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Case Report **Open Access**

Myoma-Related Altered Tubal Anatomy as an Etiologic in Recurrent Ectopic Pregnancy and Infertility: A Case Report

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ABSTRACT

Background: *Recurrent ectopic pregnancy remains a significant and complex challenge in obstetric care, particularly when accompanied by comorbid conditions such as uterine myomas.*
Case Description: *We report the case of a 30-year-old woman with a history of two ectopic pregnancies—one involving the right fallopian tube and the other the left—along with a large subserosal uterine myoma. Diagnosis was established via transvaginal ultrasonography and supporting laboratory investigations. The patient underwent a laparotomy with salpingotomy and myomectomy in an effort to preserve reproductive capacity. Timely surgical intervention and comprehensive postoperative management resulted in favorable clinical outcomes, preventing complications and supporting recovery.*
Conclusion: *This case underscores the critical importance of individualized clinical management and interdisciplinary collaboration in addressing complex gynecologic presentations. Further studies are warranted to elucidate the interplay between uterine myomas and ectopic pregnancy and to assess their long-term impact on fertility. Development of more refined diagnostic and therapeutic protocols may contribute to improved maternal outcomes and reproductive preservation.*

Keywords: *Contralateral tubal ectopic gestation; myoma-related reproductive dysfunction; recurrent tubal implantation; fertility-preserving salpingotomy; complex gynecologic comorbidity*

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INTRODUCTION

Ectopic pregnancy is a potentially life-threatening condition in which a fertilized ovum implants outside the uterine cavity, most commonly in the fallopian tube, with an incidence of 1–2% of all pregnancies.[1,2] Clinical presentation typically includes lower abdominal pain, abnormal vaginal bleeding, and ultrasonographic evidence of extrauterine gestation.[3,4] Early diagnosis is essential to prevent complications such as tubal rupture and intra-abdominal hemorrhage.

The risk of recurrence is significantly higher in patients with a previous ectopic pregnancy. Structural tubal damage due to infection, prior surgery, endometriosis, or other pelvic pathology is frequently implicated in recurrent cases.[5,6,7,8] Management in such patients requires careful clinical assessment and multidisciplinary monitoring to reduce morbidity.

The present case is further complicated by the coexistence of multiple uterine myomas. Uterine myomas are common benign tumors in reproductive-age women.[9] Although often asymptomatic, they may disrupt fertility and increase the risk of abnormal implantation, particularly when large subserosal myomas cause distortion of the fallopian tubes and impair ovum transport.[10,11] Thus, comprehensive evaluation of uterine myomas is important for determining appropriate therapeutic strategies to optimize reproductive outcomes.

The combination of recurrent ectopic pregnancy and multiple uterine myomas presents substantial diagnostic and therapeutic challenges, including the risk of tubal rupture, infertility, and complex decision-making regarding fertility preservation. [12,13] Diagnosis typically relies on clinical symptoms, transvaginal ultrasonography, and serum beta-hCG measurement.[14,15] Ultrasonography also plays a key role in assessing the presence of myomas that may influence management decisions.[16]

Treatment options for ectopic pregnancy include medical therapy with methotrexate or surgical intervention via salpingectomy or salpingostomy, depending on clinical stability, risk of rupture, and future fertility goals.[17] In cases with significant adnexal pathology or large myomas, laparotomy or laparoscopy allows more comprehensive evaluation. [18,19] Given the long-term reproductive implications of recurrent ectopic pregnancy and uterine myomas, individualized management and appropriate counseling are essential.[20]

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CASE REPORT

A 30-year-old female patient, G2P0A1, presented to the emergency department on May 21, 2024, via referral, with one week history of lower abdominal pain accompanied by mild vaginal bleeding since the onset of pregnancy. The patient denied nausea or shortness of breath. One week prior, ultrasonography had revealed an intrapelvic solid mass suspected to represent an ectopic pregnancy. She reported no history of contraceptive use and no history of hypertension or diabetes. Her menstrual cycles were regular, lasting 6 days, with a sanitary pad usage of 1–2 times per day. Menarche occurred at the age of 15. Her obstetric history included a previous right-sided ectopic pregnancy that had been managed with right salpingectomy in 2015.

On physical examination, the patient was in moderate distress but fully conscious (compos mentis), and hemodynamically stable with a blood pressure of 110/70 mmHg, pulse rate of 91 beats per minute, respiratory rate of 20 breaths per minute, oxygen saturation of 98%, and body temperature of 36.5°C. Abdominal palpation revealed localized tenderness in the lower abdomen. Her abdominal circumference was 80 cm, and fundal height was 12 cm. She measured 150 cm in height and weighed 54 kg on admission, compared to a pre-pregnancy weight of 55 kg.

