LAPAROSCOPIC CORNUAL RESECTION IN MANAGEMENT OF INTERSTITIAL PREGNANCY: A CASE REPORT

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Summary. The incidence of interstitial pregnancy is rising due to increased frequency of assisted reproductive procedures. Availability of high-resolution ultrasonography has enabled the early diagnosis of interstitial pregnancies before rupture. Medical treatment is appropriate for patients who desire future fertility. Surgical treatment is necessary when treating women with more advanced interstitial pregnancies, when medical treatment has failed, uterine rupture is suspected or recurrent ipsilateral interstitial pregnancy is found. Minimally invasive surgery has improved the treatment options. There is abundant literature that supports the safety and efficacy of laparoscopic treatment that appears the most suited surgical treatment. The greatest risk to patients after treatment of interstitial pregnancy is uterine rupture during subsequent pregnancy. Careful antenatal surveillance with a planned cesarean delivery at term seems to be the safest method of delivery.

Introduction

Interstitial pregnancy refers to an ectopic pregnancy that is implanted in the interstitial portion of the fallopian tube that is the tubal segment traversing the muscular wall of the uterus. This is rather thick section of the tube that has a greater capacity to expand prior to rupture than distal tubal segments. For this reason, the interstitial pregnancy may remain asymptomatic longer, and rupture can result in massive hemorrhage. Early detection is essential to reducing morbidity and mortality. Interstitial pregnancies account for 2–4% of tubal pregnancies or approximately one in 2500–5000 live births. The incidence of interstitial pregnancy is rising. Mortality rate is 2.5% that is 7 times greater than that of ectopic pregnancies in general.

Interstitial pregnancy is often mistakenly referred to as cornual pregnancy. It is also frequently confused with angular pregnancy. A strict distinction among these three conditions is clinically important because their management and outcomes are different. Angular pregnancy refers to a viable intrauterine pregnancy that is implanted in one of the lateral angles of the uterine cavity. Angular pregnancies lead to asymmetric and symptomatic uterine enlargement. They end in miscarriage in 38.5% of cases.

Cornual pregnancy refers to a pregnancy in a horn of a bicornuate uterus. The clinical outcome of cornual pregnancy varies, depending on the capacity of the affected horn.

Traditional treatments for interstitial ectopic pregnancy have ranged from exploratory laparotomy with cornual wedge resection to total abdominal hysterectomy. However, the development of high-resolution ultrasonography and rapid quantitative β human chorionic gonadotropin (β-hCG) assays has enabled earlier diagnosis and more conservative treatment options. Conservative options include methotrexate administration (local and systemic) and minimally invasive surgical techniques. Minimally invasive techniques imply laparoscopic resection of the pregnancy alone with preservation of the uterine structure, allowing further pregnancies. Hysteroscopic removal of interstitial pregnancy has also been described.

Case report

A 32-year-old multiparous woman with regular menstrual cycles every 30–34 days and period usually lasting for 5 days was admitted to the hospital due to a suspicion on ectopic pregnancy. Previously, she had two deliveries, one of these performed by cesarean section, and one spontaneous abortion. She was amenorrheic for 8 weeks and has presented by lower abdominal pain lasted for 3 weeks, without vaginal bleeding. Initial serum β-human chorionic gonadotropin (β-hCG) level 5 days prior to hospital admission was 2922 IU/L. Upon admission in hospital, her vital signs were stable; blood pressure and heart rate were within normal range. Further evaluation was performed. Abdominal wall was not tender, without rebound. Pelvic examination revealed normally sized uterus, mobile and slightly tender on the right edge. Pelvic ultrasound demonstrated normal, empty uterus with secretory type of endometrium and visible gestational sac measuring 19 mm in diameter in transitional zone of uterus and right tube, and embryo with negative heartbeat (Figure 1, Figure 2). Repeated β-hCG was 7178 IU/L, hemoglobin 141 g/L and hematocrit 41.5%. 

Key words: Interstitial pregnancy, laparoscopy, cornual resection
Laparoscopy was performed 2 days following admission, using standard laparoscopic equipment and technique. Following CO₂ insufflation, laparoscope was positioned and adhesions of omentum with anterior abdominal wall, and left ovary with pelvic peritoneum were found. After adhesion disolvement, a 2–3 cm bulge in the right uterine cornu was immediately apparent (Figure 3). Both fallopian tubes and right ovary were normal and there was no fluid in the cul-de-sac. The right cornual area with pregnancy was resected using bipolar forceps and scissors. Right salpingectomy was performed as well. The hemostasis was achieved by bipolar coagulation, the myometrium was sutured with three interrupted sutures using Vicril-0 suture on a V-34 curved needle with 5-mm needle holders (Ethicon Ltd, Edinburgh, UK) (Figure 4). The resected uterine cornu with pregnancy was removed through the 10-mm port.

