Multiple Faces of the Same Pathology

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Abstract

Ectopic pregnancy is defined as an extrauterine pregnancy. We report three cases where the ectopic pregnancies were implanted in different sites. The first case was a 28-year-old in her second pregnancy at 9 weeks gestation. She presented with painless vaginal bleeding. Ultrasound showed unruptured cornual pregnancy with hCG level of 7456mIU/ml. A single dose of 75mg IM methotrexate was given and she responded well with significant reduction of hCG level. The second case, a 26-year-old gravida 5 para 2+2, with 2 previous ectopic pregnancies and bilateral salpingectomy, conceived via in-vitro fertilization (IVF). She presented with acute abdomen and one episode of syncope at 8 weeks 4 days gestation. Laparotomy showed ruptured ectopic pregnancy at the left tubal stump requiring a left salpingectomy. The third case was a 26-year-old, gravida 5 para 2+2, with two previous vaginal deliveries and two previous first trimester miscarriages. Her menses was irregular since she took injectable progestin. She presented to the emergency department with sudden onset of lower abdomen pain. Urine pregnancy test was positive. Ultrasound showed empty uterus, no adnexal mass but there was significant free fluid in the cul-de-sac. During laparoscopy, a ruptured ovarian pregnancy was diagnosed and salpingo-oophorectomy performed. There was no significant risk factor contributing to ectopic pregnancy identified in the first and third case. In the second case, despite previous bilateral salpingectomy, the patient still had ectopic pregnancy in the left fallopian tube remnant.

Keywords: Cornual pregnancy, laparotomy, methotrexate, ovarian pregnancy, salpingectomy, tubal stump pregnancy

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Introduction

The incidence of ectopic pregnancies has increased significantly due to increased rate of pelvic inflammatory disease and ART procedures. About 98% occur in the fallopian tube. Other possible sites include interstitial (cornual), caesarean scar, ovarian and abdominal. We report three rare different sites of ectopic pregnancy.

Case Report

Case Report 1 - Cornual Pregnancy

A 28-year-old, gravida 2 para 1, at 9+ week gestation following spontaneous conception, presented with 3 days history of painless per vaginal bleeding. She did not have anaemic symptoms and denied passing out product of conception.
She had a previous vacuum assisted delivery for fetal distress with no history of intrauterine contraceptive device (IUD) insertion, pelvic inflammatory disease or endometriosis.

She was hemodynamically stable and abdominal examination was unremarkable. Speculum examination revealed minimal blood. Vaginal examination revealed a 6 weeks anteverted, mobile uterus, closed cervical os and absence of cervical tenderness. No adnexal mass was palpable.

Transvaginal ultrasonography showed an empty uterus. An ectopic mass, measuring 3.1x2.8 cm was seen at the right uterine cornu (Fig. 1) with presence of ‘ring of fire’ around the mass on Doppler imaging (Fig. 2). No free fluid was seen in the pouch of Douglas. Quantitative β-hCG was 7456 mIU/mL.

She was given a single dose of 75mg (50mg/m2) intramuscular methotrexate. She remained stable with a significant reduction in beta HCG level to 1248 mIU/mL at 14th day post treatment.

**Case Report 2 – Tubal Stump Pregnancy**

A 26-year-old, gravida 5 para 2+2, with 2 previous normal vaginal deliveries followed by 2 ectopic pregnancies requiring a laparoscopic right salpingectomy and left salpingectomy via laparotomy respectively in 2011.

She conceived by in-vitro fertilization in the fifth pregnancy. An ectopic pregnancy was suspected at 5 weeks post embryo transfer. She requested conservative treatment but presented at 8+ weeks gestation with an acute abdomen with one episode of syncope. She had minimal per vaginal bleeding.

On examination, she was in pain, pale and hypotensive. Her abdomen was distended, guarded and tender over the lower abdomen. Per speculum examination revealed a healthy looking cervix with minimal blood. Vaginal examination revealed a closed cervical os, a normal-sized uterus and fullness at the left adnexa. Cervical excitation was positive.

Ultrasound scan demonstrated an empty uterus with a left adnexal mass, measuring 3.5 x 2.6 cm. Free fluid was seen in the pouch of Douglas. Her hemoglobin was 6.0 g/dl.

An emergency laparotomy and resection of left tubal stump was performed, revealing a 1.6 liter hemoperitoneum and a ruptured ectopic mass (3x3cm) at the left tubal stump. The right fallopian tube was absent. The uterus was normal and hemorrhagic cysts were seen in both ovaries.

She required three pints of packed cell blood and 2 units of fresh frozen plasma. Histological examination confirmed a left tubal pregnancy.

**Case Report 3 – Ovarian Pregnancy**

A 26-year-old, gravida 5 para 2+2, presented with sudden onset of lower abdominal pain for 1 day. Her menstrual cycle was irregular and was amenorrhoeic for the past 3 months. She had two normal vaginal deliveries and two previous first trimester miscarriages, one of which required suction and curettage. This was a spontaneous conception.

She did not have any vaginal bleeding or syncope but was pale and hypotensive with hemoglobin level of 11.6 g/dl. Abdominal examination revealed tenderness over lower abdomen with guarding. Vaginal
Figure 3: Ovarian pregnancy

examination showed a normal size uterus, closed
cervical os and tenderness at right adnexae. On
ultrasonography, the uterus was empty with no
adnexal mass and normal ovaries. However,
significant free fluid was seen in the cul-de-sac.

An emergency diagnostic laparoscopy was performed
for suspected ruptured right tubal ectopic pregnancy.
The right ovary was enlarged with a ruptured ovarian
ectopic, measuring 2 x 3cm (Fig 3). There was 1.7 liter
of hemoperitoneum requiring 2 units packed cell
transfusion. The uterus, both fallopian tubes and left
ovary were normal. Right salpingo-oophorectomy
was performed.