Laboratory evaluation showed a normal leukocyte count (WBC 8.43 × 10^3/µL; reference range: 4.0–12.0 × 10^3/µL), normal hemoglobin (Hb 12.5 g/dL; reference range: 12.0–16.0 g/dL), slightly reduced hematocrit (HCT 34.3%; reference range: 37.0–50.0%), and normal platelet count (PLT 272 × 10^3/µL; reference range: 150–450 × 10^3/µL). Transvaginal ultrasonography demonstrated a left-sided ectopic pregnancy with detectable fetal cardiac activity and the presence of a subserosal uterine myoma measuring 10 × 6 cm, with no free fluid observed in the pouch of Douglas (Figure 1).

Figure 1. Ultrasonographic findings showing an extrauterine gestational sac located in the left fallopian tube with a fetus inside, and a solid mass measuring 10 × 6 cm at the right cranial aspect of the uterus, with well-defined margins contiguous with the uterine perimetrium

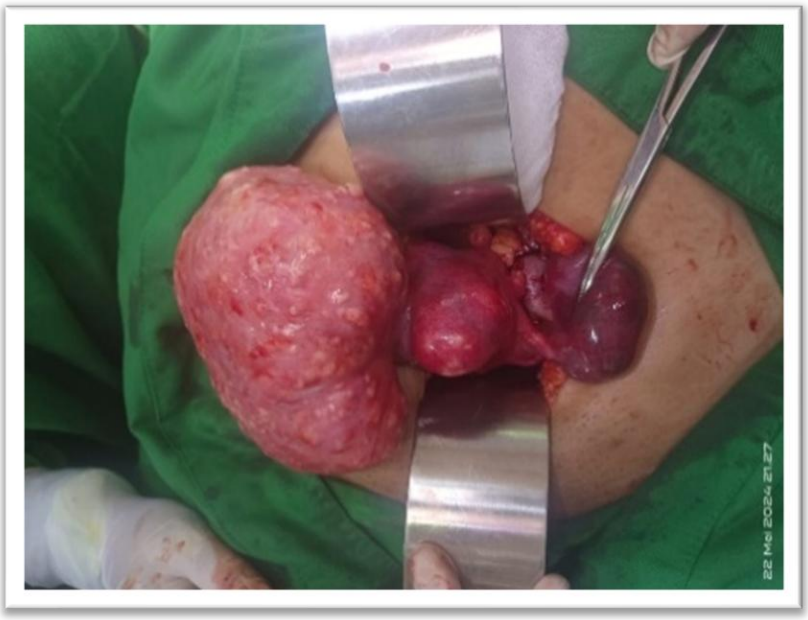

Figure 2. Intraoperative view of multiple uterine myomas of varying sizes, along with an ectopic pregnancy located in the ampullary portion of the left fallopian tube

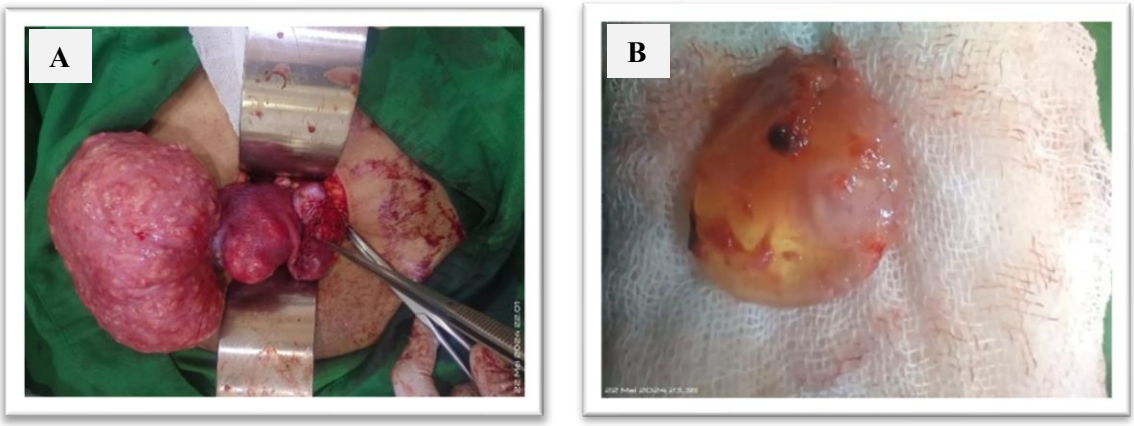

Figure 3. (A) Intraoperative view following left salpingotomy. (B) Intact gestational sac visualized

