CASE REPORT

Conservative laparoscopic management of a large cornual ectopic pregnancy

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Cornual pregnancy traditionally has been treated with laparotomy and either cornual resection or hysterectomy. Recently, more conservative operations have been developed, and operative laparoscopy has provided yet another management option. This report describes the conservative management of a large cornual ectopic pregnancy and reviews the techniques and outcomes of conservative repair that have been described in the literature.

Key words: cornua/ectopic pregnancy/laparoscopy

Introduction

Cornual or interstitial pregnancies account for ~1% of all ectopic implantations (Stovall and McCord, 1996). Until recently, this type of pregnancy has been treated by laparotomy with cornual excision or hysterectomy. However, increasingly there have been attempts to add laparoscopic conservative management as a treatment option. The case of a large cornual ectopic pregnancy treated by laparoscopic salpingotomy is presented here, and previous reports of conservative laparoscopic management are reviewed.

Case presentation

The patient was a 31 year old (gravida 3, para 4) African–American female with an estimated gestational age of 7 2/7 weeks by a confirmed last menstrual period, who presented to her physician complaining of vaginal spotting. She denied pain or the passage of tissue. Her past medical and surgical histories were not informative, and her past obstetric history was notable only for an uncomplicated normal spontaneous vaginal delivery at term. She had no risk factors for ectopic pregnancy. Neither abdominal nor pelvic examination revealed any tenderness; her uterus was enlarged to 8 week size, and there was right adnexal fullness.

An ultrasound examination was performed to assess fetal viability. This study revealed a 5×4 cm cystic interface on the right ovary as well as a 9 mm fetal pole with cardiac activity in the right adnexa. The patient was counselled regarding the findings and elected to proceed with laparoscopic management.

The patient was taken to the operating room and placed in the dorsal lithotomy position in Allen stirrups. Following insufflation the laparoscope was positioned and a 4 cm bulge in the right uterine cornua was immediately apparent. The right Fallopian tube was normal in appearance and there was a 4 cm corpus luteum cyst on the right ovary. The left ovary and tube were normal in appearance, and there was no other evidence of pelvic pathology, such as adhesions or endometriosis.

A second 10 mm port was then placed in the left mid-quadrant and a 5 mm port was placed in the left lower quadrant. A 20 gauge spinal needle, inserted directly through the skin, was used to infiltrate the right cornual area with 10 ml of dilute vasopressin solution (10 U in 100 ml 0.9% normal saline). A monopolar needle was then used to open the myometrium over the ectopic gestation. An incision was made in a longitudinal fashion, perpendicular to the path of the Fallopian tube. Using a blunt probe, we expressed the gestation through the incision (Figure 1). It delivered completely and without difficulty, and was removed through the 10 mm port. The uterine incision was closed with a continuous running suture of 4–0 vicryl (Ethicon, Cincinnati, OH, USA). Estimated blood loss was 60 ml and the patient recovered without complication. Pathology confirmed immature chorionic

Figure 1. Appearance of cornual ectopic gestation after linear incision has been made, but before gestation has been removed. The inset illustrates the expression of the ectopic gestation with a blunt probe.
Table I. Summary of the reported cases of laparoscopic management of cornual pregnancy

<table>
<thead>
<tr>
<th>Author</th>
<th>Operation</th>
<th>βHCG (mIU/ml)</th>
<th>Diameter (cm)</th>
<th>Rupture</th>
<th>Estimated gestational age (weeks)</th>
<th>Vasopressin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reich et al. (1988)</td>
<td>cornual excision</td>
<td>NA</td>
<td>NA</td>
<td>no</td>
<td>14 (calcified)</td>
<td>yes</td>
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<td>Reich et al. (1990)</td>
<td>cornual excision</td>
<td>NA</td>
<td>NA</td>
<td>no</td>
<td>NA</td>
<td>yes</td>
</tr>
<tr>
<td>Hill et al. (1989)</td>
<td>salpingostomy</td>
<td>NA</td>
<td>NA</td>
<td>no</td>
<td>10</td>
<td>yes</td>
</tr>
<tr>
<td>Reich et al. (1990)</td>
<td>cornual excision</td>
<td>16 300</td>
<td>NA</td>
<td>yes</td>
<td>NA</td>
<td>no</td>
</tr>
<tr>
<td>Tulandi et al. (1995)</td>
<td>cornual excision</td>
<td>6000</td>
<td>3</td>
<td>no</td>
<td>6</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>cornual excision</td>
<td>14 500</td>
<td>4</td>
<td>no</td>
<td>NA</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>cornual excision</td>
<td>12 000</td>
<td>5</td>
<td>no</td>
<td>10</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>cornual excision</td>
<td>4700</td>
<td>5</td>
<td>no</td>
<td>6</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>salpingotomy</td>
<td>8000</td>
<td>4</td>
<td>no</td>
<td>6</td>
<td>yes</td>
</tr>
<tr>
<td>Pasic and Wolfe (1990)</td>
<td>salpingostomy</td>
<td>4400</td>
<td>2</td>
<td>no</td>
<td>6</td>
<td>yes</td>
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<tr>
<td>Gleicher et al. (1994)</td>
<td>salpingostomy</td>
<td>7704</td>
<td>0</td>
<td>no</td>
<td>NA</td>
<td>yes</td>
</tr>
<tr>
<td>Pansky et al. (1995)</td>
<td>salpingostomy</td>
<td>3000</td>
<td>NA</td>
<td>no</td>
<td>7</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>salpingostomy</td>
<td>2600</td>
<td>NA</td>
<td>no</td>
<td>9</td>
<td>yes</td>
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<tr>
<td>Grobman et al. (this report)</td>
<td>salpingostomy</td>
<td>32 827</td>
<td>4.5</td>
<td>no</td>
<td>7</td>
<td>yes</td>
</tr>
</tbody>
</table>

NA = not applicable.

villi consistent with ectopic pregnancy. Serum β-human chorionic gonadotrophin (βHCG) concentration decreased from 32 827 mIU/ml at the time of the operation to <2 mIU/ml in 6 weeks. The patient was offered a follow-up hysterosalpingogram but declined.

