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## Laparoscopic treatment of unruptured 13-week tubal pregnancy

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**Abstract** As a rule, ectopic pregnancy localized in the uterine tube is symptomatic in the early period after implantation, and the signs of intra-abdominal hemorrhage are observed at the 4th–6th weeks of gestation. This article presents the case history of a patient who underwent successful laparoscopic salpingectomy in an unruptured 13-week tubal pregnancy. The treatment policy of advanced ectopic pregnancy is discussed herein and compared with the cases described in the previous literature.

**Keywords** Pregnancy · Ectopic · Laparoscopy

### Introduction

Unruptured ectopic pregnancy in the advanced stage is a relatively rare condition. A laparotomy is usually performed in such cases, regardless of whether it is a ruptured or unruptured one [1, 2]. Since the 1980s, laparoscopic management of ectopic pregnancy has been widely accepted for hemodynamically stable patients [1, 2, 3, 4]. However, only one report about laparoscopic surgery for advanced ectopic pregnancy has been published previously in the English literature [5]. We herein report a case of a 13-week isthmic tubal pregnancy successfully treated using the laparoscopic method as well as a review of the management strategies previously reported in the relevant literature.

### Case report

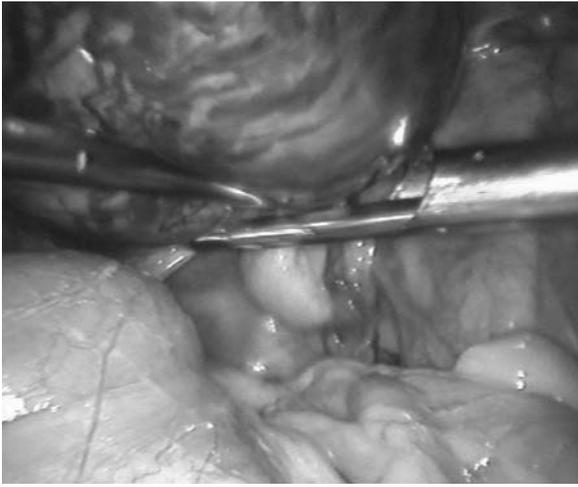
The 20-year-old patient was nulliparous, 165-cm tall and weighed 67 kg; throughout the 12 weeks of her pregnancy, she was under medical supervision at the regional outpatient clinic. No abnormalities were detected in the pregnancy development based only on bimanual and  $\beta$ -HCG examination. At the 13th week of pregnancy, a low abdominal pain appeared and a routine gynecological examination determined the presence of a tender tumor with a diameter of approximately 8 cm in the right adnexa.

The patient was transferred for definitive diagnosis and treatment to our Institute of Mother and Child Care. The patient's examination showed that her general health condition was good, namely, her blood pressure was 110/70 mmHg, her heart rate 72/min and temperature 36.7°C. The patient had had no previous history of inflammatory diseases of the lower abdomen or any other chronic disorders. The medical and family history was unremarkable. No contraceptive methods had been used. The first menstruation occurred at the age of 13. Menstrual cycles were regular, every 28 days, and lasted for 3–4 days. Abdominal and transvaginal examination revealed a 13-week tubal pregnancy; no pregnancy in the uterine cavity was determined. The contralateral adnexa apparently looked normal.

The patient was scheduled for laparoscopic treatment. Video-laparoscopy was carried out under general anesthesia, with endotracheal intubation. A pneumoperitoneum at a pressure of 15 mmHg was established using a carbon dioxide insufflator and maintained constantly throughout the entire surgery. The laparoscope was introduced into the abdominal cavity through a 10-mm umbilical trocar and two additional 5- and 10-mm cannulas for the operating instruments were inserted in the lower abdomen. The right tube was enlarged and contained a solid and liquid mass of about 7–8 cm in diameter (Fig. 1). No adhesions were present, and the accurate pelvic and abdominal evaluation did not reveal the presence of any other lesions. Both the left adnexa and the right ovary were normal. Hemoclips were attached to the uterine side of the tube and mesosalpinx. Laparoscopic excision of the isthmic ectopic pregnancy was then carefully carried out. Bipolar electrocoagulation was used for hemostasis when necessary. The right tube with the embryo (Fig. 2) and the products of conception were placed in a specimen retrieval sac and then carried out from a 20-mm trocar after hand morcellation. The total blood loss was about 160 ml and was removed from the abdominal cavity by suction. The patient's postoperative recovery was unremarkable, and she was discharged 2 days later.

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**Fig. 1** A laparoscopic view of the bulging ectopic mass in the isthmic part of the right tube



**Fig. 2** A 13-week fetus removing from abdominal cavity

## Discussion

The management of ectopic pregnancy has undergone a revolution in the past few decades [1, 2, 6]. Laparoscopy still remains the gold standard for diagnosis and treatment of extrauterine pregnancy and is as safe and effective as laparotomy [2, 3].

The optimal surgical approach to ectopic pregnancy is still debatable. The choice between salpingotomy and salpingectomy depends on the individual's needs, the condition of the tube (ruptured or unruptured), the implantation site (ampullary, isthmic or interstitial), size, accessibility and availability of special equipment as well as the surgeon's experience [2, 3, 6]. In case of advanced tubal pregnancy, salpingostomy is inexpedient. The decision of treatment in our case was salpingectomy because of the unfavorable anatomical situation for salpingostomy.

In most cases, ectopic pregnancy is detected at the early weeks of gestation [2] because there appears to be no uterine permissive factor necessary for the development of a fetus in the uterine tube. In our case, only bimanual gynecologic examination and  $\beta$ -HCG were used to confirm pregnancy.

There are only a few cases in the English literature about advanced ectopic pregnancies successfully treated with the laparoscopic method. This method of treatment of such ectopic pregnancies is still debatable [4, 5]. The PubMed search identified only one case of laparoscopic treatment in advanced (14th week) interstitial pregnancy [5]. Our article describes an additional case of successful laparoscopic treatment of unruptured isthmic pregnancy at the 13th week of gestation.

It is evident that laparoscopy is preferable to laparotomy for treatment of ectopic pregnancy in patients who are hemodynamically stable [1]. However, some surgeons would consider it a relative contraindication only because hemoperitoneum can often be quickly aspirated and hemostasis obtained via laparoscope once the patient has been resuscitated with volume replacement [6]. Relative contraindications would include the size of the ectopic pregnancy, volume of the hemoperitoneum, presence of adhesions and obesity; performing the laparoscopy in these conditions is dependent on the surgeon's degree of experience and skill [1, 6].

Based on our case and the existing literature, we consider that unruptured isthmic pregnancy in advanced weeks of gestation is a rare, potentially dangerous event, but it is still not a contraindication for laparoscopic treatment. Laparoscopic salpingectomy of advanced, unruptured tubal pregnancy can be done easily by well-trained laparoscopists as demonstrated by our specific case.

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