

Case report

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A Case of Pregnant Uterus Perforation During Laparoscopy

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RELEVANCE Pregnant uterus perforation during laparoscopy is a rare complication, accompanied by a higher risk of infection and miscarriage. Clinical management of pregnancy and its outcome have practical interest and need discussion.

AIM To provide a clinical case of pregnant uterus perforation during laparoscopy.

MATERIAL AND METHODS Patient L., 34 years old, with a tumor of the right ovary and 21–22 weeks of pregnancy.

RESULT The article describes a clinical case of independent childbirth on time after pregnant uterus perforation during laparoscopy with removing a significant volume of amniotic fluid in a 21–22 weeks pregnant woman.

CONCLUSION The prolongation of pregnancy and independent childbirth on time after uterus perforation with a gestation period of 21 or 22 weeks is possible in case of timely diagnosis of the complication, careful restoration of uterine integrity and rational management of the postoperative period.

Keywords: laparoscopy, pregnancy, damaged uterus

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Conflict of interest Authors declare lack of the conflicts of interests

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The need for abdominal surgery during pregnancy, not associated with obstetric reasons, occurs rarely - in 1-2% of cases - due to acute appendicitis, cholecystitis, hiatal hernia, adnexal torsion and intestinal obstruction [1,2]. Damage to the pregnant uterus during operative laparoscopy is considered a rare and potentially preventable complication [1,3,4]. It is known that pregnancy prolongation after uterine perforation is associated with high perinatal risks: infection, miscarriage, and preterm birth [4–6]. The presence of obesity, uterine fibroids and multifetal pregnancy are considered as unfavorable factors that increase the risk of perforation of the pregnant uterus during laparoscopy. In turn, the use of the Hasson open technique, ultrasound examination immediately before surgery with marking of the uterine fundus seem to be effective means of preventing damage to the uterus [1].

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Patient L., 34 years old, was admitted to the gynecological department for planned surgical treatment for the rapid growth of a right ovarian tumor at 21–22 weeks of gestation. In the anamnesis, there were term birth, the present pregnancy was the second, desired. An ovarian tumor was first discovered 4 years ago (up to 4 cm in diameter). During this pregnancy, an increase in the size of the volumetric formation by 3 times (up to 17 cm) was noted. Somatic history was aggravated by anemia of moderate severity, duodenal ulcer in remission, infectious hepatitis in childhood. Condition at admission was satisfactory, no complaints.

The next day after admission, the patient underwent surgery under endotracheal anesthesia. The first trocar was inserted along the midclavicular line on the left 3 cm below the edge of the costal arch, pneumoperitoneum was applied (carbon dioxide 12 mm Hg). A laparoscope was inserted: the body of the uterus enlarged up to the 21–22nd week of pregnancy was found; the ovary on the right was represented by a tumor-like formation up to 17 cm in diameter with a dense, smooth capsule. After the insertion of an additional trocar, 500 ml of a clear liquid was removed, presumably the contents of the cystoma. Upon detailed examination, it turned out that the aspirator was inserted in the fundus, closer to the left corner of the uterus, and the evacuated fluid was amniotic fluid. The council of doctors decided to restore the integrity of the uterus and prolong the pregnancy. The perforation on the uterus laparoscopically sutured with double-layer vicryl suture, and an adnexectomy was performed on the right. Histological result: multilocular serous cystadenoma of the right ovary.

In the postoperative period, subfebrile condition (37.1–37.5°C) was noted for 6 days. Treatment was as follows: Sulperazon 4 g x 2 times intravenously for 7 days, Fraxiparine 0.3 ml subcutaneously for 5 days, Papaverine 2.0 x 2 times 3 days, Gynipral 10 mcg as an intravenous infusion during 3 days.

On the 2nd day after surgery, ultrasound of the pelvic organs was performed: the fetus corresponds to the term, the heartbeat does not suffer (up to 160 beats / min), the fetal movement is active, the amniotic fluid index is reduced to 80 (at a rate of 213 for this gestational age). Placenta up to 24 mm thick, located on the back wall. At the control ultrasound, on the 14th day of the postoperative period: the gestational age corresponds to 24 weeks, the tone of the myometrium and the amount of fluid are normal (amniotic fluid index 219), the fetal growth is adequate, the heartbeat is up to 142 bpm, the placenta is located on the back wall at 5 cm from the edge of the internal os, its thickness is 24 mm. The patient was discharged from the hospital with a progressive pregnancy under the supervision of an antenatal clinic doctor.

The pregnancy proceeded without complications and ended in urgent spontaneous delivery. A boy was born with an Apgar score of 8/9, weighing 3690 g, 50 cm long. The total duration of labor was 5 hours and 10 minutes. On the 4th day of the postpartum period, according to clinical data and ultrasound results, a hematoma was diagnosed, which was the reason for performing an instrumental revision of the contents of the uterine cavity. Histopathological examination of the biopsy material did not reveal the remains of placental tissue and fetal membranes, decidual tissue was found. The patient was discharged from the maternity hospital under the supervision of an antenatal clinic doctor on the 6th day after delivery.

A year later, the woman had an independent pregnancy, which also ended in spontaneous childbirth. But the early postpartum period was complicated by massive obstetric bleeding, which required a hysterectomy. Histopathological examination revealed true ingrowth of the placenta located in the lower segment of the uterus along the posterior wall.

