Learn simply

Acute Abdomen in Pregnancy

Passion profession same

- Take a detailed history and perform a physical examination[1]
- √ CBC, T&S, electrolytes, liver and renal function tests[2]
- Confirm gestational age and document fetal well-being

Hemodynamically stable?

No

- **Initiate aggressive blood component resuscitation**
- Urgent surgical, anesthesia, MFM consultation
- Continuous fetal heart rate monitoring, if viable

Consider immediate exploratory laparotomy even in the absence of a definitive diagnosis

High clinical index of suspicion

Consider immediate exploratory laparotomy or laparoscopy and appendectomy[7]

Yes

Lower abdominal/RLQ pain

Likely diagnosis: APPENDICITIS[3]

- Admit to hospital immediately
- Consider alternative diagnoses[4]
- Obtain MFM, NICU, anesthesia consultation
- **Urgent general surgical consultation**
- Continuous fetal heart rate and contraction monitoring[5]

Intermediate/low clinical index of suspicion

Obtain abdominal ultrasound[6]

Suggestive of appendicitis

Consider immediate exploratory laparotomy or laparoscopy and appendectomy[7]

Equivocal

Obtain abdominal MR imaging[6]

Suggestive of appendicitis

Consider immediate exploratory laparotomy or laparoscopy and appendectomy[7]

Equivocal

- Continue expectant management
- Serial abdominal examinations
- *Consider empiric antibiotics*
- Consider continuous fetal heart rate and contraction monitoring, if viable

Epigastric/RUQ pain

- Likely diagnosis: BILIARY DISEASE[8]
- Admit to hospital immediately
- Consider alternative diagnoses[4]
- Consider MFM, NICU, anesthesia, and general surgery consultation

Consider imaging studies (such as RUQ ultrasound scan or MR imaging)[9]

Continue supportive care (nil by mouth, iv hydration, pain control)[10]

Is the patient improving clinically?

Yes

- Continue expectant management
- Serial abdominal examinations
- *Consider empiric antibiotics*
- Consider continuous fetal heart rate and contraction monitoring, if viable

No

- **Consider urgent surgical intervention[10]**
- Consider antenatal steroids
- Proceed with delivery for usual obstetric indications

1. History taking should be brief and focused. Ask about underlying medical conditions, prior surgery, medications, and allergies. Ask about pregnancy complications including vaginal bleeding, leakage of fluid, contractions, and fetal movements. Physical examination may reveal generalized or focal tenderness, presence/absence of guarding and rebound tenderness, and increased/decreased bowel sounds. Confirm gestational age and document fetal well-being, especially if >24 weeks of gestation.

2. White blood cell count in normal pregnancy ranges from 10,000 to 14,000 cells/mm3. In labor, the white blood cell count may be as high as 20,000 to 30,000 cells/mm3. Counts that are significantly higher than that or have evidence of a left shift suggest underlying infection/inflammation.

3. Acute appendicitis is the most common general surgical problem encountered during pregnancy, complicating 1 in 1500 deliveries. Although it can occur in any trimester, there appears to be a slight predominance in the second trimester.
4. It is not more common in pregnancy, but pregnancy is associated with a higher rate of perforation, likely due to delay in diagnosis. The clinical manifestations and diagnosis of appendicitis in pregnancy are similar to those in nonpregnant individuals. Pain in the right lower quadrant is the most common presenting symptom, regardless of gestational age. Fever and leukocytosis are less reliable indicators of appendicitis in pregnancy.

1. The differential diagnosis is extensive, including any cause of abdominal pain, such as, among others, gastroenteritis, constipation, peptic ulcer disease, small bowel obstruction, inflammatory bowel disease (Crohn's disease or ulcerative colitis), pancreatitis, ectopic pregnancy, ruptured ovarian cyst, ovarian torsion, renal colic, pyelonephritis, and (rarely) such disorders as sickle cell crisis, pneumonia, diabetic ketoacidosis, and porphyria.

2. Unruptured appendicitis is associated with a fetal loss rate of 3–5%, with little effect on maternal mortality. By contrast, the fetal loss rate in the setting of ruptured appendicitis is 20–25%. Preterm labor and birth can also occur, especially if there is peritonitis, but this is rare.

1. Abdominal ultrasonography is recommended in pregnant patients suspected of having appendicitis, although visualization of the appendix may be difficult, especially if the woman is obese and the uterus is large.
2. If ultrasonography suggests appendicitis, surgery is indicated. If clinical findings and ultrasound are inconclusive, magnetic resonance imaging (MRI) should be considered, where available, because it avoids fetal exposure to ionizing radiation and performs well in the diagnosis of lower abdominal/pelvic disorders.
3. The routine incorporation of MRI into the evaluation of patients with suspected appendicitis has reduced the negative laparotomy rate by half without a significant change in the perforation rate. If MRI suggests appendicitis, surgery is indicated. Computed tomography (CT) imaging can be used when MRI is not available, given its proven value in nonpregnant individuals.

1. The decision to proceed to surgery should be based on the clinical findings, diagnostic imaging results, and clinical judgment. Laboratory tests are not particularly useful other than to rule in an alternative diagnosis. Delaying intervention for more than 24 hours increases the risk of perforation.
2. When the diagnosis is relatively certain, appendectomy can be performed through a muscle-splitting incision over the point of maximal tenderness. However, when the diagnosis is less certain or if there is a chance that a cesarean delivery may need to be performed (e.g., in the setting of early labor), it may be more prudent to approach the appendix through a lower midline vertical or paramedian incision. Laparoscopic appendectomy may be performed safely in pregnant patients and is considered by many to be the standard of care in the first half of pregnancy.

3. Acute cholecystitis is the second most common condition necessitating surgery in pregnancy, occurring in 1 in 1,600–10,000 pregnancies. Symptoms include nausea, vomiting, and colicky upper abdominal pain that radiates around to the back. Cholecystectomy is performed in 0.01–0.08% of pregnancies. Cholelithiasis is the main cause of cholecystitis in pregnancy, accounting for >90% of cases.

1. Acute cholecystitis is the second most common condition necessitating surgery in pregnancy, occurring in 1 in 1,600–10,000 pregnancies. Symptoms include nausea, vomiting, and colicky upper abdominal pain that radiates around to the back. Cholecystectomy is performed in 0.01–0.08% of pregnancies. Cholelithiasis is the main cause of cholecystitis in pregnancy, accounting for >90% of cases.
2. Ultrasound remains the best initial modality to evaluate the liver and biliary system. Cholelithiasis with either positive sonographic Murphy sign or gallbladder wall thickening (>3 mm) is highly predictive of cholecystitis. Secondary findings such as pericholecystic fluid and wall hyperemia may also be helpful. However, common bile duct stones will often be missed on ultrasound. MR cholangiopancreatography (MRCP) can be used as a second-line imaging modality.
3. Surgical intervention is indicated for obstructive jaundice, acute cholecystitis unresponsive to medical management, gallstone pancreatitis, or suspected peritonitis. The initial management of symptomatic cholelithiasis includes bowel rest, intravenous hydration, narcotics, and antibiotics where appropriate. Morphine should be avoided because it can exacerbate biliary colic. Relapse of biliary colic is common.