mild distension and tenderness. Gynecological examination revealed a bulky uterus (~24 weeks size), with no palpable adnexal masses and free bilateral fornices. Ultrasound and CT scan confirmed a large uterine mass with recurrent fibroids and possible hematometra, while hematology showed mild anemia and leukocytosis. Infectious screening, including COVID-19, HIV, HBsAg, Dengue, and Leptospira, was negative. Histopathology confirmed leiomyoma. The final diagnosis was recurrent uterine fibroid with hematometra in a patient with a history of imperforate hymen, previously managed with laparoscopic myomectomy and hymenectomy. This case highlights the importance of long-term follow-up in patients with congenital reproductive tract anomalies and uterine fibroids to prevent recurrence and associated complications.

Diagnostic evaluation

The patient underwent a series of diagnostic evaluations to assess her condition and guide management. Ultrasound and CT scan of the abdomen and pelvis revealed a large uterine mass with recurrent fibroids and possible hematometra, with the uterus measuring approximately 19×18×15 cm and an 11×12 cm submucosal fibroid. Hematological investigations showed mild anemia with low hemoglobin levels and leukocytosis, indicating a possible inflammatory response. C-reactive protein (CRP) and D-dimer levels were elevated, suggesting postoperative inflammation. Liver function tests (LFT) and kidney function tests (KFT) were within normal limits, indicating no hepatic or renal dysfunction. Coagulation profile (PT, aPTT, and INR) was normal, ruling out clotting disorders. Infectious disease screening, including COVID-19 PCR, HIV, HBsAg, Dengue, and Leptospira serology, was negative, excluding infectious causes. Widal test and peripheral smear were also negative. Histopathological examination of the endometrial and fibroid tissue confirmed the presence of leiomyoma without signs of malignancy or sarcomatous changes. These investigations confirmed the diagnosis of recurrent uterine fibroids with hematometra in a patient with a history of imperforate hymen, previously managed with laparoscopic myomectomy and hymenectomy, guiding further treatment planning and surgical intervention.

Management

The patient underwent a multidisciplinary approach involving medical, surgical, and nursing management. Medical management included NSAIDs and antispasmodics for pain relief, IV antibiotics (Meropenem, Clindamycin, Linezolid) to prevent infections, iron supplements for anemia correction, and a high-protein diet for recovery. Surgical management involved laparoscopic myomectomy and hymenectomy to remove the fibroid and relieve hematometra, along with uterine artery ligation to minimize intraoperative blood loss. Postoperatively, she developed tachycardia and tachypnea, requiring ICU admission, respiratory support, blood transfusions, and pleural effusion management. Nursing management focused on preoperative education, vital sign monitoring, infection prevention, postoperative wound care, early ambulation to prevent deep vein thrombosis (DVT), and patient education on medication adherence, hygiene, and recognizing complications. The patient was discharged with follow-up instructions to monitor for recurrence and ensure long-term gynecological health.

Follow up and outcome

The patient was discharged with instructions for a high-protein diet, iron supplementation, and a 7-day course of antibiotics to prevent infections. She was advised to monitor for warning signs such as persistent abdominal pain, abnormal vaginal bleeding, breathlessness, or signs of infection. A follow-up appointment was scheduled after 7 days to assess postoperative recovery, evaluate uterine health, and rule out any recurrence. On follow-up, the patient reported significant symptom relief with no signs of infection or complications. However, long-term monitoring was recommended due to the risk of fibroid recurrence. Regular gynecological examinations and imaging were advised to ensure optimal reproductive health and early detection of any abnormalities.

Discussion

Imperforate hymen with hematometra is well-documented, but its association with large fibroids is unusual. Early detection using ultrasound and MRI can prevent complications like hematosalpinx and endometriosis. This case also highlights the risks of post-surgical inflammatory response and the need for close monitoring. Laparoscopic intervention was effective, offering minimal invasiveness and faster recovery.

Conclusion

This case underscores the importance of early diagnosis of obstructive Müllerian anomalies and the role of minimally invasive surgery in complex gynecological cases. Postoperative complications like pleural effusion require vigilant monitoring. Further studies are needed to explore the correlation between congenital anomalies and fibroids in young females.

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