

Appendicular Perforation in Pregnancy

Rashik Neupane,¹ Buddhi Kumar Shrestha,¹ Puja Baniya Chhetri,¹ Kamal Raj Baral,² Jyotsna Joshi,² Narayan Prasad Belbase³

¹Department of Obstetrics and Gynecology, ²MBBS, ³Department of Gastrointestinal and General Surgery, College of Medical Sciences and Teaching Hospital, Bharatpur, Chitwan, Nepal.

ABSTRACT

In this case study, a third-trimester primigravida faced the rare challenge of a perforated appendix followed by successful perinatal outcome. Despite inconclusive imaging results from ultrasound and MRI, clinical progression guided the diagnosis. Timely intervention via emergency laparotomy, involving obstetric and gastro-surgical teams, averted further complications, ensuring a favorable outcome for both mother and baby. The complexities of diagnosing appendicitis during pregnancy, particularly when perforated, were emphasized. This instance underscored the pivotal role of a multidisciplinary approach, meticulous surgical planning, and attentive postoperative care, showcasing how prompt intervention and holistic management are paramount in navigating such intricate scenarios during pregnancy.

Keywords: acute appendicitis; appendicular perforation; pregnancy; laparotomy; case report.

INTRODUCTION

Acute appendicitis is the most common non-obstetrical emergency surgical condition in pregnancy.¹⁻⁵ It is estimated that acute appendicitis occurs between 0.06% and 0.28% in pregnancy.^{1,6} Acute appendicitis in pregnancy have atypical presentation and often it is lately diagnosed due to inability to use radiation and anatomical changes in location of appendix especially in third trimester.^{7,8} The typical patient presentation of right lower quadrant pain, fever, leukocytosis etc. in appendicitis of general population is least likely in case of obstetrics patient.^{7,8} Diagnosing acute appendicitis during pregnancy is challenging, as symptoms, signs, and tests offer limited assistance.⁹ The critical message underscores the importance of promptly addressing appendicitis uncertainty in pregnant individuals, given the substantial increase in perinatal mortality rates—from under 3 % in uncomplicated cases to 20 % in perforated appendix. The adage “if in doubt, take it out” holds particularly true in this context.⁷ This is a typical case of a primigravida female in her third trimester with perforated appendix where imaging modalities like

ultrasonography and even MRI was inconclusive of definitive diagnosis of perforated appendix but the clinical diagnosis based upon the patient progression of symptoms and sign which aid in the diagnosis and timely intervention through an emergency laparotomy in combined approach with obstetrician and gastro surgeon following the suspicion of appendicular perforation prevented further complications and significantly contributed to a favorable outcome for both the mother and baby.

Case History

A 37 years female primigravida, housewife by occupation, from Bharatpur presented to COMS-TH ER with complaints of amenorrhea for 8 months, vomiting 8-9 episodes since 1 day containing food particles. She also complained of epigastric pain since the last 1 day and loose stool 2-3 episodes watery in consistency, non-blood stained. She was perceiving good fetal movement. She denied a history of fever, trauma, lower abdominal pain, vaginal bleeding or PV leaking. In medical history she has been having gestational diabetes mellitus since 6 and half months of pregnancy and she was taking tablet

Correspondence: Dr. Rashik Neupane, Department of Obstetrics and Gynecology College of Medical Sciences and Teaching Hospital, Bharatpur, Chitwan, Nepal. Email: rashiknpn@gmail.com, Phone: +977-9845350486.

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metformin 500 mg twice daily per orally. In addition to it she was under levothyroxine 50 mcg once daily for subclinical hypothyroidism from 1 month of gestation. She denies having hypertension, hepatitis, tuberculosis. Upon examination at arrival her vitals were stable except for her pulse which was 104 beats/min. Her BMI was 29.9kg/m². On per abdominal examination the abdomen was globular, uterus was approximately 30 weeks size, longitudinal lie with cephalic presentation, there was mild tenderness at epigastric region on deep palpation. Investigations were sent including ultrasound of abdomen (maternal and fetal) which were within normal limit except for Urine routine examination with Pus cells of 6-8/hpf. She was subsequently admitted to the obstetrics and gynecology ward with a preliminary diagnosis of urinary tract infection coupled with gestational diabetes mellitus and hypothyroidism. Antibiotic coverage was done with Inj Ceftriaxone and tab Metronidazole with other supportive medication. Her symptoms got worse day by day. Abdominal distension was present and abdominal girth was gradually increasing. Serum electrolytes were sent and it was within normal limit. In ward her vitals were monitored with regularly increasing tachycardia rate and progression of her symptoms was observed. Pain abdomen was gradually increasing and was generalized. Surgery consultation was done for pain in the abdomen with distension. Rectal stimulation was done and ezivac enema PR stat was given. But there was no passage of stool. On the following day soap water enema was tried but her abdominal distension and generalized pain abdomen were static. Antibiotics was upgraded to inj Piperacillin and Tazobactam. A USG review was done which revealed dilated small bowel loops measuring approximately 38 mm in the right upper quadrant of abdomen with mild free fluid in abdomen. The following day, MRI pelvis was done which showed pelvic collection with no any perforation of bowel noted. Rigidity and guarding of abdomen started with generalized abdominal tenderness. On her 5th day of admission pain persistently increased in severity along with persistent fever and vomiting despite the use of iv

antibiotics and other supportive and symptomatic management. Then she was planned for emergency exploratory laparotomy with cesarean section under general anesthesia with the help of gastro-surgeon. Single live preterm male of 2000 grams was delivered via low midline incision which was later extended above umbilicus. Exploratory laparotomy that revealed perforated appendix (Figure 1) with 200 ml of pus collection at right lower quadrant of abdomen with dense adhesion between bowel wall with dilated bowel loops. Antibiotic was upgraded to inj Meropenem.

