CASE REPORT

Laparoscopic Management of a Large Viable Cornual Pregnancy

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ABSTRACT

We present herein a case report of a viable cornual pregnancy rupture, inducing massive hemoperitoneum, treated laparoscopically.

Key Words: Cornual pregnancy, Interstitial pregnancy, Laparoscopy, Internal bleeding.

INTRODUCTION

Traditionally, the terms cornual pregnancy and interstitial pregnancy have been used interchangeably, defined as pregnancy developing in one horn of a bicornuate uterus. Cornual pregnancies are the least frequent variety of ectopic pregnancies, accounting for 1.8% of all ectopics and <0.01% of all pregnancies.[1] Except for the rare kind occurring as part of natural conception cycles, cornual pregnancies can lead to catastrophic hemorrhage and maternal jeopardy once rupture occurs. By utilizing the high resolution afforded by transvaginal sonographic techniques, early detection of cornual pregnancies is possible with recognition of characteristic sonographic features.[2] Unruptured cornual pregnancies usually do not give rise to any clinical manifestations. However, when ruptures do occur, they are most often in the second trimester, as opposed to the first in tubal pregnancies. Based on a Medline review of the literature for cornual pregnancy entities, it was found that most cases of cornual pregnancies were diagnosed after uterine rupture, with the median gestational age of 11 weeks to 20 weeks. Herein, we present a case of a cornual pregnancy diagnosed at 12 weeks' gestation.

CASE REPORT

A 32-year-old Taiwanese woman, gravida 5 para 2 in the 12th week of pregnancy was referred from a private outpatient clinic with suspected intraperitoneal hemorrhage of unknown origin. She had no significant past medical or family history. Two previous pregnancies had resulted in live births via spontaneous deliveries. Her principal presenting symptom was diffuse, excruciating abdominal pain with acute onset of 6- to 8-hours' duration. The pain had increased in severity with superimposed nausea and fainting spells.

On examination, the patient had severe facial pallor with "jaundice-like" discoloration and was fluctuating in and out of consciousness. The blood pressure and pulse rate were 60/40 mm Hg and 120 beats/min, respectively. Her abdomen was distended beyond normal limits for her gestational age, and tenderness was elicited. She denied having any bleeding per vaginam throughout the whole

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course of the pregnancy. Two large-bore femoral lines had already been secured before referral for resuscitation purposes.

Transabdominal ultrasound clearly demonstrated the presence of a single, live intrauterine gestation with a crown-rump length of 5.0 cm, giving an approximate gestational age of 12 weeks. In addition, a smooth, homogenous cystic mass of low echogenicity measuring about 8 cm in diameter was visualized outside of the uterine cavity adjacent to the right uterine cornua, which was interpreted as a right ovarian cyst. There was also massive periuterine ascitic fluid accumulation up to the level of the subhepatic flexure on recumbency.

Besides a hemoglobin value of 3.0 g/dL, other preoperative biochemical parameters were within normal limits. Emergency laparoscopic intervention was deemed technically superior to laparotomy for this case, and transfusion of 4 units of packed red blood cells was commenced under the anesthesiologist's supervision.

Laparoscopy was performed using standard laparoscopic equipment and instrumentation (Karl Storz & Co., Germany). Massive intraabdominal blood clots and fresh blood pooling were encountered, with 1 L aspirated. The uterus was found to be irregularly enlarged with blood clots and "placenta-like" tissue remnants adhered firmly to a ruptured right cornual angle showing cyanotic change. On closer inspection, a semilucent "cyst" was found to be hanging from the rupture site into the intraabdominal cavity **(Figure 1)**. Further evaluation of the "cyst's" contents led to the miraculous discovery of an embedded, free-floating fetus inside an intact gestational sac **(Figure 2)**. Apparently, the extrauterine "cyst" visualized at sonography had been part of the intrauterine gestational sac protruding externally via the rupture defect in the right cornua. Because the entire gestational sac was found to be extrauterine intraoperatively, the only explanation for the phenomenon was that it had totally slipped through the cornual defect into the abdominal cavity.

Both tubes and ovaries appeared normal. Twenty mL of vasopressin solution (10 IU diluted in 100 mL normal saline) was injected intramurally around the right cornual region by using a 20-gauge spinal needle (introduced through the abdominal trocar) until the myometrium was blanched. The gestational cyst was then evacuated freely from the myometrium, sacrificing the fetus. Placenta-like tissue incarcerating the rupture point was also evacuated, and the breaking edge secured with bipolar coagulation for partial hemostasis. The breaking edge was then sutured by using the purse-string technique with a PDS strand. Upon opening of the gestational sac to facilitate its removal via the posterior colpotomy approach, a female fetus was identified. Methotrexate 50 mg/m^2 body surface area was injected at the myometrium suture site to enhance gestational remnant resorption. The operative time was 3 hours, during which 8 units of packed red blood cells and 12 units of platelets were transfused.

The patient underwent an unremarkable postoperative course and was discharged on the fourth postoperative day.