Six months after the operation, the patient had a positive home pregnancy test. She presented to the emergency room complaining of abdominal pain, and an ultrasound examination by a different doctor once again failed to confirm an intrauterine pregnancy. At the time of laparoscopy a left ampullary ectopic gestation was found, and she underwent an uncomplicated left salpingectomy. Her right cornua was healed and of normal appearance.

Discussion

Although cornual pregnancies have traditionally been treated with hysterectomy or cornual resection, several more conservative techniques have recently become available. In the case of an early and asymptomatic ectopic gestation, i.m. methotrexate has repeatedly been shown to be an effective treatment (Maymon and Shulman, 1996). In cases not amenable to medical management, the feasibility of conservative surgical repair of a cornual pregnancy has also been documented. Confino and Gleicher (1989), using laparotomy, reported the successful treatment of an unruptured cornual pregnancy with a surgical technique that allowed preservation of tubal anatomy. This technique incorporated vasopressin injection, mesosalpingeal vessel ligation, cornual incision parallel to the course of the Fallopian tube, and subsequent two-layer myometrial repair. Tulandi and Monton (1990) confirmed the success of conservative management, although they did not require mesosalpingeal vessel to control haemostasis.

The possibility of laparoscopic management of cornual gestations has been demonstrated in several case reports (Table I). The initial procedures that were described, however, did not preserve tubal continuity. For example, Hill et al. (1989) described a patient who presented at 10 weeks’ gestation with a large unruptured cornual pregnancy. The authors, after placing an endoloop (Ethicon) around the cornua, were able to evacuate the pregnancy using unipolar current and blunt removal. Alternatively, both Tulandi et al. (1995) and Reich et al. (1988) used laparoscopic cornual excision to manage interstitial pregnancy. Cornual excision also has been useful for the treatment of ruptured interstitial pregnancy (Reich et al., 1990).

A less extensive laparoscopic procedure was performed by Pasic and Wolfe (1990). They visualized a small cornual pregnancy which was evacuated through a 1 cm salpingostomy. Subsequent haemostasis was maintained with electrocoagulation. A similar procedure was successfully used by Pansky et al. (1995). Laparoscopic conservative management was also advocated by Gleicher et al. (1994). In their report, a twin gestation visualized on ultrasound, but small enough not to be seen at laparoscopy, was removed from the cornua with a salpingostomy. Tulandi et al. (1995) confirmed that conservative laparoscopic surgery could be used successfully for larger cornual pregnancies as well. In their series, one patient with a cornual gestation of 3.5 cm underwent a laparoscopic salpingostomy. The authors noted, however, that cornual excision might be more appropriate for larger (>4 cm) interstitial pregnancies.

In this report, the patient, who had a large ectopic gestation with a heartbeat, was not a candidate for medical management, but was haemodynamically stable and a candidate for laparoscopic surgery. Although some authors (Maymon and Shulman, 1996) have advocated expectant management of selected ectopic gestations, we do not believe that this approach should be used for cornual pregnancies, which are prone to catastrophic rupture and massive intraperitoneal haemorrhage. Severe haemorrhage may also occur during the surgical procedure. Therefore, a laparoscopic approach should only be attempted if the surgeon is well skilled in laparoscopic technique, and has the capability to convert the operation quickly to a laparotomy. When these conditions are met, laparoscopy provides several advantages over laparotomy: fewer post-operative hospital days, faster return to normal activity, and decreased health care costs (Baumann et al., 1991). If possible, therefore,
laparoscopy is the preferred approach, and in this case we have demonstrated the feasibility of using laparoscopy to manage conservatively a large cornual gestation. There is not, however, enough information to state definitively the optimal technique. Most reports have attempted to optimize haemostasis through the use of a vasopressin injection into the cornua prior to incision. We agree that using a very dilute vasopressin solution seems to maximize haemostasis in this highly vascular region of the uterus. While some authors have found that the most desirable incision is one that is parallel to the axis of the Fallopian tube, we find that a perpendicular incision minimizes extension into the tube or the vascular insertions of the cornua. Finally, we believe that haemostasis, as well as future pregnancy outcome, is optimized with a sutured closure of the cornual defect; others disagree, and have used electrocoagulation with closure by secondary intention. Post-operatively, the patients who undergo conservative laparoscopic repair of a cornual pregnancy can be followed with standard post-operative care. As for all patients who undergo conservative surgical treatment of ectopic gestations, this care includes the weekly surveillance of $\beta$HCG until it decreases to <2m IU/ml. This surveillance will ensure that any persistent ectopic trophoblastic tissue will be discovered.

As demonstrated by hysterosalpingography (Gleicher et al., 1994) and direct visualization with laparoscopy, good anatomical results have been obtained following conservative laparoscopic procedures. Yet, regardless of the adequacy of the uterine repair, these patients continue to be at risk for repeat ectopic pregnancy. As the patient in this case report illustrates, this risk is increased in both adnexa. Also, if an intrauterine pregnancy is achieved, the management remains uncertain. It has been reported that a patient has successfully conceived and delivered vaginally, but this is an isolated case report (Pansky et al., 1995). It is unknown if the risk of uterine rupture during the gestation or during labour is increased. Correspondingly, there are little data to guide appropriate counselling regarding either the risks of future pregnancy or the optimal route of delivery.

References


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