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Case report

Laparoscopic management of bladder ectopic pregnancy



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ABSTRACT

Ectopic pregnancy is a potentially life-threatening condition and still the major cause of maternal mortality in the first trimester of pregnancy. It accounts for approximately 10% of maternal deaths. The involvement of the urinary tract is rare, usually occurring after the rupture of an abdominal implanted ectopic embryonic sac. We herein present a case of an ectopic pregnancy implanted in the bladder and successful laparoscopic management. To the best of our knowledge, this is the first description of abdominal pregnancy on the bladder wall in a natural cycle and successful laparoscopic management.

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Introduction

Ectopic pregnancy is a potentially life-threatening condition and still the major cause of maternal mortality in the first trimester of pregnancy. It accounts for approximately 10% of maternal deaths.¹ In most developed countries, the incidence of ectopic pregnancy has increased considerably over the last 20 years and now accounts for 1–2% of all pregnancies.^{2–5} Despite major advances in imaging technologies, early diagnosis of ectopic pregnancy is still a challenge for clinicians.^{6,7} Over the last 20 years, the use of the sensitive beta-human chorionic gonadotropin (β hCG) test, high-resolution transvaginal ultrasound, and advances in laparoscopy have enabled the detection of ectopic pregnancy without rupture, with a majority of these pregnancies being located in the fallopian tube.^{8,9} However, pregnancies also occur in the cervix, ovary, previous cesarean scar, and abdomen.¹⁰ The involvement of the urinary tract is rare, usually occurring after the rupture of an abdominal implanted ectopic embryonic sac, resulting in fistula to the bladder. Embryonic implantation and development on the bladder wall is extremely rare with only two cases previously reported.^{11,12} We herein present a case of an ectopic pregnancy implanted in the bladder and successful laparoscopic management. To the best of our knowledge,

this is the first description of abdominal pregnancy on the bladder wall in a natural cycle and successful laparoscopic management.

Case Report

A 28-year-old previously healthy Malay lady presented to our early pregnancy assessment unit with lower abdominal pain of 12 hours' duration at 7 weeks of gestation. Her abdomen was tender with guarding and rigidity. Her pulse was 80 bpm and her blood pressure was 119/70 mmHg. Vaginal examination revealed left adnexal tenderness. A transvaginal scan was performed, which revealed a $3.2 \times 2.9 \times 2.1$ cm cystic left adnexal cyst anterior to the left ovary but separate from the left ovary with a 17-mm fetal pole of 7 weeks with a fetal heart rate of 172 bpm (Figures 1 and 2).

There was a large amount of echogenic fluid in the pouch of Douglas. No intrauterine gestational sac was seen and the appearance was suggestive of a left viable ectopic pregnancy. Her β hCG level was 20,392.2 IU/L and hemoglobin level was 11.3 g/dL. She was counseled for laparoscopic salpingectomy. Intraoperatively, hemoperitoneum (about 300 mL) and an ectopic bladder with active bleeding were noted below the uterovesical fold at the bladder wall. Both fallopian tubes were normal and there was a corpus luteum in the right ovary (Figure 3).

The ectopic gestation was dissected from the bladder wall and the bladder wall was sutured using 2-0 vicryl. Bladder integrity was tested by filling with methylene blue as well as with cystoscopy (Figure 4). Subsequently, her β hCG was monitored after the operation (7 weeks of gestation (Day of surgery) – 20,392.2 IU/L Post

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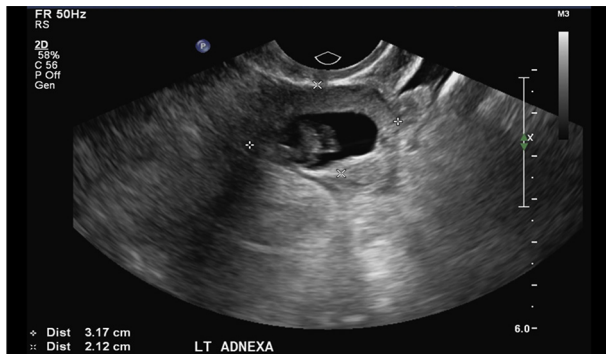


Figure 1. Left adnexal mass.

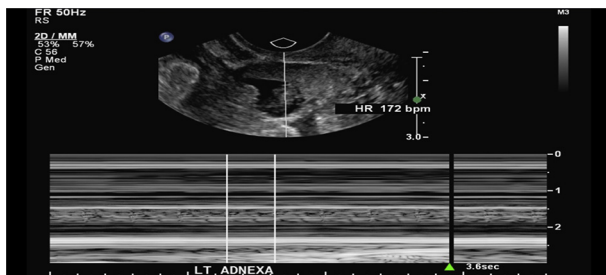


Figure 2. Left ectopic pregnancy with cardiac activity.

Operative Day 1 – 7140.8 IU/L Post Operative Day 4 – 3734.9 IU/L Post Operative Day 11 – 142.9 IU/L Post Operative Day 18 – 10.5 IU/L). The patient recovered completely and conceived spontaneously. Currently, she is in her 16th week of gestation.