Thereafter, the patient's quantitative beta-hCG level was followed weekly on an outpatient basis. Incidentally, it

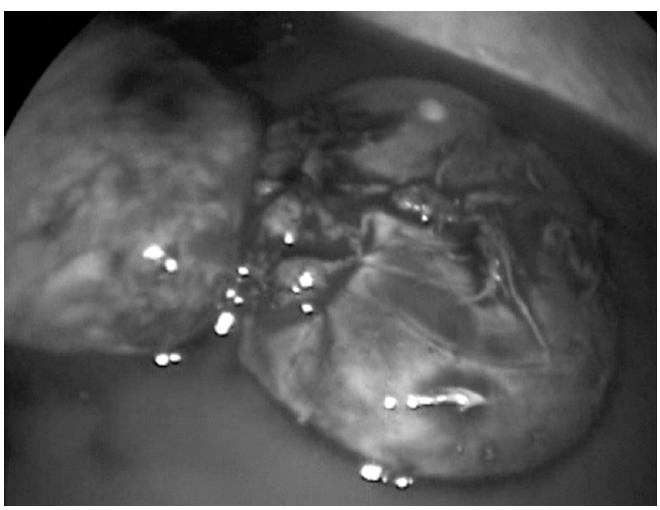

Figure 1. Right cornual pregnancy with embedded intraamniotic fetus.

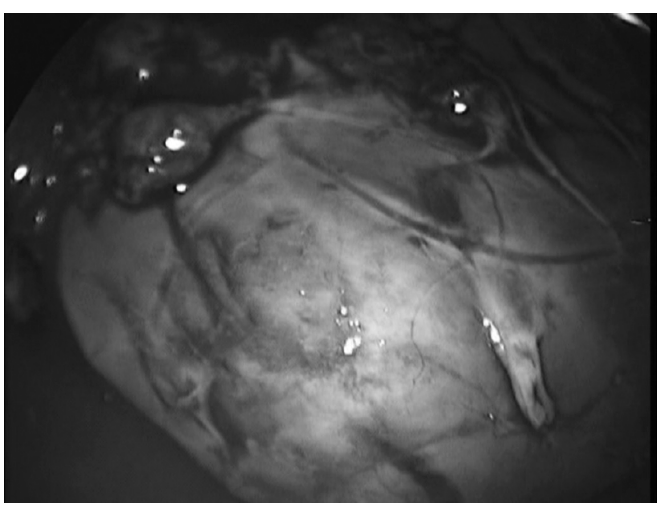

Figure 2. Closer view of intraamniotic fetal pole.

had not been measured upon admission. On the first postoperative day, it was 11054.23 mIU/mL, decreasing to 5660.78 by the third postoperative day. By the fifth postoperative week, it was 13.28 mIU/mL.

DISCUSSION

Although numerous sonographic features of cornual pregnancies have been described by different authors, the subtleness of these features and the rare occurrence of these ectopic pregnancies overall necessitate a high degree of clinical suspicion for the diagnosis not to be overlooked. Although transvaginal ultrasound is preferable to the transabdominal route for visualizing the characteristic features of a cornual pregnancy,[3] it was not feasible to carry this out in our case for several reasons. First, the patient had lost a significant amount of blood and was in an agitated state, not suitable for positioning on the examining table. Second, the main aim at the initial stage was to determine the amount of blood loss intraabdominally, therefore, not necessitating the use of the more sensitive intravaginal route. In any case, the choice of the ultrasound mode would not likely have altered the overall operative approach.

Retrospectively, what confounded the interpretation of our ultrasound findings even more was the unusual fact that the cornual pregnancy had already partially extruded outside the uterus, leading to our interpretation of a ruptured corpus luteal cyst causing intraabdominal hemorrhage. As described above, upon explorative surgery, the gestational sac was found situated entirely outside the uterus, apparently having slipped out between the time of imaging and operation. This is a most remarkable occurrence, which we have not found to be documented previously in the gynecologic literature.

According to *Telinde's Operative Gynecology* (9th edition),[4] the mainstays of surgical treatment for cornual pregnancies remain cornuostomy, cornual resection, hemihysterectomy with salpingectomy, or simple repair of the rupture lesion. In our case, the latter approach was deemed most appropriate, along with evacuation of the fetus via a posterior colpotomy. Because preservation of the patient's fertility was a concern, cornual resection was less preferable, with its higher risk of hemorrhage necessitating a total hysterectomy. An alternative surgical approach that has also been described[5] involves using an Endoloop or encircling suture to tie off the rupture defect, with promising results. However, this technique is only feasible for smaller defects. It must be added that due to the high mortality rate at presentation for cornual pregnancies, the laparoscopic approach should only be considered if the surgeon is well trained in this technique, and the decision to convert to a laparotomy approach should be made without hesitation if further procession with laparoscopy is deemed unreliable.[6]

CONCLUSION

Preoperative diagnosis and management of cornual pregnancies remain a clinical challenge. Delayed diagnosis and management lead to catastrophic hemorrhage and maternal mortality. The choice of therapeutic approach depends on multiple factors: the extent of trauma that has occurred in the uterine wall, the patient's preference on preserving reproductive function, technical competence in laparoscopic surgery on the physician's part, and maternal stability. In our opinion, relatively small cornual pregnancies that are easily approachable should preferably be treated using laparoscopy in the hands of an experienced surgeon. The lower cost of the procedure, shorter length of hospitalization and convalescence, as well as smaller amounts of blood loss are all clear advantages of this approach over laparotomy.

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