

Appendicitis in 2nd Trimester Pregnancy: A Diagnostic Dilemma

Dr. Kartik Chaudhary¹, Dr. Manoj Togale²

¹Junior Resident, Department of General Surgery, Jawaharlal Nehru Medical College, KAHER, Belagavi, India
Corresponding Author Email: [kcrules16\[at\]gmail.com](mailto:kcrules16[at]gmail.com)

²Department of General Surgery, Jawaharlal Nehru Medical College, Belagavi, India

Abstract: *Pregnancy - related surgical emergencies most frequently include appendectomy for suspected appendicitis; with diagnosis presenting a unique difficulty for the surgeon. MRI abdomen is incredibly precise, sensitive and specific in diagnosis. This case report presents a 31 year old woman with second trimester pregnancy with pain abdomen, who underwent USG and MRI for the same and appendicitis could not be picked on the scans. The patient had a preterm delivery following which she underwent exploratory laparotomy which revealed appendiceal perforation, highlighting the importance of high index suspicion for appendicitis in this patient group even if imaging is negative.*

Keywords: Appendicitis, pregnancy

1. Introduction

Pregnancy - related surgical emergencies most frequently include appendectomy for suspected appendicitis; with diagnosis presenting a unique difficulty for the surgeon. Similar to any pregnancy disorder, the surgeon must think about the health of both the mother and the fetus (1). The common symptoms of early appendicitis are vague and frequently connected to a typical pregnancy; febrile reaction could be less pronounced, physical examination of the pregnant patient is difficult and altered due to gravid uterus displacing the appendix up and more cephalad; biochemical, laboratory indicators commonly used to help with the diagnosis of appendicitis in the normal patient are not dependable in pregnancy. (2)

Preoperative accuracy of diagnosis is crucial; negative appendectomy is also known to increase fetal loss.

2. Case Report

A 31 year old antenatal mother with 24 weeks period of gestation admitted in gynecology ward with pain abdomen since 1 day, diffuse all over abdomen, with 1 episode of vomiting, and was referred to department of general surgery for the same. On examination the patient was afebrile, abdomen was distended, diffuse tenderness present, no guarding, bowel sounds present. Patient passed flatus and stools after enema, but abdominal distention was persistent, RT showed nil output.

Investigations and treatment

- The patient was advised ultrasonography of the abdomen, which was suggestive of prominent bowel loops with sluggish peristalsis
- In view of persistent distention, the patient was advised for MRI abdomen, which was suggestive of small bowel obstruction and showed dilated small bowel loops (Fig.1)
- In view of persistent distention, the patient was planned for exploratory laparotomy, but went into labor the same day and underwent preterm vaginal delivery.

- Patient reported relief in pain abdomen post delivery, but in view of persistent distention, was advised contrast CT scan of abdomen.
- CECT abdomen/pelvis: large intraperitoneal collection with multiple air pockets along the uterus? small bowel perforation/ infective collection (Fig.2).
- The patient was then taken up for exploratory laparotomy (Fig.3, 4, 5)

Intra - op findings

400 - 500ml foul smelling purulent collection noted in intraperitoneal cavity which was drained. Perforated appendiceal tip with omental adhesions noted in right upper quadrant, open retrograde appendectomy was done. Thorough wash given with warm saline and drains placed in Morrison's pouch and pelvic region and closure done. Postoperatively patient had a stable course and was discharged on post operative day 7.

3. Discussion

In pregnancy, appendicitis continues to be the most frequent non - obstetric emergency.

The prevalence is comparable in patients who are pregnant and those who are not, being 1 in 181 to 1700 pregnancies (3) with the second trimester having the highest incidence. (4, 5) The diagnosis is frequently challenging. Although the anterior abdominal wall is raised up by the gravid uterus, pain at right lower quadrant is seen in most patients. With advancing pregnancy and cephalad pushing of the appendix, patient may manifest pain in right flank or even right upper quadrant. (6, 7)

The laboratory tests routinely used to diagnose acute appendicitis are unreliable in a pregnant patient. Total leucocyte counts even up to 16, 900 cells/mm³ may be a normally seen in pregnancy (8, 9)

In suspicious cases, diagnosis is confirmed with imaging, most commonly USG and CT. CT scan is avoided in pregnant

mothers to avoid ionising radiation to the baby. USG is the initial study of choice in pregnant patients. The findings in a pregnant patient are similar to those in a nonpregnant patient, but USG is dependent on the skill of the user, and the gravid uterus reduces the sensitivity and specificity to pick up appendicitis. (10)

MRI is done in cases where US findings are uncertain, as in our case, and is highly sensitive (91.8%) and specific (97.9%) (11, 12). Regularly using MRI in suspected pregnant women reduces the rate of negative surgery for appendectomy by almost 50% (13).

The complications related to appendectomy in a pregnant patient include the risks to pregnancy, mother and the fetus. Untreated appendicitis carries a significant risk of appendiceal perforation. The risk of fetal loss is 2% in cases of uncomplicated appendectomy, which may increase up to 6% in presence of peritonitis and peritoneal abscess. The incidence of early or preterm labor is about 4% and may rise to as high as 11% in complicated appendicitis. (14)

However, negative appendectomy also carries risks of preterm labor (10%) and fetal loss (4%).

