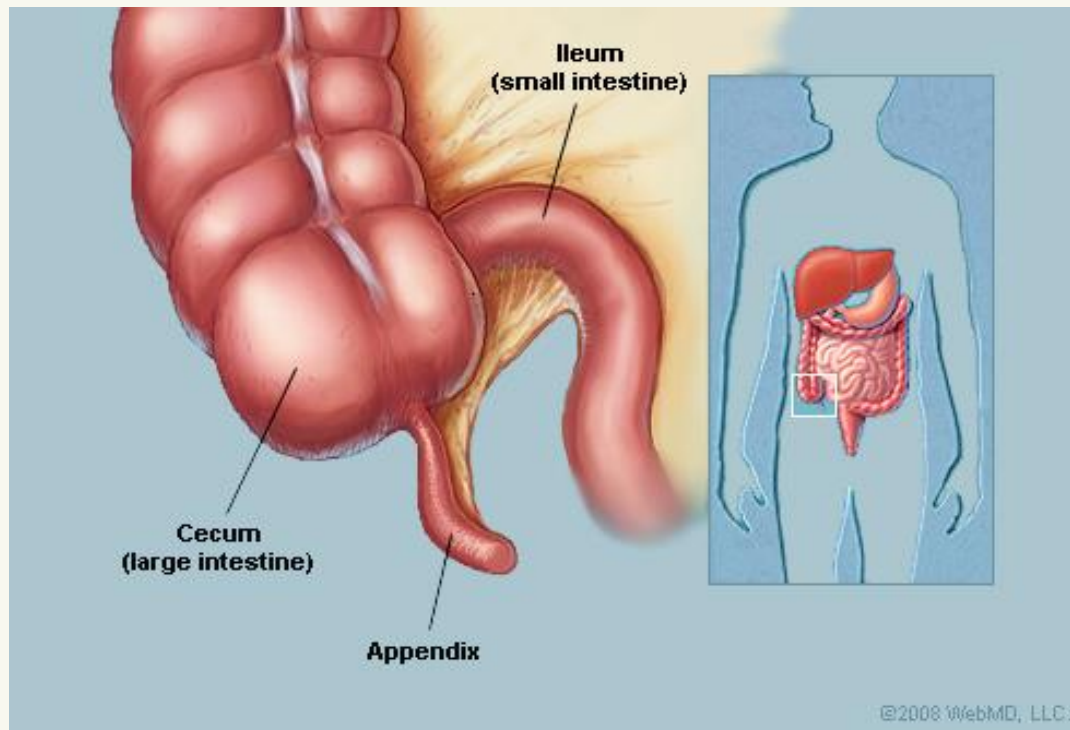


ACUTE APPENDICITIS

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Acute appendicitis is an inflammation of a vermiform appendix caused by purulent microflora.



*Approximately **7 percent** of the population will have appendicitis in their lifetime with the peak incidence occurring between the ages of **10 and 30** years.

****Despite technologic advances, the diagnosis of appendicitis is still based primarily on the **patient's history** and the **physical examination**.*

*The mortality rate in nonperforated appendicitis is less than 1 %, but it may be as high as 5 % or more in child and elderly patients, in whom diagnosis may often be delayed, thus making perforation more likely.

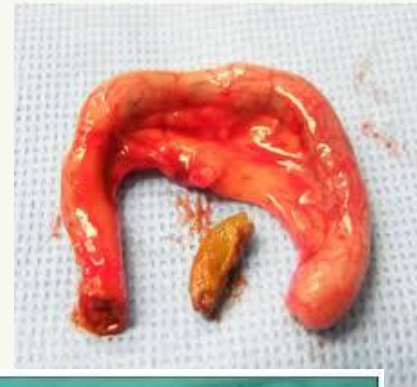
*Prompt diagnosis and surgical referral may reduce the risk of perforation and prevent complications.

Etiology and pathogenesis

Obstruction of the narrow appendiceal lumen initiates the clinical illness of acute appendicitis.

Obstruction has multiple causes, including **lymphoid hyperplasia** (related to viral illnesses, including upper respiratory infection, mononucleosis, gastroenteritis), **fecaliths**, parasites, foreign bodies, Crohn's disease, primary or metastatic cancer and carcinoid syndrome.

