

## Ruptured extrauterine gestation in heterotopic pregnancy

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The co-existence of an intrauterine conception with an extrauterine pregnancy is called heterotopic pregnancy. This condition was first described by Duverney in 1708 as an autopsy finding.<sup>1</sup> It was later reported to occur in less than 1:30 000 pregnancies.<sup>2</sup> The incidence of heterotopic pregnancy showed an increase with the introduction of assisted pregnancy. It is estimated to be about 400 times greater after the latter than natural conception.<sup>3</sup> Rupture of an ectopic pregnancy in this setting imposes a diagnostic enigma to emergency physicians.<sup>4</sup> Delay in recognizing the condition may lead to a fatal outcome.

In this report we present our first encounter with a pregnant woman who presented with shock and intra-abdominal bleeding that was found to be due to a ruptured tubal pregnancy in the presence of a viable intrauterine fetus. After an extensive literature search, we found only one recent report of this condition from our geographic area.<sup>5</sup>

### Case

A 32-year-old woman, para 0, gravida 1, presented to the emergency room with a sudden attack of severe lower abdominal pain, dizziness, fainting attack and palpitation. She stated that she was in her 8th week of pregnancy but had never been to an antenatal clinic. On clinical examination she was pale and in an obvious state of shock, with an unrecordable blood pressure and pulse of 135/minute. The abdomen was very tender all over with lower abdominal guarding. Her complete blood count showed a hemoglobin of 6.7gm/dL, hematocrit 19.7, and WBC  $12.5 \times 10^9/L$ . The renal profile (serum creatinine, blood urea), serum electrolytes and coagulation profile were normal.

She was resuscitated with IV fluids and blood transfusion. Urgent abdominal ultrasound (US) showed the presence of free fluid in the peritoneal cavity and the pelvis (hemoperitonium) with a viable intrauterine fetus of about 8 weeks gestation. An emergency laparotomy was performed via a low midline incision. There were about 3 liters of fresh blood in the peritoneal cavity and a ruptured left ampullary gestational sac, which was bleeding. There was a bulky uterus of about 8 weeks pregnancy. A left salpingectomy was performed with peritoneal lavage. Twenty-four hours after surgery, she developed fever (38.8°C), which was found to be due to central line contamination by *S. aureus* organisms. She responded to IV ceftriaxone (*Rocephine*). During her hospital stay, she was asked whether she had received any ovulation induction before pregnancy. She stated that she had never received such therapy and had never visited any in vitro fertilization programme. To check the viability of the intrauterine conception, an abdominal US was done on the seventh postoperative day. It showed a viable intrauterine fetus. On the eighth postoperative day, she was discharged from the hospital. She later had spontaneous vaginal delivery of a full-term baby.

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## Discussion

The incidence of heterotopic pregnancy has increased to 1% to 5% of pregnancies following the introduction of ovarian hyperstimulation and in vitro fertilization (IVF).<sup>3,5-8</sup> The risk increases if five or more embryos are transferred into the uterus.<sup>6</sup> Other causes predisposing to heterotopic pregnancy are similar to those leading to ectopic pregnancy, i.e. previous infertility surgery, pelvic inflammatory disease or endometriosis.<sup>9</sup> The ectopic gestation in the setting of heterotopic pregnancy most commonly implants in the fallopian tube. The most common site is the ampullary part,<sup>10-12</sup> but rare cases of implantation in the interstitial part of a previously removed tube have been reported,<sup>13,14</sup> even after bilateral salpingectomy.<sup>15</sup>

The patient in this report had no history of previous gynecologic procedures, and her pregnancy was the result of natural conception. Like our patient, most heterotopic pregnancies present within the first trimester. In a review of 435 heterotopic pregnancies, intrauterine and extrauterine pregnancies progressed to full term in only 10.6% of patients.<sup>16</sup>

In a recent retrospective review of 82 patients presenting with ectopic pregnancy from Saudi Arabia, only 3 patients had heterotopic pregnancies. Only one of these patients received therapy for induction of ovulation. The other two had spontaneous conception.<sup>5</sup> To the uninitiated clinician and to the general

surgeon, the diagnosis of heterotopic pregnancy may not be easy, especially in a pregnant woman with signs of intrabdominal bleeding like our patient. If the patient presents early, four signs and symptoms are associated with the condition—abdominal pain, peritoneal irritation, adnexial mass and an enlarged uterus.<sup>17</sup> Pelvic and/or transvaginal ultrasound is usually diagnostic as it would demonstrate both an intrauterine and tubal pregnancy.<sup>10-12,15</sup> A preoperative urgent ultrasound did not demonstrate the adnexial mass in our patient, probably because of the volume of blood in the pelvis and her haemodynamic instability.

The standard treatment for ruptured tubal pregnancy is surgery, either by laparoscopy or laparotomy with careful and minimal manipulation of the pregnant uterus. In a stable patient with an intact tubal pregnancy, ultrasound-guided injection of potassium chloride into the adnexial mass can safely be used.<sup>13,18-20</sup> In the patient reported here, an urgent laparotomy was performed because of the hemodynamic instability of the patient and the obvious need to get immediate control of the bleeding site.

In conclusion, this case demonstrates the need for emergency clinicians and general surgeons to be aware of the possibility of heterotopic pregnancy. This possibility should be entertained whenever a pregnant woman presents with abdominal pain and signs of peritoneal irritation. This is especially true in countries with active in vitro fertilization programs.

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