

Spontaneous Rupture of Unscarred Uterus in Second Trimester of Pregnancy Mimicking Acute Appendicitis

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ABSTRACT

Spontaneous uterine rupture in an unscarred uterus in early trimester is very rare and difficult to diagnose. We reported a case of 28 years old lady at 15th week of gestation with three previous uneventful obstetrical history presented with one-day history of acute right iliac fossa pain and vomiting. She was subjected for an open appendectomy after an assessment by obstetric and surgical team which revealed ruptured of uterine fundal. She recovered well but she lost her pregnancy. Traditional management of acute appendicitis in pregnant patients is an early exploration. However recent studies showed that it was unpractical as the rate of pregnancies loss was two times with negative appendectomy compared to simple appendicitis; and almost as high as complicated appendicitis. All suspected appendicitis cases required ultrasound studies, and when the diagnosis is uncertain, further imaging such as computed tomography (CT) scan or magnetic resonance imaging is needed prior to surgery.

Keywords

spontaneous rupture, uterine rupture, unscarred, second trimester

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INTRODUCTION

Pregnant uterine rupture is a catastrophic obstetrical emergency. Uterine rupture often occurs during labor and scarred uterus is the most important risk factor.¹ Spontaneous uterine rupture in an unscarred uterus in early trimester is very rare and difficult to diagnose.²

Commonest non obstetric surgical emergency in pregnancy is acute appendicitis in which most of the cases were reported to occur in 2nd trimester.² Traditionally an early exploration is recommended in suspected cases as a delay in diagnosis may lead to an increase in possibility of perforation, foetus mortality rate, and postoperative morbidity rate.³ However recent studies highlighted that the policy of early appendectomy in pregnancy without prior imaging needs a re-evaluation.⁸ Thus it is suggested that an imaging is required prior to the surgical intervention.⁹

We presented a rare case of spontaneous rupture of unscarred uterus in second trimester pregnancy that

presented as an acute appendicitis.

CASE REPORT

A 28 years old gravida 4 para 3 in 15th weeks gestation presented with one-day history of an acute onset of abdominal pain at the right iliac fossa associated with vomiting. Otherwise there was no history of fever or trauma prior to admission. Patient had three uneventful of obstetrical histories and no history of vaginal instrumentation such as curettage or intrauterine device insertion. On arrival her blood pressure was 123/80 mmHg, pulse rate 110 beats per minute, body temperature 37 Celsius, and respiratory rate of 20 breaths per minute. There was localised rebound tenderness and guarding over her right iliac fossa. Her hemoglobin was 9.4 g/L and white cell count was 17,17x10 with 88.6% neutrophils. Assessment by the obstetric team showed that the foetus corresponded to date and foetal heart seen, with an anterior low lying placenta covering the os.

She was referred to the surgical team due to probability of acute appendicitis. She was subjected to an open appendectomy following an evaluation by the surgical team. A ruptured uterine fundus with white appendices and a total of 600mls of hemoperitoneum were discovered upon opening the abdomen. The obstetric team was called in and midline laparotomy was performed. The defect area at the fundus measured 3cm x 3cm cm with slow oozing blood. A hysterotomy was performed and the dead foetus was delivered. The defect and the incision was repaired with novosyn 1/0. As the total amount of the intraperitoneal haemorrhage was approximately 3.5 L, she was transfused with a total of four pint packed cell and four units of fresh frozen plasma intraoperatively. The foetus appeared normal and the placenta was attached to the anterior upper segment. The right fallopian tube was oedematous and tortuous whereas both ovaries were normal. As there is a high risk of recurrent rupture of the uterine, a bilateral tubal ligation was recommended which was refused by the husband. Post-operatively, she recovered well without any complications and was discharged on day three of post-operation.



