

# Successful Management of a Live 14-week Primary Hepatic Ectopic Pregnancy Combined with a Residual Horn of the Uterus Using Laparoscopy

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Intra-abdominal pregnancy is rare and affects approximately 1 in 10,000 births. It occurs in 1.4% of ectopic pregnancies and carries a mortality rate of 5.1/1000 cases, 7.7 times higher compared with nonabdominal ectopic pregnancies. This study aimed to present a case of a live 14-week primary hepatic ectopic pregnancy diagnosed using ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI) and managed using laparoscopic microsurgery.

A 21-year-old Chinese female patient, who had never been married and pregnant, was 14 weeks pregnant as determined from the date of her last menstrual period. She presented with a 1-day history of minor vaginal bleeding and a positive urine pregnancy test, without abdominal pain or emesis. The patient's serum human chorionic gonadotropin (hCG) level changed from 135,755.00 U/L to 179,361.60 U/L after 2 days. A 14-mm thin endometrial stripe with no definite intrauterine gestational sac was revealed by a transvaginal pelvic ultrasound scan. Except 63 U/L alanine transaminase and 40 U/L aspartate aminotransferase, other routine blood tests, including full blood count, urea and electrolytes, amylase and glucose, and gallbladder tests, were normal. An ultrasound examination of the right upper quadrant revealed a live 14-week fetus attached to the undersurface of the left hepatic lobe [Figure 1a]. A CT plain scan performed between the left liver and gallbladder displayed a low-density shadow, approximately 8.2 cm × 4.8 cm × 6.9 cm, with a 7 cm fetus in the middle [Figure 1b]. An MRI plain scan demonstrated a larger left hepatic lobe and distorted solid mixed signals. It revealed an irregular cyst, approximately 9.2 cm × 8.6 cm × 5.3 cm, with a 7 cm fetus, exerting pressure

on the left portal vein [Figure 1c]. The placenta, including the border, was approximately 2.5 cm thick. Before surgery, the patient received 50 mg methotrexate intramuscularly and 300 mg mifepristone orally.<sup>[1]</sup> A decision was made for diagnostic and processed laparoscopy [Figure 1d]. Intraoperatively, no pelvic or abdominal hemorrhage was noted. The uterus was slightly enlarged, and a residual horn of the uterus was seen on the left side measuring approximately 2 cm × 2 cm × 1 cm. Both ovaries and fallopian tubes appeared normal. The liver surface was smooth, and the left liver was enlarged and hyperemic. The liver was cut off the ligament, and the inside of the left hepatic lobe was exposed. A transverse incision of about 3 cm to the left was made on the inner surface of the liver. The amniotic sac was visible and measured approximately 9 cm × 6 cm × 6 cm. When amniotic fluid was drained out of the sac, a long fetus (approximately 12 cm) was delivered without any difficulty [Figure 1e]. Stripping the placenta and the left hepatic lobe resulted in massive hemorrhage in the patient (2000 ml). Bleeding was ultimately controlled by rapid suture and transfusion. Postoperative pathology

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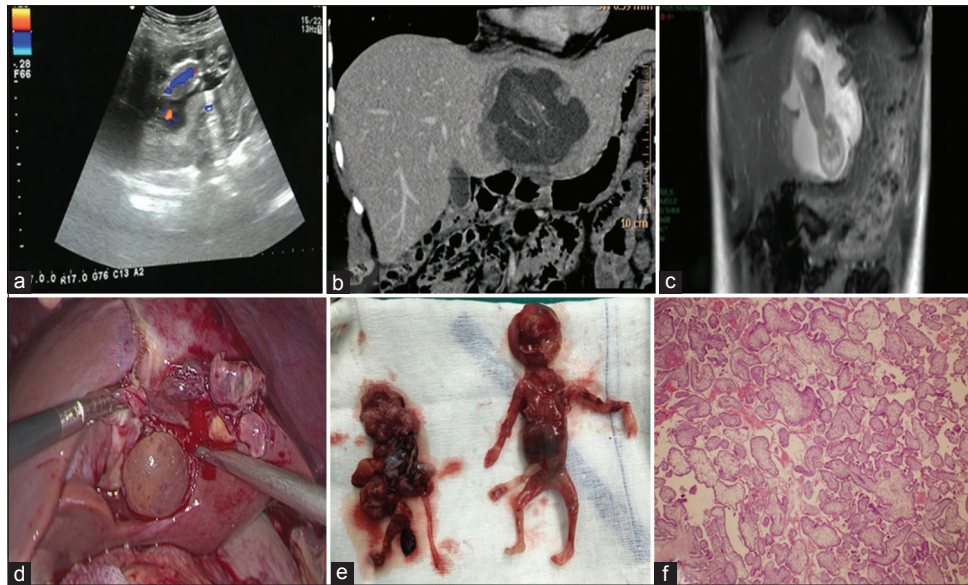
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**Figure 1:** Clinical photographs and pathology findings in a 21-year-old female patient with primary hepatic ectopic pregnancy. (a) Abdominal ultrasound demonstrating live fetus adjacent to gallbladder. (b) Abdominal CT demonstrating live fetus adjacent to gallbladder. (c) Abdominal MRI demonstrating live fetus adjacent to gallbladder. (d) Amniotic sac inside left liver leaf. (e) Fetus and placenta. (f) Pathological diagnosis of hepatic ectopic pregnancy (H and E, original magnification  $\times 40$ ). CT: Computed tomography; MRI: Magnetic resonance imaging.

verified the primary hepatic ectopic pregnancy [Figure 1f]. The serum hCG level decreased to 45,674.20 U/L 24 h after surgery. One week after the operation, the serum hCG level was 15,590.20 U/L. Ultrasound scans of the liver revealed the absence of an intrauterine gestational sac, normal adnexa, and no evidence of residual ectopic tissue. Serial serum hCG levels at the outpatient follow-up normalized to  $<10$  U/L.

The occurrence of primary hepatic pregnancy is exceptionally rare. Of the only 22 cases reported (based on PubMed database search) till date, only 29% progressed beyond the first trimester.<sup>[2]</sup> Easily missed diagnosis or misdiagnosis due to an onset of the disease is rare. Careful observations and the analysis of patients' clinical data by measuring hCG levels and using ultrasound, CT, and MRI make the preoperative diagnosis easy. A guided MRI is significant to the operation because it can scan the placental implantation.<sup>[3]</sup> Immediate surgical laparotomy and hepatic lobectomy have been the techniques for the traditional management of primary hepatic pregnancy due to increasing risks of maternal mortality as the pregnancy progresses.<sup>[4]</sup> Almost all primary hepatic pregnancies were successfully managed surgically in a previous study, but one patient succumbed to disseminated intravascular coagulation. Previous reports on hepatic pregnancies have suggested nonsurgical alternatives, including selective embolization of placental vessels and administration of parenteral methotrexate. Laparoscopic surgery is a more effective alternative to laparotomy with the development of minimally invasive surgery. Chin and colleagues surgically managed the first reported case of a primary hepatic pregnancy using laparoscopy alone in Singapore.<sup>[5]</sup> Laparoscopy has a large number of benefits for patients, including shortened operation times, less intraoperative blood loss, lower analgesic requirements, shorter hospital stays, fewer peritoneal adhesions, and

shorter convalescence, compared with laparotomy. Therefore, managing primary hepatic ectopic pregnancy using laparoscopy microsurgery might serve as a more acceptable option.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due to efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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