Lymphoid hyperplasia is more common in children and young adults, accounting for the increased incidence of appendicitis in these age groups.



Symptoms

Usually, lost of appetite is the first symptom.

1. Pain localized in a right iliac area.

In 70 % of patients the pain arises in a **epigastric area/periumbilical area** – it is an epigastric phase of acute appendicitis.

In 2-4 hours it migrates to the area of appendix (the Kocher's sign).

2. Single nausea and vomiting.

3. Fever to 37.5-38⁰C.(subfebril)

4. Retention of stool or single diarrhea.

5. Muscular tension in a right iliac area.

Rovsing's sign - pain in right lower quadrant during palpation of left lower quadrant

Dunphy's sign-increased pain **with coughing**

Symptoms of phlegmonous appendicitis

1. Expressed pain in a right iliac area.
2. Fever to 38-39⁰C.
3. Muscular rigidity in a right iliac area.
4. Peritoneal signs

Blumberg's sign (=rebound tenderness) After gradual pressing by fingers of anterior abdominal wall quick taking off the hand causes the sharp increase of pain.

Voskresenky's sign. The increase of pain during quick sliding movements by the tips of fingers from epigastric to right iliac area.

Rozdolsky's sign. Painfulness in a right iliac area during percussion.

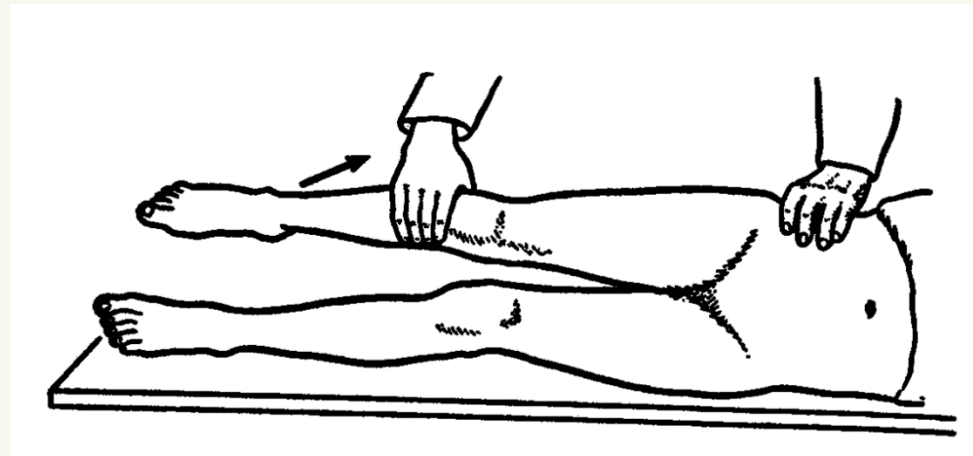
Symptoms of gangrenous appendicitis

1. Pain in a right iliac area.
2. Grave condition of the patient.
3. Signs of local peritonitis.
4. Signs of intoxication

Symptoms of retrocaecal appendicitis

1. Non-expressive abdominal clinic.
2. Expressed pain in a right lumbar area.
3. Pain and muscular rigidity in a right iliac area during palpation.

Psoas sign –
pain on extension of right thigh



CLINICAL FEATURES

OBTURATOR'S SIGN



The obturator sign. Pain on passive internal rotation of the flexed thigh. Examiner moves lower leg laterally while applying resistance to the lateral side of the knee (asterisk) resulting in internal rotation of the femur..