Histopathological examination confirmed a ruptured
right ovarian ectopic pregnancy.

Discussion

The three cases of ectopic pregnancy involved
different extra-uterine location with various symptoms
and signs.

Cornual (interstitial) pregnancy is a rare type of
ectopic pregnancy, accounting for 2-4% of all tubal
pregnancies. The risk factors are history of previous
ectopic pregnancy, pelvic inflammatory disease,
assisted reproductive conceptions as well as tubal
surgery (salpingectomy and salpingostomy) (1,2),
which were all absent in this patient. The diagnosis of
cornual pregnancy is usually late due to good muscular
and vascular support of this part of fallopian tube
allowing good distensibility of ectopic mass, thus
causing less pain. By the time it ruptures at advanced
gestation, it may result in catastrophic haemorrhage
with high mortality rate of 2% (3). Fortunately, she
presented early at 9 weeks gestation, allowing early
detection, intervention and prevention of fatal massive
haemorrhage. In experienced hands, transvaginal
ultrasound can establish the diagnosis in nearly 71% of
cases (4) which can be further improved using these
criteria: an empty uterus, gestational sac seen
separately and <1 cm from the most lateral edge of the
uterine cavity and a thin myometrial layer surrounding
the sac (5). In our patient, the first two criteria were
present with an additional Doppler study showing
vasculature ‘ring of fire’ around the mass at uterine
cornua. Surgical interventions include laparotomy or
laparoscopic cornual resection. Medical treatment
involved the use of methotrexate, injected at the
ectopic site or systemically as a single intramuscular
injection. Medical treatment is only advocated for
those who are hemodynamically stable, beta subunit of
human chorionic gonadotropin (HCG) value <5000
mIU/mL, absent fetal heart activity, adnexal mass of
≤4 cm and hemoperitoneum of <100 mL (6). Our
patient fulfilled most of these criteria and was given
intramuscular injection. She responded well with
significant reduction of β-hCG levels without any
complication.

The case of tubal stump pregnancy is really a mishap.
Nevertheless, in combination with a history of two
previous ectopic pregnancies and an in-vitro
fertilization conception, which are significant risk
factors, this favoured a repeat ectopic pregnancy. The
rate of ectopic pregnancy following ART is 1.7%-2%
of all pregnancies (7) and it is rarely seen at the
proximal tubal stump among patients who had bilateral
salpingectomy. Isthmic ectopic pregnancy carries a
mortality rate of around 2.0–2.5%, as compared with
other ectopic pregnancies of only around 0.14 % (8).

This patient was suspected to have an asymptomatic
ectopic pregnancy as early as 5 weeks POA following
IVF but she opted for conservative management. Due
to the poor distensibility and high vascularity of this
portion of the Fallopian tube, it is associated with high
risk of rupture and severe hemorrhage at an early
gestation (9) as had happened in this patient who
presented at 8 weeks gestation with acute abdomen
and hypovolemic shock requiring an emergency
laparotomy.

Despite bilateral salpingectomy, ectopic pregnancies
can still occur. Thus, to reduce the incidence, total
salpingectomy (instead of partial salpingectomy) and
cauterization of the tubal stump (10) should be
advocated. Marcus & Brinsden (11) suggested that
post-ART ectopic pregnancies can originate either
from the direct transfer of embryo to the tube or
migration of the embryo from the endometrial cavity
to the tube. Embryo transfer technique (deep fundal
transfer) without visual assistance, use of high volume
transfer medium, multiple embryo transfer, frozen
embryo transfer and artificial insemination can all increase the possibility of ectopic pregnancies (11).

Ovarian pregnancy is another rare variant of ectopic pregnancy. Hertig estimated that it occurs in one in 25,000-40,000 pregnancies (12). Intrauterine device usage was found to have a strong association with ovarian pregnancy (13). It is characterized by a poor clinical symptomatology and a difficult ultrasound diagnosis as the gestational sac may resemble a corpus luteum, a hemorrhagic cyst or an endometriotic cyst of ovary. Hallat (14) study showed out of 25 cases of suspected ovarian pregnancy, only 28% was the correct diagnosis at surgery. It strongly suggests that distinguishing between ovarian pregnancy and corpus luteal/hemorrhagic cyst rather difficult. In this patient, ultrasonography findings showed an empty uterus, no adnexal mass visualized but with a significant free fluid in the cul-de-sac. There was no delay in surgery as the diagnosis of ruptured ectopic pregnancy was obvious. Surgical treatment can be either wedge resection or oophorectomy (15). In this patient, an oophorectomy was performed. Medical management remains debatable. However, it can be carried out in patients who fulfill the criteria based on Greentop Guidelines (6). As mentioned, diagnosis is difficult to be ascertained. If a diagnostic laparoscopy was performed, treatment should be initiated concurrently.

Generally, treatment options are dependable on integrity of ectopic mass and hemodynamic stability of patient during presentation. It is essential to have a proper patient selection, thorough counseling and informed consent prior to medical intervention. The last two cases involved unstable patients with ruptured ectopic pregnancies requiring life-saving surgical intervention. Tubal stump pregnancy remained a rare site for ectopic. Thus, total salpingectomy, cauterization of the stump and avoid tubal clipping should be advocated, particularly in women undergoing IVF. Ovarian pregnancy remains a challenge to all obstetricians to obtain a correct diagnosis before medical intervention.

 Conclusion

Ectopic pregnancy, disregard of its implantation site, is a potentially life-threatening condition. An early diagnosis can facilitate timely intervention especially with less invasive treatment and avoid major complications, hence reduce maternal morbidity and mortality.

References


