Video Article

Robotic management of a ruptured rudimentary horn pregnancy

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Abstract

Unicornuate uterus results from incomplete Müllerian duct development and often includes a rudimentary horn. Pregnancy in such a rudimentary horn is rare. The video presents the robotic management of a 21-week, ruptured rudimentary horn pregnancy, emphasizing preoperative planning and surgical excision using a robotic platform, highlighting a novel minimally invasive technique for this rare obstetric emergency. A primigravida with a unicornuate uterus presented with a ruptured rudimentary horn pregnancy at 21 weeks and 4 days of gestation. Imaging confirmed fetal expulsion into the peritoneal cavity with moderate hemoperitoneum. The patient underwent right internal iliac artery embolization to minimize blood loss, followed by robotic excision of the ruptured horn, fetus, and placenta through posterior colpotomy. The procedure was completed using a multiport robotic setup with minimal intraoperative blood loss. The surgery was completed in 45 minutes with minimal complications. The patient had an uneventful postoperative recovery. Robotic-assisted surgery provides a safe, minimally invasive alternative to laparotomy for ruptured rudimentary horn pregnancies in well-selected patients. Meticulous planning, patient selection, and a multidisciplinary approach are key to success.

Keywords: Müllerian anomaly, obstetrics, robotic surgery

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Introduction

Unicornuate uterus results from incomplete formation and merging of Müllerian ducts and often includes a rudimentary horn, typically non-communicating in 75-90% of cases (1). Pregnancy in a rudimentary horn is rare, with an incidence of 1 in 76,000 to 1 in 140,000 (2). This video demonstrates the robotic management of a ruptured rudimentary horn pregnancy, showcasing a novel surgical approach for this condition.

Case report

A primigravida with a unicornuate uterus presented at 21 weeks and 4 days of gestation with a ruptured rudimentary horn pregnancy. On presentation, the patient was hemodynamically stable, with a tense abdomen, uterine size corresponding to 20 weeks of gestation, and the grooves sign was present. Bedside ultrasound revealed moderate pelvic fluid accumulation with a non-viable fetus in the peritoneal cavity, distinct from the uterus. Magnetic resonance imaging confirmed a bicornuate uterus with a ruptured right uterine horn, resulting in fetal expulsion into the peritoneal cavity and moderate hemoperitoneum.

Informed consent was obtained after discussing the planned approach, its benefits, risks, and alternative management options. Given the patient's stability (hemoglobin level 9.2 g/dL, disseminated intravascular coagulation score 2), and availability of a multidisciplinary team, including advanced interventional radiology and intensive care unit, right internal iliac artery embolization was performed to minimize

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intraoperative blood loss, followed by robotic excision of the ruptured horn. The robotic-assisted procedure involved the removal of the horn, fetus, and placenta through posterior colpotomy (Figures 1-3). The port arrangement included a 12 mm supraumbilical camera port, two 8 mm robotic ports placed 10 cm lateral to the camera port on each side, and two 5 mm accessory ports for assistance, used for grasper and suction. The robotic instruments utilized during the procedure were a bipolar grasper and scissors.

Figure 1. Fetus and placenta positioned within abdominal cavity, surrounded surrounded by blood clots

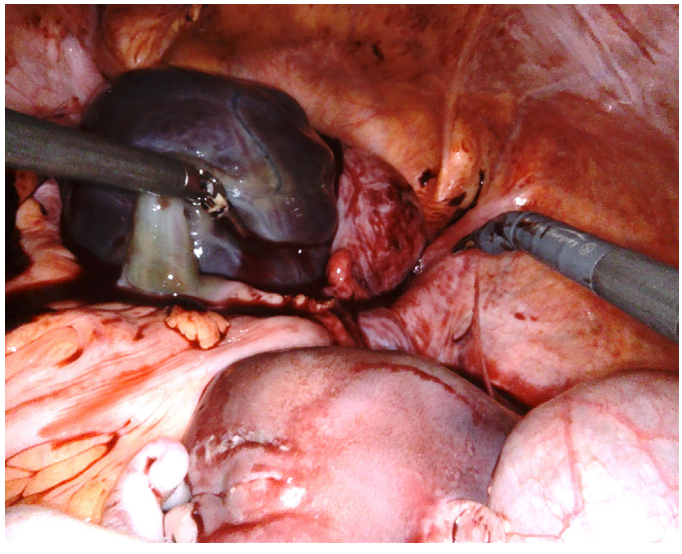

Figure 2. Extraction of the placenta from the ruptured rudimentary horn

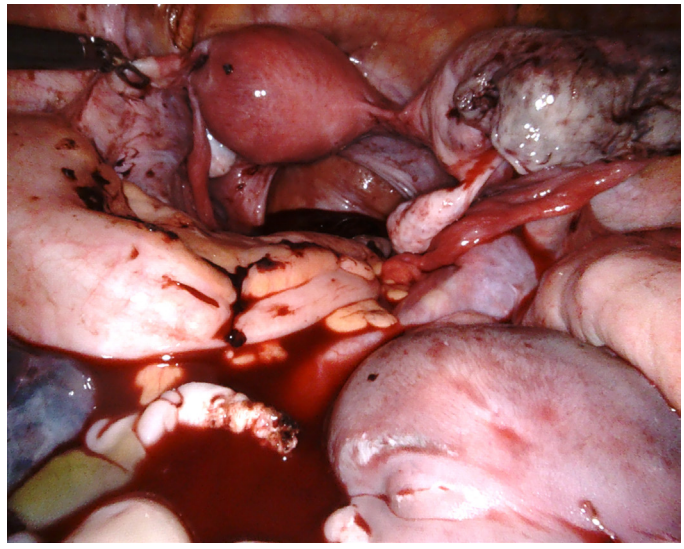

Figure 3. Uterus with normal left tube and ovary, and ruptured right rudimentary horn with intact right fallopian tube and ovary

The surgery was completed successfully within 45 minutes, including trocar placement, robotic docking, console time, and no comma needed minimal blood loss and no complications. Patient selection and available support services played a pivotal role in the success of this minimally invasive approach, based on hemodynamic stability, absence of significant coagulopathy, and comprehensive multidisciplinary support. The patient experienced an uneventful postoperative recovery, with minimal scarring and rapid return to normal activities. This case highlights the safety and efficacy of robotic-assisted surgery as an alternative to laparotomy for managing ruptured rudimentary horn pregnancies in well-selected patients in appropriate clinical settings.

Conclusion

Robotic-assisted surgery offers a safe and effective alternative to laparotomy for managing ruptured rudimentary horn pregnancies in carefully selected patients. This minimally invasive approach reduced blood loss, postoperative discomfort, and recovery time. Success depends on meticulous preoperative planning, appropriate patient selection, and availability of a well-coordinated multidisciplinary team.

Video 1.

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Informed Consent: *Informed consent was obtained from all patients.*

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