



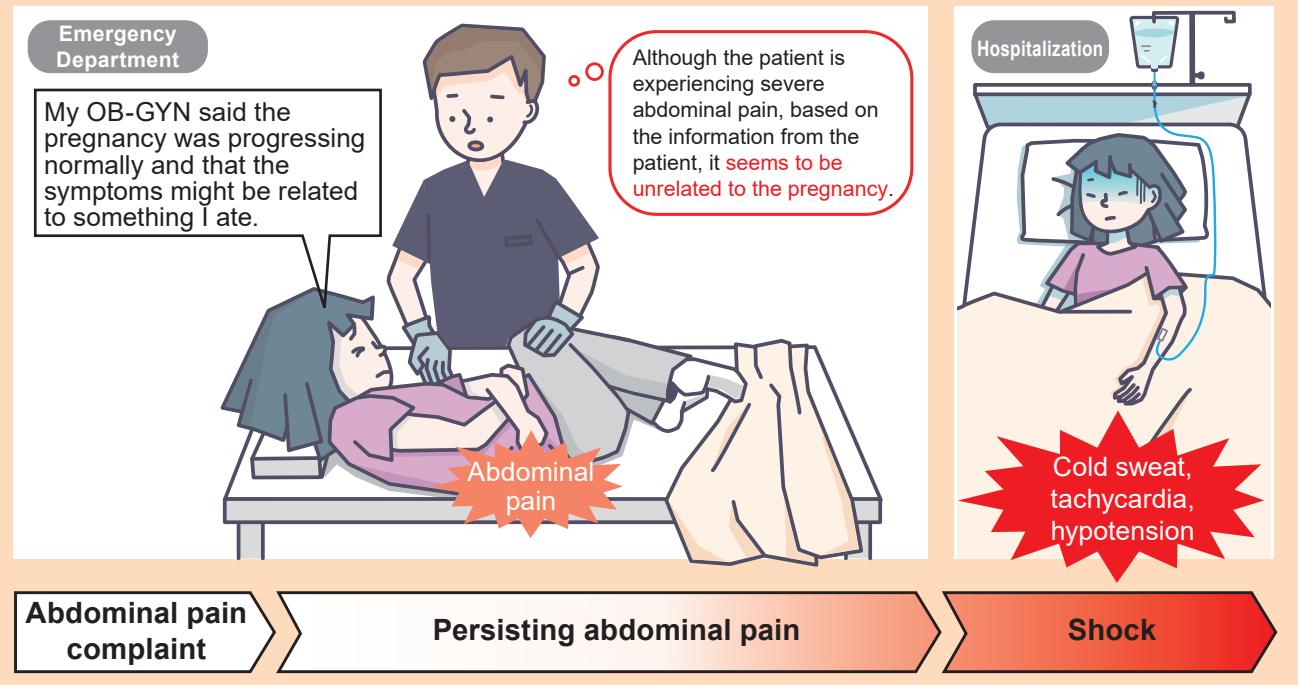
For healthcare professionals involved in emergency care, obstetrics and gynecology, and assisted reproductive technologies

Deaths from Tubal Rupture due to Ectopic Pregnancy

Fatal hemorrhagic shock due to tubal rupture following implantation of a fertilized egg outside the uterus (ectopic pregnancy) has been reported in two cases conceived through assisted reproductive technology and in one case following spontaneous conception.

! Factors contributing to the diagnostic difficulty and clinical course of ectopic pregnancy

The **abdominal symptoms were considered unrelated to pregnancy** based on the information provided by the patient.



*Image diagram of Case 1

! Illustrative Cases

Case 1

Case of presentation to the emergency department

Age: 40s

Two embryos were transferred following in vitro fertilization

The patient called an ambulance with chief complaints of abdominal pain and vomiting, and was presented to the emergency department. She reported a prior visit to the obstetrics and gynecology department, where she was confirmed to be approximately eight weeks pregnant, and a fetal heartbeat had been detected. The patient was diagnosed with infectious gastroenteritis and placed under observation with antiemetic therapy and intravenous fluid replacement. The following morning, she developed tachycardia, hypotension, and genital hemorrhage. Cardiac arrest occurred several hours later. After the return of spontaneous circulation, a CT scan revealed suspected intraperitoneal and tubal hemorrhage. Uterine artery embolization was performed, but the patient died a few days later.