Hence prompt and accurate diagnosis is necessary for managing these patients to minimize the associated morbidity and mortality. (15)

Owing to the risks with negative appendectomy, if MRI is inconclusive for appendicitis, the patient is observed and surgery is reserved if the patient is deteriorating or not showing signs of improvement.

Despite its high sensitivity and specificity, MRI abdomen may still fail to pick up appendicitis in pregnant patients as seen in this case report, and a high index of suspicion and early surgery should be offered if the patient is showing no clinical improvement or is deteriorating.

4. Conclusion

Appendicitis in pregnancy remains a challenging condition to tackle and diagnose; it can be missed even on an MRI. Preoperative accuracy of diagnosis and timely and correct intervention is crucial to avoid risks to maternal and fetal life.

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Images

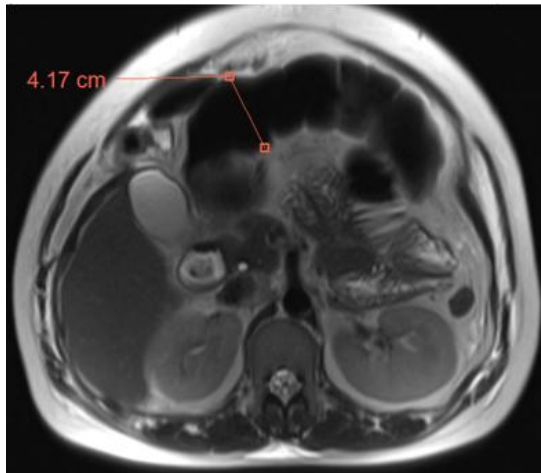


Figure 1: MRI showing distended small bowel loops

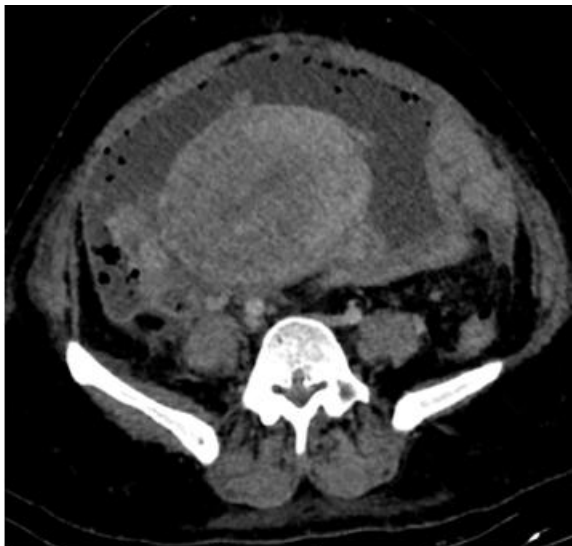


Figure 2: CECT showing large peritoneal collection



Figure 3: Pus collection in the peritoneum

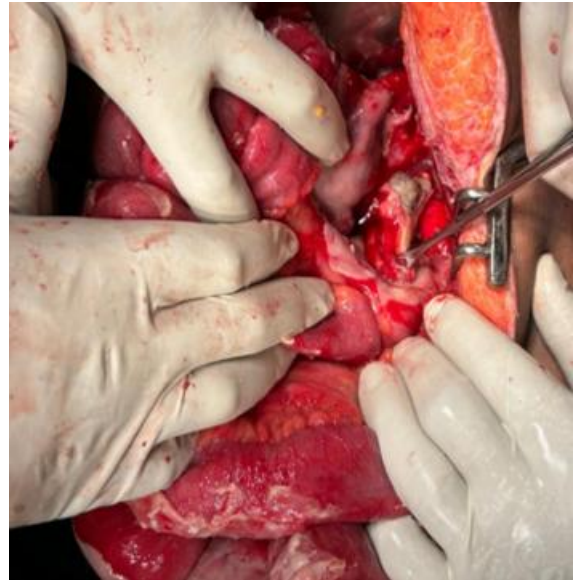


Figure 4: Appendix with tip perforation in right hypochondrium

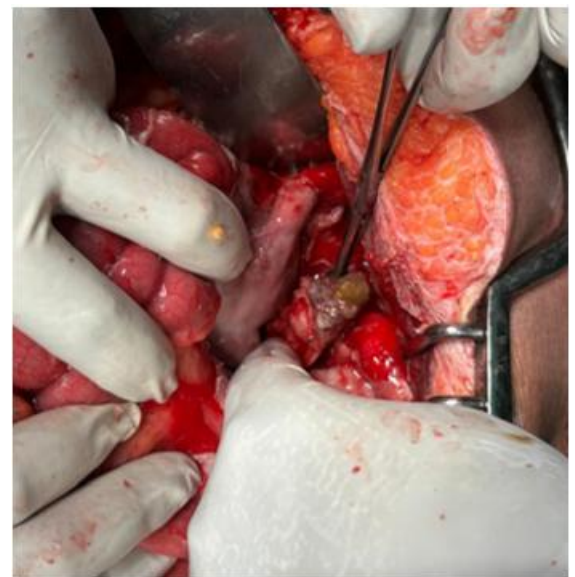


Figure 5: Retrograde appendectomy done