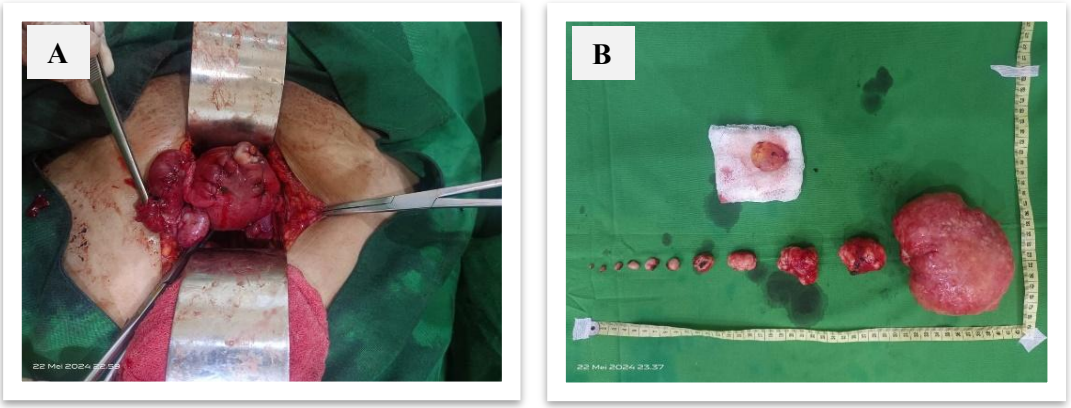

Figure 4. (A) Intraoperative findings following myomectomy at multiple sites. (B) Multiple uterine myomas removed, measuring 13 × 11 cm, 5 × 3 cm, 4 × 3 cm, 3 × 2 cm, 2 × 2 cm, 0.8 × 0.8 cm, 0.6 × 0.6 cm, 1.5 × 1.5 cm, 1 × 1 cm, 0.5 × 0.5 cm, and 0.4 × 0.4 cm, post-myomectomy

Postoperative management included administration of 500 mL Ringer's lactate with 20 IU oxytocin, along with tranexamic acid, metronidazole, and ketorolac. Postoperative laboratory evaluation revealed leukocytosis (WBC 15.90 × 10^3/µL), which was interpreted as a postoperative inflammatory response.

The patient's postoperative recovery was satisfactory. During the first 48 hours after surgery, she remained hemodynamically stable with good pain control and no signs of bleeding or infection. Her overall postoperative healing was assessed as very good, with no complications observed during the inpatient monitoring period. At the outpatient follow-up visit 7 days after surgery, the surgical incision appeared clean, dry, and intact, with no evidence of erythema, discharge, or local infection. The patient reported no abdominal pain and demonstrated good functional recovery.

DISCUSSION

Ectopic pregnancy occurs when a fertilized ovum implants and grows outside the uterus. In a normal pregnancy, the embryo implants within the uterine cavity, whereas in an ectopic pregnancy, implantation take place in an abnormal location such as the fallopian tube, ovary, or peritoneal cavity. More than 90% of ectopic pregnancies occur in the fallopian tube, which carries a significant risk of rupture and internal hemorrhage. Nearly all ectopic pregnancies are non-viable and inherently carry the risk of rupture and bleeding, potentially progressing to a life-threatening emergency.[16,17] Epidemiologically, the incidence of ectopic pregnancy is estimated at 1–2% in the general population and 2–5% among patients undergoing assisted reproductive technology.[20] The vast majority of ectopic pregnancies (97.7%) occur in the fallopian tube.[15,3] The recurrence rate is approximately 15% after a first episode and doubles after two prior ectopic pregnancies.

Ectopic pregnancy remains a challenging clinical condition, particularly in patients with a history of previous ectopic pregnancy. Risk factors include maternal age >35 years, smoking, prior ectopic pregnancy, tubal damage or tubal surgery, previous pelvic infection, intrauterine device (IUD) use, and assisted reproductive technologies such as in vitro fertilization (IVF). Women with a previous ectopic pregnancy have up to a tenfold increased risk of recurrence, and studies have demonstrated a significantly higher likelihood of repeat ectopic pregnancy in this population.[3,16,15] In the present case, the history of a prior right-sided ectopic pregnancy represented a significant risk factor for subsequent left-sided ectopic pregnancy, underscoring the importance of careful evaluation of the patient's obstetric history.[18]

The presence of multiple uterine myomas added another layer of complexity to clinical management. Uterine myomas, or fibroids, are highly prevalent benign neoplasms in of reproductive age-women.[14] These tumors originate from smooth muscle cells of the uterine myometrium and their growth is largely influenced by circulating estrogen levels. They may be detected incidentally in asymptomatic women. Although benign, uterine myomas can significantly affect fertility and pregnancy outcomes. Large myomas, such as those observed in this patient, may contribute to an increased risk of ectopic pregnancy and complicate the management of intrauterine gestation.[4]

In this case, the presence of a large subserosal uterine myoma may have contributed to the recurrence of ectopic pregnancy. Myomas can alter the anatomy and function of the fallopian tubes, leading to narrowing or obstruction that interferes with embryo transport to the uterine cavity.[8] This is

particularly relevant when the myoma is located near the fallopian tube, where it may cause obstruction or disrupt the movement of the ovum and embryo. In this patient, the multiple myomas identified may have contributed to anatomical distortion, local hormonal changes, and inflammatory responses, all of which could increase the likelihood of ectopic pregnancy.[13]

The patient's symptoms of lower abdominal pain and vaginal bleeding were particularly relevant in the context of ectopic pregnancy and uterine myomas. While many myomas remain asymptomatic, various clinical manifestations may arise due to compression or inflammatory effects of the mass on adjacent structures.[18] When located near the fallopian tubes, myomas may cause irritation or compression, impairing tubal function and further elevating the risk of ectopic pregnancy.