Cause of death: Hemorrhagic shock due to rupture of the interstitial portion of the fallopian tube (autopsy was performed)

Case 2

Case of presentation to the obstetrics and gynecology department

Age: 30s

Spontaneous pregnancy

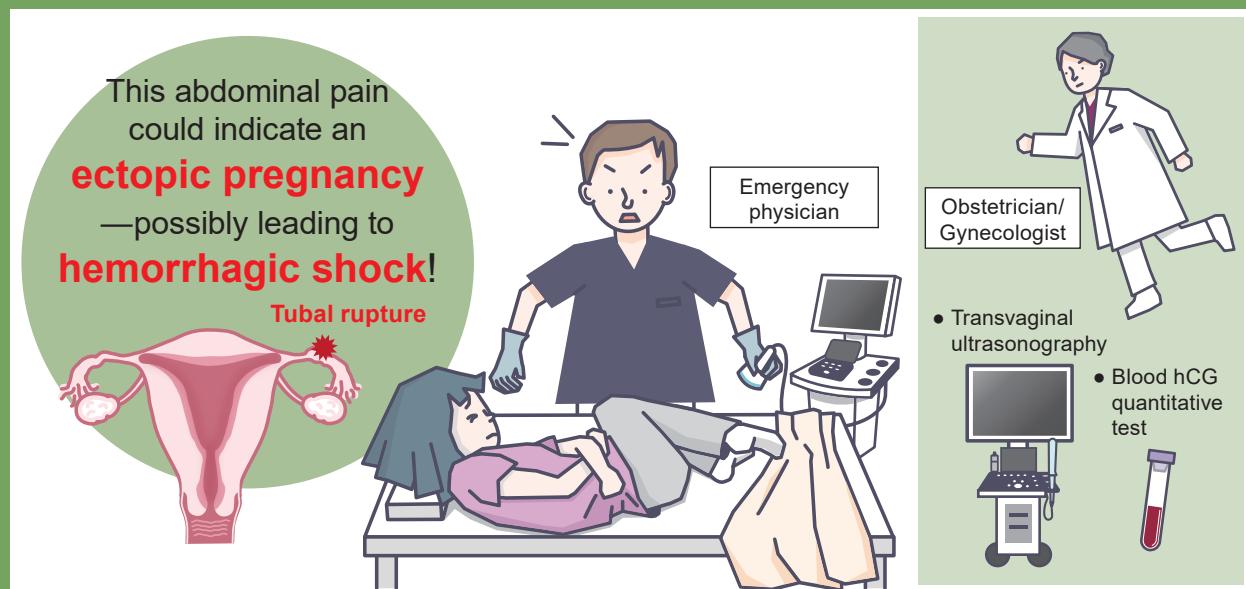
The patient presented with genital hemorrhage. She tested positive for pregnancy, and was diagnosed with threatened abortion due to the absence of a visible gestational sac. Four days later, the genital bleeding increased, and ultrasonography revealed a gestational sac-like structure for which a definitive diagnosis could not be established. A few days later, the patient expelled a "mass" at home and returned to the clinic. She was diagnosed with abortion because the gestational sac-like structure had disappeared. Several days later, the patient revisited the clinic due to abdominal pain and a positive result on a pregnancy test kit. Her symptoms were judged to be part of the post-abortion course based on the findings from transvaginal ultrasonography, and the patient returned home. About one week after the final visit, the patient collapsed at home and was pronounced dead on arrival at the hospital.

Cause of death: Hemorrhagic shock due to tubal rupture (autopsy was performed)

To prevent deaths from tubal rupture due to ectopic pregnancy

! Countermeasures

- Consider “ectopic pregnancy,” as a differential diagnosis, in patients with abdominal symptoms, even if a normal pregnancy or miscarriage has been previously diagnosed.
- Recognize the increased frequency of ectopic pregnancy (including heterotopic pregnancy) associated with assisted reproductive technologies



Urgent evaluation of acute abdomen in women of childbearing potential

- The possibility of ectopic pregnancy should also be considered in the examination of acute abdomen in women of childbearing potential. Intraperitoneal findings from abdominal ultrasonography and other tests should be reviewed, and pregnancy testing should be considered. Referral to the obstetrics and gynecology department should be made as necessary.
- The obstetrics and gynecology department should consider performing transvaginal ultrasonography, blood hCG quantitative testing, and a CT/MRI scan.
- The patient should be instructed to return to the clinic if symptoms such as abdominal pain persist, even after the decision to monitor the patient at home has been made.

Call to Action for Academic Societies

It is expected that the increased incidence of ectopic pregnancy and simultaneous normal and ectopic pregnancy after multiple embryo transfer in assisted reproductive technology will be made known at academic conferences on acute abdominal care.

Important Notice

This report has been developed by an Expert Analysis Subcommittee and approved by the Committee for the Prevention of Recurrence. It is intended to aid clinical decision-making and does not impose mandatory obligations or limit the discretion of individual healthcare professionals.