



Research Letter

Rupturing heterotopic pregnancy mimicking acute appendicitis

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Heterotopic pregnancy, the simultaneous existence of an intrauterine and an extrauterine pregnancy, is an extremely rare condition, with a reported incidence of 1 in 30,000 pregnancies [1]. Women who undergo assisted reproduction are at increased risk and in this group the incidence may reach 0.75% [2]. Because findings in patients with heterotopic pregnancy, including abdominal pain, adnexal masses, and peritoneal irritation signs, are usually nonspecific, and because the effects of an ectopic gestation are often “masked” by the co-existing intrauterine gestation, a missed or a delayed diagnosis is commonly the final result, and affected women have, as a result, a higher incidence of morbidity and mortality [3–5].

A 30-year-old nulliparous pregnant woman presented to the emergency department with symptoms of right lower abdominal pain, vaginal spotting, vomiting, and diarrhea. An intrauterine gestation had been confirmed at another clinic days ago. On examination, her body temperature, blood pressure, and pulse rate were normal. Abdominal examination revealed diffuse lower abdominal tenderness, with rebound tenderness in the right lower quadrant, indicative of peritonism. Laboratory tests revealed the levels of hemoglobin, white blood cell (WBC) count, and C-reactive protein (CRP) were 12.4 g/dL, 17,140/ μ L, and 0.42 mg/dL, respectively. At the emergency department, abdominal ultrasonography showed an intact intrauterine gestation, with a right abdominal tubular mass, creeping fat, and surrounding ascites with about 20 mL ascitic fluid, suggestive of threatened abortion and acute appendicitis. After hospitalization, she remained afebrile. A follow-up laboratory test showed the hemoglobin level, the WBC count,

and the CRP level were 9.6 g/dL, 9660/ μ L, and 0.45 mg/dL, respectively. Nevertheless, her pain aggravated with time. Considering the possibility of another diagnosis, we checked the serum beta-human chorionic gonadotropin (β -hCG) level, and found it to be higher (57,564 IU/L) than expected. Transvaginal ultrasonography was arranged and revealed a viable intrauterine gestation measuring 0.66 cm in crown-rump length, a right side swelling mass with abundant blood flow, and increasing pelvic ascitic fluid estimated at about 200–300 mL (Fig. 1A–1D). Under the suspicion of heterotopic pregnancy, the patient underwent laparoscopic surgery. A tubular mass was noted at the interstitial part of the right fallopian tube, and additional findings included internal bleeding with 300 mL liquid and a normal appendix. Laparoscopic single-site right partial salpingectomy was done (Fig. 2A–2D). Histopathologic examination confirmed the diagnosis of heterotopic pregnancy. The patient recovered well and was discharged. Subsequent transvaginal ultrasonography revealed a viable fetus within the uterus, with a good growth.

Early symptoms in pregnant women with heterotopic pregnancy are similar to those seen in acute appendicitis and in ovarian cyst rupture or torsion, and this can be confusing for clinicians making the differential diagnosis [3]. The assumption of acute appendicitis in anyone with right lower abdominal pain is common sense. However, the suspicion of heterotopic pregnancy in any pregnant woman with right lower abdominal pain is not common sense if an intrauterine gestation has been confirmed previously. Most physicians in the department of emergency will consider acute appendicitis rather than heterotopic pregnancy at first, thus giving the patient antibiotics and consulting a general surgeon, because the incidence of heterotopic pregnancy is rare, with an estimation of 1/30,000. They will inevitably be on the wrong track if they do not take the diagnosis of heterotopic pregnancy into consideration. In particular, because an ectopic gestation is often “masked” by the co-existing intrauterine gestation, missing or delaying the diagnosis is commonly the final result, and the affected women have, therefore, a higher incidence of morbidity and mortality.

To our best knowledge, this is the only report to point out that a rupturing heterotopic pregnancy may mimic acute appendicitis during pregnancy. Acute appendicitis should always be considered

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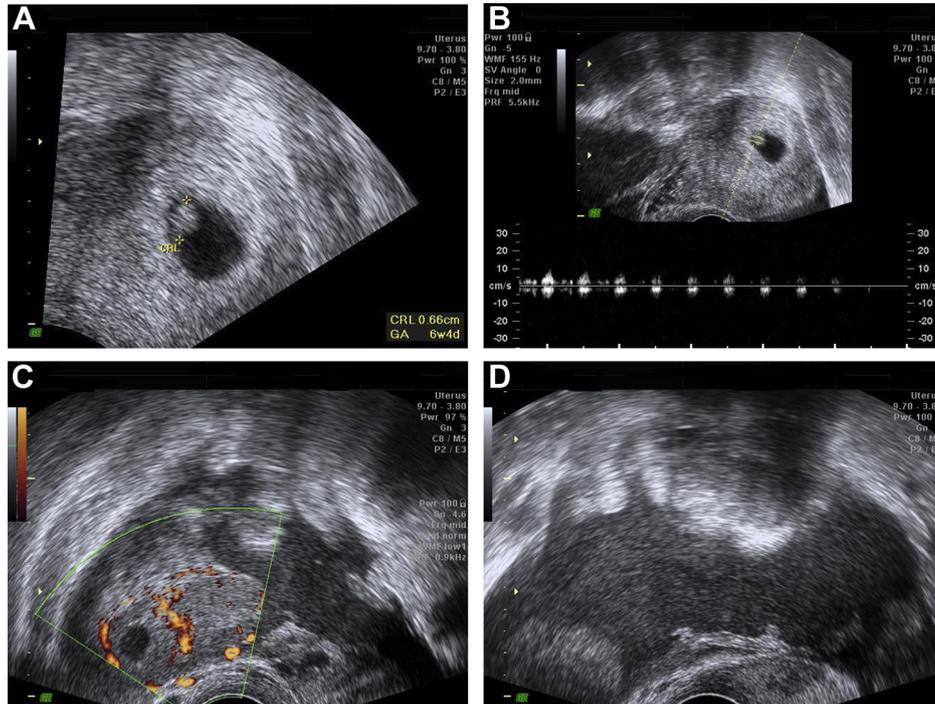