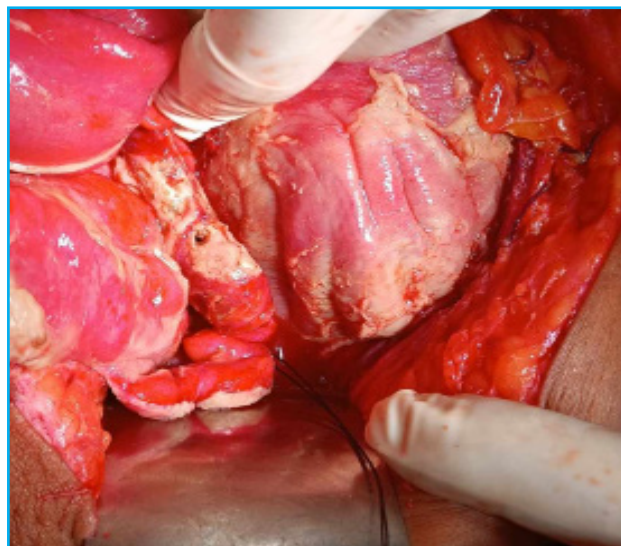


Figure 1. Depression anxiety and stress levels using DASS-21.

Patient was kept on post-operative intensive care unit and was later shifted to ward. Patient and baby had uneventful recovery time and doing well to this time. On follow up HPE showed acute suppurative appendicitis with perforation (Figure 2).

DISCUSSION

According to reports, the incidence rate of acute appendicitis during pregnancy is between 1:1250 and 1:1500 but challenging scenario is due to the diagnostic complexity and potential risks involved for both the mother and fetus.^{9,10} Appendicular perforation further complicates the situation, posing increased risks of peritonitis, sepsis, and adverse maternal and fetal outcomes.¹¹ This case report highlights the successful management of a pregnant patient presenting with appendicular perforation,

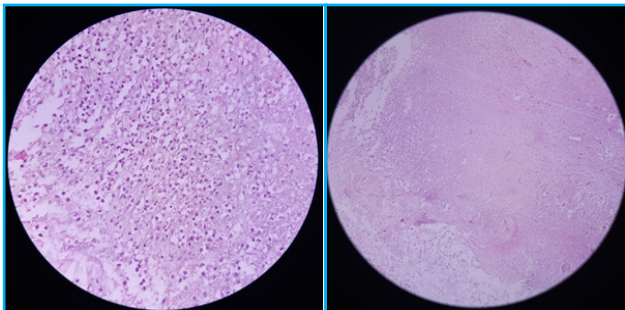


Figure 2. Histopathological examination of specimen showing suppurative appendicitis.

emphasizing the importance of timely diagnosis and appropriate intervention in such critical situations.

Diagnostic Challenges and Timely Intervention

Diagnosing appendicitis in pregnancy presents a significant challenge due to overlapping symptoms with normal pregnancy discomforts and the reluctance to expose the fetus to ionizing radiation for imaging.^{9,12} Magnetic Resonance Imaging (MRI) showcases a notable sensitivity of 91.8% and specificity of 97.9% in effectively diagnosing acute appendicitis among pregnant individuals presenting clinical symptoms. Additionally, MRI could serve as a valuable diagnostic tool for pregnant patients encountering suspected appendicitis, especially when ultrasound results are inconclusive.⁹ However, in our case, imaging modalities like ultrasonography and even MRI was inconclusive of definitive diagnosis of perforated appendix but the clinical diagnosis based upon the patient progression of symptoms and sign which aid in the diagnosis. Timely intervention through an emergency laparotomy following the suspicion of appendicular perforation prevented further complications and significantly contributed to a favorable outcome for both the mother and baby.

Surgical Approach and Maternal-Fetal Well-being

Surgical management of appendicitis during pregnancy requires careful consideration of both maternal and fetal well-being.⁹ In our case, a laparotomy was performed to ensure a thorough assessment of the extent of the perforation and to mitigate the risks associated with laparoscopy^{13,14} such as potential carbon dioxide insufflations effects on the fetus. The surgical team's expertise in handling such complex cases allowed for a meticulous removal of the inflamed perforated appendix, followed by appropriate peritoneal lavage and closure, ensuring minimal disruption to the pregnancy.

Maternal and Fetal Outcomes

Postoperative care played a crucial role in the successful recovery of the patient. Close monitoring for signs of infection, adequate pain management, and regular fetal monitoring were integral components of the postoperative management protocol.¹⁵ The absence of postoperative complications and the uneventful progression of the pregnancy until 34 weeks of gestation resulted in the delivery of a healthy neonate in our case.

CONCLUSIONS

This case highlights the significance of a multidisciplinary approach involving obstetricians, surgeons, and radiologists in managing appendicular perforation during pregnancy. Timely diagnosis, careful surgical planning, and meticulous postoperative care are pivotal in ensuring optimal outcomes for both the mother and fetus. Although appendicular perforation in pregnancy is a rare and challenging condition, prompt intervention and comprehensive care can lead to successful outcomes, as demonstrated in this case.

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