DISCUSSION

The presented clinical observation indicates the importance of a medical consultation with the participation of an obstetrician and a gynecologist-surgeon in making the right decision and choosing a rational strategy for managing a patient with uterine damage during pregnancy. The cause of damage to the pregnant uterus in this case can be considered a change in the anatomical and topographic relationships resulting from the injury of the capsule of the ovarian mass during the insertion of the first trocar, followed by the outflow of the contents of the tumor into the abdominal cavity, a change in the shape and size of the cystoma, which disorientated the surgeon.

After the introduction of working trocars, failing to detect the previous volumetric formation of the ovary and mistaking the pregnant uterus for a cystoma, a significant amount of amniotic fluid was evacuated. When working with large ovarian tumors, it is necessary to keep in mind the possibility of injuring the capsule of a large cystoma, which can lead to a change in the laparoscopic picture in a short period of time. This implies the need to visualize the tumor and uterus again immediately before the manipulation.

Possible complications and features of postpartum management in patients with uterine trauma during pregnancy also deserve discussion. An instrumental revision of the contents of the uterine cavity, performed in connection with the formation of a hematometra on the 4th day of the postpartum period, in the absence of histological confirmation of the presence of placental remnants, does not seem entirely justified.

In our opinion, the presence of a regular inflammatory reaction of the myometrium to its damage, followed by contractile function impairment, is quite expected. Specialists should keep this in mind and not rush with invasive methods of treatment. It is known that the incidence of placenta ingrowth is increased by inflammatory processes and intrauterine interventions. In this regard, placenta ingrowth in a patient who during a previous pregnancy suffered damage to the uterus and revision of the contents of the uterine cavity on the 4th day after delivery should be considered as an "endometrial" cause and a real pathogenetic mechanism for the formation of placentation pathology in the subsequent pregnancy [9, 10].

CONCLUSION

The presented case of pregnancy prolongation and the possibility of spontaneous delivery at term after uterine perforation during laparoscopy can be taken into consideration in the management of such complications.

REFERENCES

1. Post RJ, Friedrich E, Amaya KE, Chmait RH. Inadvertent perforation of a gravid uterus during laparoscopy. *JSLs*. 2019;23(3):e2019.00026. PMID: 31427852 <https://doi.org/10.4293/JSLs.2019.00026>
2. Tolcher MC, Fisher WE, Clark SL. Nonobstetric surgery during pregnancy. *Obstet Gynecol*. 2018;132(2):395–403. PMID: 29995718 <https://doi.org/10.1097/AOG.0000000000002748>
3. Buser KB. Laparoscopic surgery in the pregnant patient: results and recommendations. *JSLs*. 2009;13:32–35. PMID: 19366538
4. Mala T, Harsem NK, Røstad S, Mathisen LC, Jacobsen AF. Perforation of the pregnant uterus during laparoscopy for suspected internal herniation after gastric bypass. *Case Rep Obstet Gynecol*. 2014;720181. PMID: 25548693 <https://doi.org/10.1155/2014/720181>
5. Joumblat N, Grubbs B, Chmait RH. Incidental fetoscopy during laparoscopy in pregnancy: management of perforation of the gravid uterus. *Surg Laparosc Endosc Percutan Tech*. 2012;22(2):76–78. PMID: 22487644 <https://doi.org/10.1097/SLE.0b013e318243a494>
6. Friedman JD, Ramsey PS, Ramin KD, Berry C. Pneumoamnion and pregnancy loss after second-trimester laparoscopic surgery. *Obstet Gynecol*. 2002;99(3):512–513. PMID: 11864684 [https://doi.org/10.1016/s0029-7844\(01\)01664-7](https://doi.org/10.1016/s0029-7844(01)01664-7)
7. Slaoui A, Talib S, Nah A, Moussaoui KE, Benzina I, Zeraidi N, et al. Placenta accreta in the department of gynaecology and obstetrics in Rabat, Morocco: case series and review of the literature. *Pan Afr Med J*. 2019;33:86. PMID:31489064 <https://doi.org/10.11604/pamj.2019.33.86.17700>
8. Yamamoto M, El Murr L, Robyr R, Leleu F, Takahashi Y, Ville Y. Incidence and impact of perioperative complications in 175 fetoscopy-guided laser coagulations of chorionic plate anastomoses in fetofetal transfusion syndrome before 26 weeks of gestation. *Am J Obstet Gynecol*. 2005;193:1110–1116. PMID: 16157121 <https://doi.org/10.1016/j.ajog.2005.07.003>
9. Wu S., Kocherginsky M, Hibbard JU. Abnormal placentation: twenty-year analysis. *Am J Obstet Gynecol*. 2005;192(5):1458–1461. PMID: 15902137 <https://doi.org/10.1016/j.ajog.2004.12.074>
10. Skorobogachev RV, Belekova DA, Belova EA, Belov DV, Peshikov OV. Indications and methods for intrauterine intervention in the surgical correction of cardiac malformations. *Russian Journal of Operative Surgery and Clinical Anatomy*. 2019;3(2):25–33. (In Russ.) <https://doi.org/10.17116/operhirurg2019302125>

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