Chapter 2
Approach to Acute Abdominal Pain in Pregnancy and Postpartum Period

What are the mostly encountered reasons of abdominal pain in the first trimester of pregnancy?

- Ectopic pregnancy.
- Pain due to round ligament tension is usually observed in the right lower quadrant.
- Abortion.

What are the life-threatening reasons of abdominal pain in the second half of pregnancy?

- Ablatio placenta
- Pregnancy-related liver diseases (severe preeclampsia, HELLP, acute fatty liver of pregnancy, pain due to stretching of Glisson's capsule)
- Uterine rupture

What causes abdominal pain in the second half of pregnancy?

- Labour pain (preterm labour)
- Intra-amniotic infection
- Pain in the upper quadrant of the abdomen due to fetal head, secondary to breech presentation

What are the rare reasons of abdominal pain in the second half of pregnancy?

- Uterine incarceration (second trimester)

What are the causes of abdominal pain that may occur frequently in every trimester of pregnancy?

- Degeneration of a leiomyoma, torsion of a pedunculated fibroid
- Ovarian cyst rupture, bleeding
- Constipation

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What are the rare causes of abdominal pain that may occur in every trimester of pregnancy?

- Ovarian torsion, torsion of adnexal structures: It is more common in pregnancy than in non-pregnant women.
- Uterine torsion.
- Pelvic inflammatory disease.

What are the life-threatening causes of upper abdominal pain during pregnancy?

- Intestinal obstruction (adhesion, volvulus, intussusception, hernia): crampy abdominal pain, vomiting, obstipation
- Perforated ulcer
- Visceral artery aneurysm
- Hepatic rupture

What are the common causes of upper abdominal pain during pregnancy?

- Gastroesophageal reflux
- Diseases related to gall bladder: stone, acute cholecystitis
- Pneumonia

What are the rare causes of upper abdominal pain during pregnancy?

- Acute hepatitis
- Pancreatic diseases
- Rectus sheath hematoma
- Adrenal hemorrhage
- Hiatal hernia
- Spleen-related disorders

What are the causes of right upper quadrant pain during pregnancy?

- Cholelithiasis, which is present in 12% of pregnant women; also other causes are HELLP (hemolysis, elevated liver enzymes, and low platelets) syndrome, fatty liver of pregnancy, and Budd–Chiari syndrome, acute hepatitis, pancreatitis, primary sclerosing cholangitis, and appendicitis (since the cecum is progressively displaced cranially by the gravid uterus).

What are the frequent causes of abdominal pain in the lower quadrant during pregnancy?

- Acute appendicitis: Appendicitis affects about 1 in 1500 pregnant women. It is the most common cause of abdominal pain due to non-obstetric reasons and also the most common surgery performed during pregnancy. Particular attention should be paid to the second trimester. In addition, microscopic hematuria and pyuria in one third of appendicitis patients may also be related to ureteral irritation.
- Nephrolithiasis.

What are the rare causes of abdominal pain in the lower quadrant during pregnancy?

- Inflammatory bowel disease (IBD)
- Diverticulitis (Meckel's diverticulum, rarely seen)

What are the life-threatening causes of abdominal pain in more than one quadrant during pregnancy?
- Trauma
- Spontaneous hemoperitoneum
- Aneurysm (arterial; splenic, renal, uterine, ovarian, aorta)
- Mesenteric venous thrombus

What are the common causes of widespread abdominal pain (in more than one quadrant)?
- Gastroenteritis
- Sickle cell crisis
- Hereditary angioedema
- Familial Mediterranean fever (FMF)

What are the other rare causes of widespread abdominal pain (in more than one quadrant)?
- Iliopsoas abscess
- Superficial nerve entrapment
- Abdominal wall hernias

What tests would you order from pregnant women with abdominal pain?
- Complete blood count (CBC)
- Urine analysis
- Liver, pancreatic, and renal function tests (aminotransferases, bilirubin, amylase, lipase, BUN, creatinine, electrolytes)

Which imaging methods do you prefer in a pregnant woman with abdominal pain?
- First, ultrasound (US) (abdomen, pelvis)
- MRI (if no clear diagnosis is made in US) (gadolinium is not used, due to fetal effects)
- Laparoscopy: A diagnostic procedure that can be performed if the diagnosis cannot be made and the pain does not relieve.

What are the causes of acute abdominal pain in the postpartum period?
- Necrotizing fascitis
- Abdominal compartment syndrome, bowel obstruction, adhesions secondary to previous surgery
- Group A streptococcal infection

What are the common causes of frequent acute abdominal pain in the postpartum period?
- Pain due to uterine involution, physiological
- Urinary retention
- Endometritis: fever, uterine tenderness, smelly vaginal discharge
- Incisional complications: seroma, hematoma, infection, dehiscence

What are the causes (rare causes) of other acute abdominal pain in the postpartum period?
- Ovarian and thrombophlebitis: usually occur 1 week after delivery; fever, general fatigue, and pain. Usually the right ovarian vein. Heparin is applied.

- Clostridioides difficile-induced diarrhea and colitis.
- Hemorrhage; intra-abdominal or retroperitoneal.
- Ogilvie's syndrome (acute colonic pseudo-obstruction): postop ileus, massif dilatation of the column without mechanical obstruction.
- Liver diseases secondary to pregnancy.
- Separation of the symphysis pubis: pain encountered after the delivery of the baby. When pressure is applied to the bilateral trochanter, the pain increases and the patient describes the location of the pain as pelvic bone.
- Foreign body, gauze.
- Pain secondary to organ injuries not recognized in operation, intestinal.
- Intraabdominal, pelvic abscess.