Discussion

Medical management of unruptured ectopic pregnancy using single-dose methotrexate (MTX) with the aim of conserving the fallopian tubes was first described by Stovall et al.¹³ Studies have been conducted in the past to show MTX being comparable in

efficacy to laparoscopic salpingostomy.^{14,15} However, careful selection of cases for medical management is important. Although there are some cases that resolve with single-dose MTX, some require an additional dose. There are some cases in which tubal rupture occurs after MTX treatment, with the risk of this condition being reported as ranging from 7% to 14%.^{16–22} Then there are cases that fail to respond to either a single or repeated dose of MTX and need surgical intervention. Medical treatment is indicated for ectopic pregnancy when patients are hemodynamically stable, the mass diameter is smaller than 3.5 cm, and there is a desire for future pregnancy. MTX is the drug of choice in these situations, but medical treatment has a failure rate of up to 25%.²³ Although medical therapy can be successful at serum hCG concentrations considerably higher than 3000 IU/L, quality-of-life data suggest that MTX is only an attractive option for women with an hCG below 3000 IU/L.^{24,25} The presence of cardiac activity in an ectopic pregnancy is associated with a reduced chance of success following medical therapy and should be considered a contraindication to medical therapy.^{26,27} In our case, the ectopic pregnancy was more than 3 cm with the serum β hCG level of 20,392.2 IU/L; additionally, it also demonstrated cardiac activity. Thus, laparoscopic management of ectopic pregnancy was offered.

Ectopic pregnancy in the bladder wall is an extremely rare condition. Some factors such as tubal surgery, previous ectopic pregnancy, altered tubal motility, or prior pelvic inflammatory disease prevent or retard passage of the fertilized ovum into the uterine cavity. Our patient denied any previous sexually transmitted diseases or having any tubal pregnancy prior to this event. Abdominal pregnancies tend to occur secondary to an early rupture or abortion of a tubal pregnancy into the peritoneal cavity. Rare cases of primary peritoneal implantation of fertilized ovum have been published. In the present case, at surgery, we found that both fallopian tubes were intact, suggesting primary implantation of the fertilized ovum in the bladder peritoneum, although a secondary implantation cannot be ruled out. Once there, the zygote probably invaded and eroded the subjacent bladder muscle wall. Presently, the pregnancy was in a site easily accessible to laparoscopic intervention. Minimal bleeding was observed and the integrity of bladder was preserved. Logically, use of the laparoscope would be dictated by the anatomical location of the pregnancy and comfort or skill of the surgeon.¹² Laparoscopic management may also offer

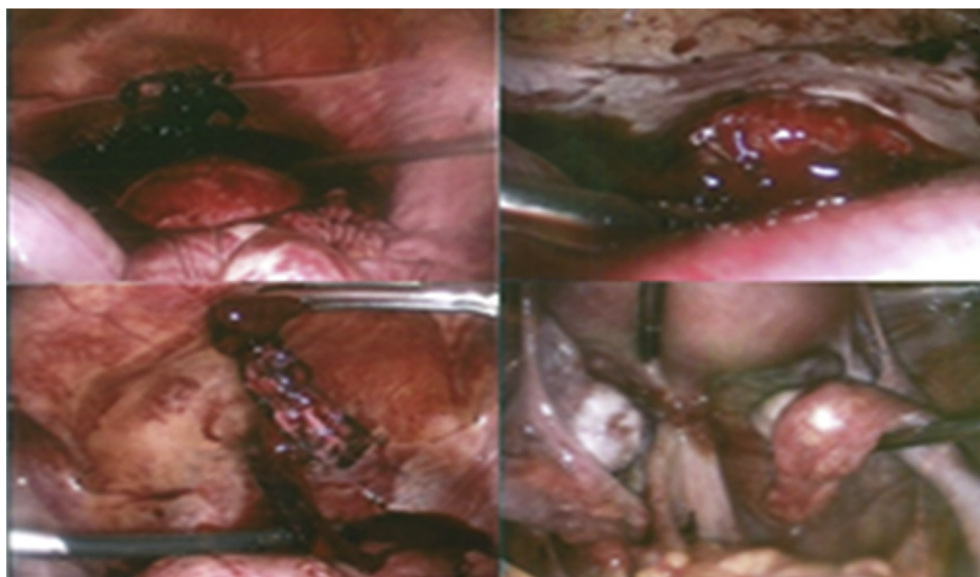


Figure 3. Intraoperative finding of ectopic bladder and normal appearance of the fallopian tubes.

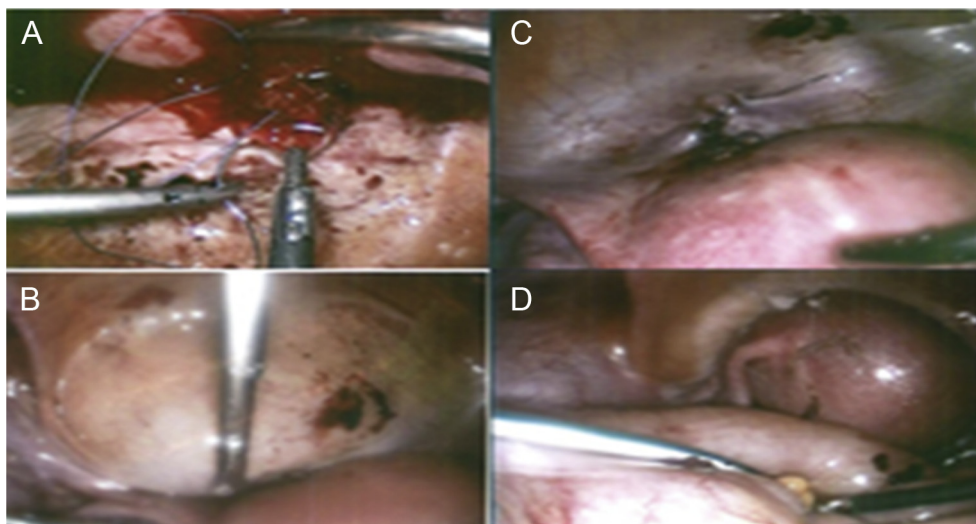


Figure 4. Excision of ectopic bladder and suturing. (A and C) Suturing of the ectopic bladder excision (B and D) Bladder integrity was tested with methylene blue.

excellent exposure and accessibility for management of unexpected abdominal pregnancy in select patients.

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