The left-sided ectopic pregnancy in this case underscores the importance of early detection through ultrasonography. This modality allows for simultaneous identification of abnormal pregnancy location and uterine myomas. In this patient, transabdominal ultrasonography enabled the detection of the subserosal myoma, although transvaginal ultrasonography remains the gold standard, with a sensitivity of approximately 90–99%.[4] As a diagnostic tool, transvaginal ultrasonography provides more accurate information regarding the size and location of uterine myomas, as well as earlier identification of ectopic pregnancy, thereby facilitating timely intervention. Failure to diagnose ectopic pregnancy can result in severe complications such as life-threatening intra-abdominal hemorrhage.[11,15]

One of the key challenges in managing ectopic pregnancy and uterine myomas is determining the most appropriate therapeutic approach. In this case, the decision to perform myomectomy and left salpingotomy was made after careful consideration of the patient's medical history and current condition. In the management of ectopic pregnancy, surgical approaches such as salpingotomy and, in this patient, concurrent myomectomy, are crucial to prevent tubal rupture and other potentially life-threatening complications.[2] This case underscores the importance of an interdisciplinary approach in managing patients with recurrent ectopic pregnancy and uterine myomas.[5] Collaboration among obstetric surgeons, anesthesiologists, and radiologists is essential to design an effective treatment plan and to reduce the risk of long-term complications.

Following procedures such as myomectomy, especially when combined with salpingotomy, patients may be at risk for bleeding or infectious complications. Therefore, postoperative management in this case included administration of 500 mL Ringer's lactate with 20 IU oxytocin to maintain hemodynamic stability and promote uterine contractions, thereby reducing the risk of hemorrhage.[2] Tranexamic acid, an antifibrinolytic agent, was given to decrease bleeding by inhibiting fibrinolysis, which is particularly important after surgical procedures.[8] Metronidazole was used as prophylaxis

against infection, while povidone-based preparations (commonly containing antimicrobial components) provided additional infection control support.[6] Ketorolac was administered to manage postoperative pain, which is a frequent consequence of surgical intervention. Overall, this case illustrates the importance of comprehensive postoperative management to support patient recovery and to minimize the risk of complications following myomectomy and salpingotomy.[17] Such therapy ensures that the patient receives adequate support, both physically and psychologically, throughout the recovery process.

Postoperatively, careful monitoring of the patient's clinical progress is essential. Changes in laboratory findings, such as the leukocytosis detected in the postoperative evaluation, warrant close attention to ensure that infectious or hemorrhagic complications do not develop. Comprehensive postoperative management—including supportive therapy, patient education, and regular follow-up—is crucial to prevent long-term complications and to facilitate optimal recovery. Patient education regarding the risks of ectopic pregnancy, particularly in those with uterine myomas, is also of paramount importance. By raising awareness of symptoms and risk factors, early detection and timely intervention can be achieved, potentially reducing morbidity and improving reproductive health outcomes.[12,8]

From a reproductive health perspective, this case highlights the importance of preventive approaches for women with a history of ectopic pregnancy and uterine myomas. Education about risk factors and warning signs is critical for promoting early detection and improving management in future cases.

CONCLUSION

Recurrent ectopic pregnancy complicated by multiple uterine myomas, combined with the fact that the patient had not yet borne children, makes this case particularly unique and clinically significant. Several complex factors influenced the clinical course, including the life-threatening nature of the ectopic pregnancy, the presence of multiple uterine myomas that were suspected to contribute to the recurrence of contralateral ectopic implantation, and the patient's strong desire to preserve future natural fertility. Comprehensive management with careful consideration of these intersecting factors, along with timely and appropriate intervention, is essential to ensure the patient's safety, optimize reproductive health, and support fertility preservation.

Patient Perspective

The patient expressed that the recurrent ectopic pregnancy caused significant anxiety and emotional distress, especially because she had not yet achieved a desired pregnancy. She felt relieved after receiving a clear explanation about her condition and treatment options, and appreciated that the surgical approach aimed to preserve her fertility. The patient reported satisfaction with the postoperative care and expressed hope for future natural conception.

Informed Consent

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

Conflicts of Interest

The authors declare no conflict of interest.

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