What are the factors that make acute abdomen more challenging during pregnancy?
- Nonspecific leukocytosis
- Displacement of abdominal and pelvic structures from their normal locations by the gravid uterus
- Difficult abdominal examination
- Nonspecific nausea and vomiting

In which trimester the non-perforated acute appendicitis incidence is highest?
- Second trimester of the pregnancy

In which trimester the perforated acute appendicitis incidence is highest?
- Third trimester of the pregnancy

What is the fetal loss rate in non-perforated acute appendicitis?
- 3–5%

What is the fetal loss rate in perforated acute appendicitis?
- 20–25%

What is the estimated negative acute appendicitis rate during pregnancy?
- About 35%

When is a concomitant cesarean section indicated at the time of appendectomy?
- The gestation is above 37 weeks and already a cesarean is anticipated.

What are the factors that increase gallstone formation during pregnancy?
- Elevated serum cholesterol and lipid levels.
- Decreased gallbladder motility and delayed emptying.
- Estrogen increases cholesterol secretion, progesterone reduces soluble bile acid secretion.

What is the treatment for acute cholecystitis during pregnancy?
- Traditionally, definitive surgery is usually deferred in uncomplicated cases.
- Preferred antibiotics include cephalosporin and clindamycin.
- However, some researchers are of the opinion that a conservative approach is associated with higher relapse rates in the range of 40–70%.

- In pregnant women with biliary tract disease, laparoscopic cholecystectomy was superior to nonoperative management during the first and second trimesters.

What is the treatment for complicated acute cholecystitis during pregnancy?
- In pregnant women with cholangitis or pancreatitis, endoscopic retrograde cholangiopancreatography (ERCP) can be safely performed with minimal risk of ionizing radiation exposure.
- Elective cholecystectomy can then be performed postpartum.

When should cholecystectomy be performed during pregnancy?
- Whereas once it was thought that the second trimester was the optimal time for cholecystectomy due to decreased spontaneous abortions and preterm labor, there is a growing evidence that suggests laparoscopy can be performed in all trimesters with equal safety.

What are the etiologies of acute pancreatitis in pregnant?
- Cholelithiasis.
- Congenital or acquired hypertriglyceridemia.
- Even though hypertriglyceridemia can occur in any trimester, pancreatitis commonly occurs in the third trimester.
- Pancreatitis can be associated with preeclampsia–eclampsia or hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome.

What is the management of acute pancreatitis during pregnancy?
- Conservative with adequate bowel rest, nasogastric aspiration, proper hydration, electrolyte correction, and analgesics.
- Meperidine is the analgesic of choice, and short-term administration is relatively safe in pregnancy.
- The role of antibiotics, radiological aspiration, parenteral nutrition, and surgical intervention should be considered in case of complications such as abscess, hemorrhage, necrosis, or sepsis.

What periods are associated with increased small bowel obstruction during pregnancy?
- 16th–20th week
- 36th week
- Immediate puerperium

What are the causes of small bowel obstruction during pregnancy?
- Adhesive obstruction occurs more commonly in advanced pregnancy. Reported rates are 6%, 28%, 45%, and 21% during the first, second, third trimesters, and puerperium, respectively.
- Volvulus (25%).
- Intussusceptions (5%).
- Hernia (3%).
- Carcinoma (1%).
- Idiopathic “ileus” (8%).

In which condition the risk of fetal irradiation is largely ignored?
- Small bowel obstruction. Abdominal X-ray can be done.

What is the treatment for small bowel obstruction during pregnancy?
- Bowel rest, intravenous hydration, and nasogastric aspiration with close monitoring.
- Urgent surgical intervention is mandatory in case of failure of conservative therapy as denoted by signs of impending bowel strangulation or symptoms of fetal distress.

Which incision is preferred for small bowel obstruction during pregnancy?
- Midline incision

What are the most common causes of intra-abdominal hemorrhage during pregnancy?
- Rupture of splenic artery aneurysm
- Rupture of the dilated high-pressure veins of the ovary and broad ligaments at the time of labor

What are the mortality rates of pregnant and fetus in artery rupture?
- 75% in pregnant women and is associated with a fetal mortality of 95%

What is the most common cause of non-obstetrical maternal death during pregnancy?
- Trauma

Which test should be done in fetal–maternal trauma?
- Kleihauer–Betke test should be performed to detect the presence of fetal red blood cells in the maternal circulation due to fetal–maternal hemorrhage

When does fetus become more vulnerable to trauma?
- Pregnancy ≥24 weeks, in whom a viable fetus is very vulnerable to injury because of its size and extra pelvic position.

What are the treatments of urolithiasis that are contraindicated during pregnancy?
- Extracorporeal lithotripsy and percutaneous nephrolithotomy

What consequences are determined in pregnancy after a pre-pregnancy of abdominal hernia repair?
- If the hernia is repaired by suture alone, it increases the risk of recurrence of symptoms during pregnancy.
- A hernia repair with mesh may restrict the flexibility of the abdominal wall, potentially causing pain during a subsequent pregnancy.

Which option is preferred for rectal cancer treatment during pregnancy?
- Generally, in the first 20 weeks (first half) of pregnancy, treatment delay can lead to disease progression and compromise the mother's life; therefore, pregnancy would be terminated and early cancer treatment should be started.
- In the second 20 weeks (second half) of pregnancy, surgery can be delayed for saving the fetus.

Suggested Reading

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