Figure 1 : Intra-operative finding

DISCUSSION

Spontaneous uterine rupture is a life-threatening event which is difficult to diagnose, especially in an unscarred uterus.¹ Normally, rupture of unscarred uterus is very unlikely, with a rate of 0.012% among all pregnancies in developed countries.² Unusual abdominal pain in pregnant women may signal ischemic events, uterine vascular disruption, or uterine rupture.² Ruptured uterus

usually correlates with grand multiparity, advanced maternal age, poor antenatal care, and low socioeconomic status of the patient.³ It is difficult to diagnose uterine rupture at a preterm gestational age in a woman who is not in labour as she might present with nonspecific findings and may be complicated with rapid maternal and foetal decompensation.³

Majority cases of uterine rupture on unscarred uterus occurred after 24 weeks.² Reported cases of uterine rupture in an unscarred uterus before 24 weeks of gestation had shown that about one-third of the cases had congenital uterine anomaly, one-third were associated with abnormal placentation such as placenta percreta and another one-third had no recognizable risk factor. ³The commonest site of rupture is the fundus (50%).³

Our patient was considered as low risk and it was difficult to suspect the possibility of uterine rupture in her. As with Alvarado score of 7, acute appendicitis was the most probable diagnosis.⁷ The possibility of missing information such as missed abortion or history of instrumentation was possible which were not disclosed by the patient.

The majority of unscarred uterine rupture cases which occurred before 24 weeks of gestational age can be repaired as in this case.² Almost all of the foetuses died ^{2,4} However, there is one case reported where the pregnancy could be maintained even when it happened at a more advanced gestational age.⁵

Immediate diagnosis and treatment are crucial to reduce morbidity and mortality in these cases. Magnetic Resonance Imaging (MRI) is the favoured imaging for assessment of pregnant patients.⁶ Thus it can be used efficiently to diagnose uterine rupture, especially in a non-specific abdominal pain with the previous mentioned risk factors.⁹ In comparison to ultrasound (USG), MRI is a better option to visualise the uterine wall defect as it has better visualization of tissues, is not operator dependent and more preferable for a patient with abdominal pain.⁶ Furthermore, there is no ionizing radiation as compared to Computed Tomography (CT) scan.⁶

Meanwhile, the commonest non obstetric surgical emergency in pregnancy is acute appendicitis and most of the cases were reported to occur in the 2nd trimester.⁷ Previously, most reports have suggested that early exploration is recommended in suspected cases as delays in diagnosis may lead to increase possibility of perforation, foetus mortality rate, and postoperative morbidity rate.⁸ Thus high negative appendectomy (NA) rate (11% - 50%) has been accepted and asserted.⁷

A study showed that the rate of foetal loss was 4%, which was two times higher with negative appendectomy with only 2% in simple appendicitis.⁷ It was also noted that the risk of foetal loss and preterm delivery with negative appendectomy was almost as high as complicated appendicitis.⁸ Thus, an algorithm of managing suspected acute appendicitis in pregnancy should include requirement for an USG in all of the cases. Further imaging such as CT scan or MRI is needed prior to surgery if the USG is positive and a need for appendectomy, or when there is uncertainty.⁷

MRI is the preferred tool as it has no risk of teratogenic due to ionizing radiation.⁶ However, if MRI is inconclusive or unavailable, CT scan should be conducted as it is fast and the most definitive imaging modality.⁹ Radiation exposure from abdomen and pelvis CT scan is only 10-25 mGy⁹ and there was no report on foetal anomalies, growth restriction, or abortion following radiation exposure less than 50mGy.⁹

In Malaysia, imaging is not one of the routine investigation to diagnose acute appendicitis especially when it is clinically suggestive of acute appendicitis.¹⁰ However, there is a growing trend among surgeons who do request for USG before appointing pregnant patient for surgery.

Thus in this case, MRI is the best modality when there is a dilemma in deciding on option for appendectomy in suspicious of appendicitis in a pregnant lady and to diagnose uterine rupture. In our case, we decided to proceed with appendectomy following a joint clinical assessment by two expert teams, obstetric and surgical.

CONCLUSION

Uterine rupture in an unscarred gravid uterus is a rare condition and may present with vague symptoms and equivocal findings. A high index of suspicion is required to diagnose the condition, notwithstanding in early trimester. Thus, for suspected appendicitis in pregnancy, it is the time for us to move from traditionally performing early exploration to having proper imaging before we subject any pregnant patients for an operation.

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