Fig. 1. Transvaginal ultrasonography revealing: (A) an intrauterine gestation with a crown-rump length (CRL) of 0.66 cm, corresponding to a 6-week pregnancy; (B) positive heart activity in this intrauterine gestation; (C) a right side swelling mass with abundant blood flow; and (D) pelvic ascites with ascitic fluid estimated at 200–300 mL.

and managed first in pregnant women with signs and symptoms. However, other etiologies should be surveyed if the subsequent manifestation of the illness is not so typical of acute appendicitis. Without further surveys, the possible diagnosis of heterotopic

pregnancy cannot be excluded. In questionable cases, a laboratory test for serum β -hCG may help clinicians consider the diagnosis of heterotopic pregnancy. A significant discrepancy between β -hCG levels and the corresponding intrauterine gestational age reinforces

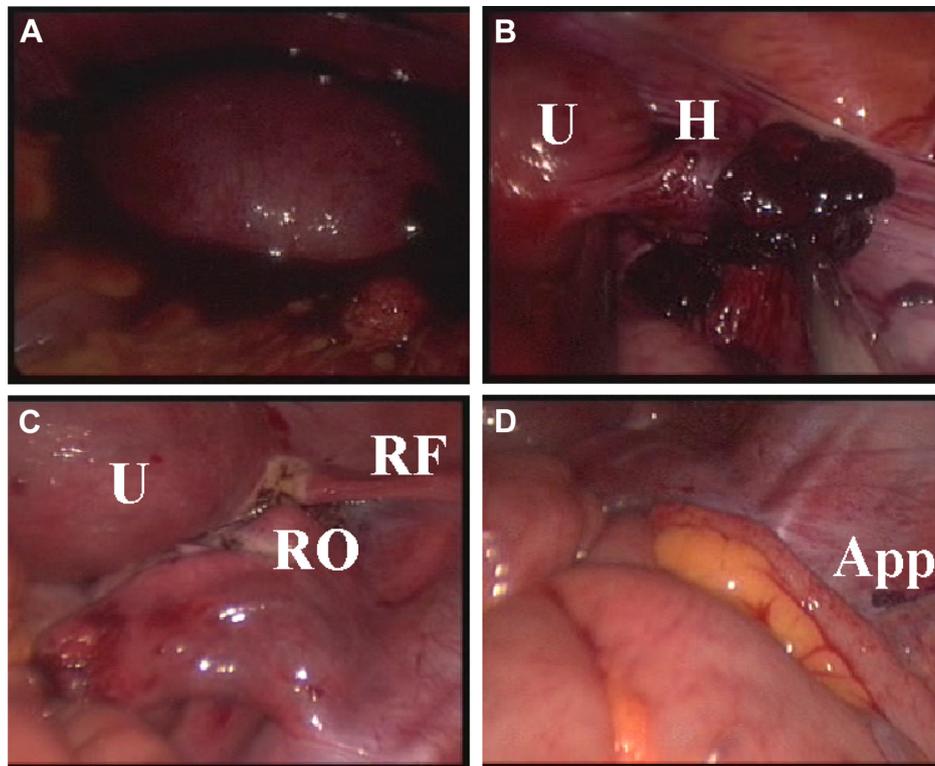


Fig. 2. Photographs from laparoscopy showing: (A) internal bleeding measuring 300 mL; (B) heterotopic right tubal gestation (H) near the uterus (U), with bleeding on the surface; (C) normal uterus (U), right ovary (RO), and residual fallopian tube (RF), after right partial salpingectomy; and (D) normal appendix (App).

the possibility of another pregnancy. Our report alerts clinicians to the fact that heterotopic pregnancy can mimic acute appendicitis during pregnancy, and highlights the need to look beyond the most obvious diagnosis and always to expect the unexpected. Previous reports also point out that ceasing the workup after identifying an intrauterine pregnancy is a common pitfall in the diagnosis of abdominal pain in pregnant women [3]. The diagnosis of heterotopic pregnancy should be assumed until proven otherwise.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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