Laparoscopic Wedge Resection in a Late Second Trimester Cornual Pregnancy

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Abstract
Cornual pregnancy happens when implantation occurs in the cavity of a rudimentary horn of the uterus, which may or may not be communicating with the uterine cavity. The diagnosis of cornual pregnancy remains challenging, and rupture of a cornual pregnancy usually causes massive bleeding. Early diagnosis and treatment, therefore, are very crucial and key to prevent mortality. Historically, the management of cornual pregnancies included wedge resection through open surgery or even hysterectomy. In this case report, we would like to highlight a case of late second trimester cornual pregnancy, at 19-week and 3-day gestation, which was managed laparoscopically.

Keywords: Cornual pregnancy, laparoscopy, wedge resection

INTRODUCTION
Cornual pregnancy is a rare form of ectopic pregnancy, which represents 2%–4% of all tubal pregnancies and occurs once in every 2500–5000 live births.[1] In some respects, cornual pregnancy resembles the interstitial type of tubal pregnancy. A distinguishing feature is the insertion of the round ligament, which is always lateral to the cornual pregnancy, and the sac is surrounded by myometrium.[2]

The risk factors for cornual and interstitial pregnancy are similar to those for ectopic pregnancy in general including pelvic inflammatory disease (PID), previous pelvic surgery, and the use of Artificial Reproductive Technique (ART).[3] Previous genital infections (PID, chlamydia, and gonorrhea), infertility, and a lifetime number of sexual partners >1 were associated with a mildly increased risk.[4] Transvaginal ultrasound can be done to diagnose cornual pregnancy. It is reported that ultrasound is able to establish the diagnosis in 71.4% of 32 women with a sensitivity of 80% and specificity of 99%.[5]

Surgical management of cornual pregnancy offers definitive treatment. Historically, wedge resection or hysterectomy by laparotomy was the mainstays of surgical management. However, the morbidity associated with such invasive operations has led to newer, less invasive techniques being preferred, as illustrated in this case report. This case report was exempted from the Institutional Review Board from the Medical Research and Ethics Committee, Ministry of Health Malaysia.

CASE REPORT
Mrs. S, a 26-year-old primigravida had an early scan at a 12-week period of amenorrhea (POA), which reported an intrauterine pregnancy. She has no history of PID and denied sexual promiscuity. She presented to her doctor at 19-week POA with 1-week duration of increasing lower abdominal pain. She was treated as having urinary tract infection based on her associated symptoms at the time and her urine...
A transabdominal scan (TAS) showed a viable intrauterine pregnancy. However, the pain persisted, and after 3 days, she decided to seek a second opinion, where another TAS was performed and revealed an empty uterus suspicious of abdominal pregnancy. She was then referred to our center for further management.

Our assessment revealed a hemodynamically stable patient with on and off lower abdominal pain (pain score of 2/10). She denied per vaginal bleeding, other abnormal per vaginal discharge, or urinary symptoms. She was pink, well perfused, and afebrile with a blood pressure of 116/74 mmHg and a heart rate of 90/min. Her abdomen was soft, not tender with uterus palpable at 20-week POA. TAS showed an empty uterus. A viable fetus was identified with parameters corresponding to 18–20-week POA. The liquor volume was normal. An abdominal pregnancy was suspected. Her hemoglobin level on admission was 10.4 g/dl.

A viable pregnancy was then identified with parameters corresponding to a 10 cm × 10 cm mass and 200 cc of hemoperitoneum. Omentum was found attached to the interstitial part, and adhesion was gently released using atraumatic grasper. Both the ovaries were normal. To reduce its size, the amniotic fluid was drained with a large-bore aspiration needle [Figure 1]. A right wedge resection was made over the uterus. It was done using scissors removing together the rest of the fallopian tube. The right ovary was preserved. Immediately, the excised area was sutured using continuous barbed suture [Figure 2]. The two-layer stitches were done in a rapid manner to prevent more blood loss. Vasopressin infiltration was not used in this case. An assistant kept the surgical field clear by suctioning the blood.

Once hemostasis has been achieved, a culdotomy was made laparoscopically using monopolar spade guided by a J Singh vaginal probe distending the pouch of Douglas from the vagina end. The fetus and placenta were delivered as a whole through this opening. The fetal foot was grasped and delivered into the vagina, and subsequently, the whole fetus was pulled out. The coldotomy was then sutured back with absorbable suture no 1. Pelvic cavity was washed with 1 l of normal saline. Her left fallopian tube and both of her ovaries were normal and preserved. There was no evidence of endometriosis or PID. Bowels and liver surface were normal. Fascia suture used to close the 10 mm ports, and all skin incisions closed with Monosyn 3/0. The total estimated blood loss was 1700 cc, and she was transfused with two pints of packed cells intraoperatively. She was stable throughout the procedure and extubated immediately postsurgery.

She was transferred to our high-dependency unit for close monitoring overnight. She was stable throughout the night, and her hemoglobin level posttransfusion was 11.7 g/dl. She was discharged in <48 h postoperation. A clinic review at 2 weeks and 6 weeks postoperatively showed full recovery, and the patient was back to her usual daily activity.

**Discussion**

The management of cornual pregnancy traditionally has been hysterectomy or cornual resection at laparotomy. Laparotomy used to be the preferred approach for the treatment of cornual pregnancy, especially when it happens in advanced gestation. More conservative approaches have been introduced into clinical practice such as laparoscopy and medical treatment. Laparoscopy offers better magnification as an endoscope can be placed near to the target, allowing more accurate dissection and avoiding unnecessary injury. This approach also has the advantage of a better esthetic outcome compared to laparotomy. However, a laparoscopic approach should only be attempted if the surgeon is skilled in laparoscopic techniques and has the ability to convert the operation quickly to a laparotomy.

Our case report has demonstrated a successful laparoscopic wedge resection in a leaking cornual pregnancy of 19-week gestation. This technique requires a skillful surgeon to minimize blood loss and reduce operative time, as the gravid...
uterus is very vascular; hence, bleeding can be profuse and rapid. It is due to these reasons that most surgeons prefer laparotomy, as this allows direct handling of the operating area. However, laparotomy requires a generous incision (especially in advanced gestation), resulting in more pain, longer postoperative hospital stay, slower recovery period, and increase in health-care cost.

Technically, we suggest the use of scissors or cold knife instead of diathermy to wedge the mass away. Using bipolar or monopolar or special advance bipolars will not be of any use as the pregnant uterus is very vascular. The pooling of blood surrounding the coagulative devices will not allow good electrical conduction and hence will not make the device work effectively. We advocate rapid excision and suturing to overcome this. Therefore, it is very important to not only have good surgeons but also an experienced assistant laparoscopist in these cases. To the best of our knowledge, the feasibility of laparoscopy in a large or fully formed fetus such as in our case has not been reported.

CONCLUSION
We have demonstrated that laparoscopic approach is possible and suitable even in a more complicated case such as this. This technique requires a skilled and experienced surgeon with precision and rapid suturing skill to achieve the desired result with good hemostatic control.

Ethical statement
This study has been approved by the Medical Research and Ethics Committee, Ministry of Health Malaysia, ethics initial approval: NMRR-16-1667-31985(IIR).

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Acknowledgement
We would like to thank the Director General of Health Malaysia for permission to publish this article.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Figure 2: Suturing with barbed suture