At the end of the procedure, the peritoneal cavity was carefully lavaged. Estimated blood loss was 80 ml and operative time was 35 min. Postoperative recovery was eventful and the patient was discharged on the 5th postoperative day. Serum β-hCG concentration decreased to 160 IU/L. Histology report displayed myometrium parts with decidua and chorionic villi.

**Discussion**

The most appropriate technique for treatment of interstitial pregnancy remains controversial. Early diagnosis of interstitial pregnancy is of greatest importance since diagnosis before rupture makes conservative treatment possible. Introduction of high-resolution transvaginal ultrasonography and the highly sensitive quantitative β-hCG assays made early and accurate diagnosis possible. Interstitial pregnancy is usually diagnosed at a gestational age of 6.9–8.2 weeks. The most common risk factors are tubal damage from previous ecto-
pic pregnancy (40.6%), previous ipsilateral or bilateral salpingectomy (37.5%), conception after in vitro fertilization (34.4%), and history of sexually transmitted disease (25.0%).

The most common symptoms are abdominal pain and vaginal bleeding in the first trimester of pregnancy. An asymmetric uterine enlargement may be palpable. The signs of acute abdomen are present in cases of cornu rupture.

Interstitial pregnancy can be hard to differentiate from angular pregnancy. The differentiating ultrasonographic feature of an interstitial pregnancy is the paucity of myometrium around the superolateral portion of the sac. Intrauterine angular pregnancy will be surrounded on all sides by at least 5 mm of myometrium.

There are three ultrasonographic criteria for diagnosing interstitial pregnancy: 1) an empty uterine cavity, 2) a chorionic sac separate and at least one centimeter from the lateral edge of the uterine cavity, and 3) a thin (≤5 mm) myometrial layer surrounding the gestational sac.

It has been also described a unique characteristics – the interstitial line sign, which refers to the visualization of an echogenic line that runs from the endometrial cavity to the cornual region. This echogenic line has been reported to be 80% sensitive and 98% specific for the diagnosis of interstitial pregnancy.

Magnetic resonance imaging may be used if ultrasound is inconclusive.

If the diagnosis is established during surgery, an unruptured interstitial pregnancy will appear as an asymmetric bulge in the cornual region.

Treatment options depend on whether rupture has occurred and the patient’s desire for future fertility. If the diagnosis is made before rupture, minimally invasive surgery and non-surgical treatment options can be used.

No surgical treatment

Benefits of no surgical therapy is the avoidance of a surgical scar on the uterus. The risks of no surgical treatment include subsequent cornual rupture. Systemic methotrexate treatment is appropriate treatment for carefully selected ectopic pregnancies. The most important prognosticator for methotrexate success in ectopic pregnancy is the initial β-hCG level. When the initial serum β-hCG is greater than 5000 IU/L, a second systemic dose of methotrexate is likely to be required for a successful outcome. Approximately 10–20% of patients with interstitial pregnancies who are treated with methotrexate will ultimately require surgery for a rising β-hCG level, continued pain, or evidence of cornual rupture.

Several authors have reported successful treatment of interstitial pregnancies with local injection of methotrexate or other cytotoxic drugs directly into the pregnancy using laparoscopic, ultrasonographic or hystero-

Surgical treatment

When rupture of an interstitial pregnancy is suspected, expedient surgical treatment is required. Several surgical approaches have been used for the treatment of interstitial pregnancies. Earlier diagnosis has enabled the development of more conservative surgical approaches with avoidance of laparotomy. Laparoscopic treatment of interstitial pregnancies is becoming more common. Laparoscopic treatment offers several advantages over laparotomy that include shorter hospital stay, faster return to normal activities, and decreased healthcare cost. Cumulative success rate of laparoscopy is rather high as 85%. The most commonly described approach is cornual resection. The interstitial pregnancy and the surrounding uterine cornua are excised, followed by suture closure of the myometrium. This approach appears to be useful for pregnancies ≥4 cm in diameter. Hemostasis is achieved by electrocoagulation followed by suture closure of the myometrial defect in the standard laparoscopic fashion, with either intra- or extra-corporeal knot-tying.

Hysterectomy is limited only to women who had uncontrollable hemorrhage, or very large interstitial pregnancies, or who do not desire future fertility and have other uterine pathologic diseases...

Management of subsequent pregnancy requires early verification of intrauterine location. Typically, a cesarean delivery should be planned at term (≥37 weeks of gestation), before the onset of contractions to avoid, the uterine rupture.

Literature


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LAPAROSKOPSKA KORNUALNA RESEKCIJA U LIJEČENJU INTERSTICIJSKE TRUDNOĆE: PRIKAZ SLUČAJA

Ključne riječi: intersticijska trudnoća, laparoskopski zahvat, kornualna resekcija


Prikaz bolesnice