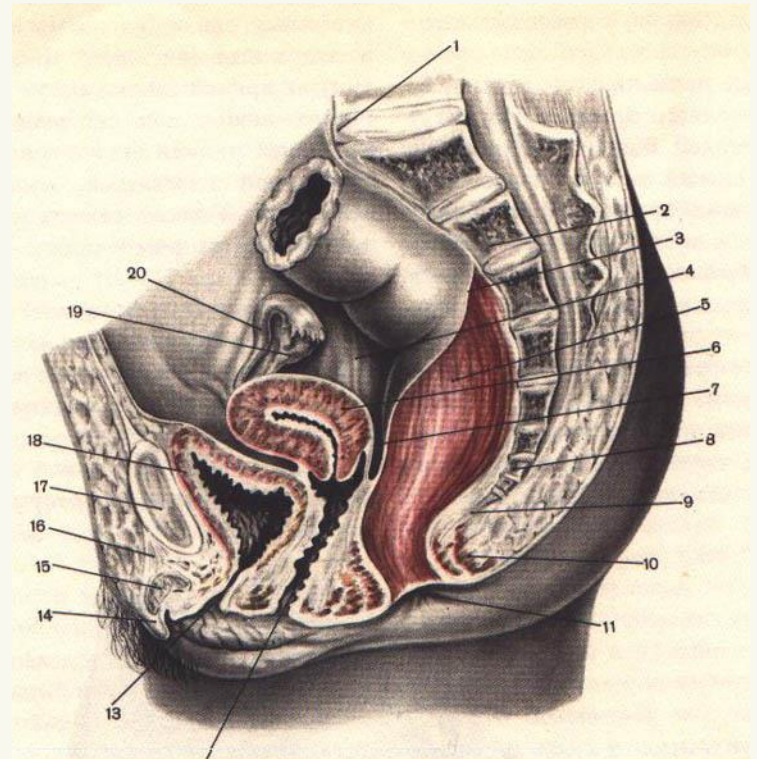


Symptoms of retrocaecal retroperitoneal appendicitis

1. Clinic of retroperitoneal phlegmon.
2. The signs of retrocaecal appendicitis.
3. Flank tenderness in right lower quadrant.

Symptoms of pelvic appendicitis

1. Clinic of irritation of pelvic organs (**dysuria, pulling rectal pain, tenesmi**).
2. Absence of muscular tenderness.
3. Painfulness of anterior rectal wall and posterior vaginal vault.



Symptoms of left-side appendicitis

All the appendicular signs locate on the left iliac region

Situs inversus (also called situs transversus or oppositus) is a congenital condition in which the major visceral organs are reversed or mirrored from their normal positions. The normal arrangement is known as situs solitus.

Situs inversus is present in ca. 0.01% of the population, or a 1 in 10,000 chance.

Clinic of appendicitis during pregnancy

*Enlarged uterus bends the appendix and disturbs its blood flow resulting in appendicitis.

*In the first half of pregnancy the clinic of appendicitis usually without peculiarities.

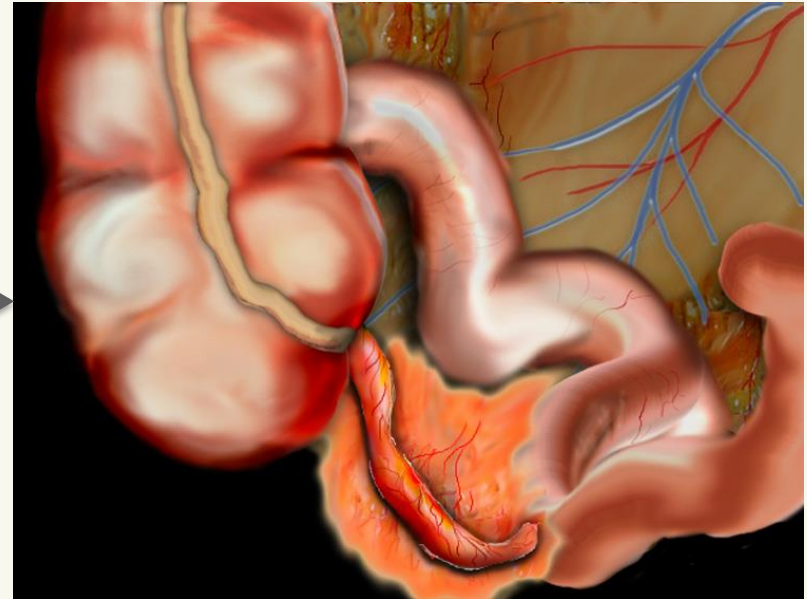
*In the second half of pregnancy, the enlarged uterus displaces the caecum together with the appendix upwards, and overdistension of abdominal wall does not create adequate tension.

*It is necessary also to remember, that pregnant women periodically can have a moderate pain in the abdomen and changes in the blood test.

Nevertheless, **psoas-sign has a diagnostic value.

Complications

1. Appendicular infiltrate.
2. Appendicular abscess.
3. Plastron appendicitis →
3. Diffuse peritonitis.
4. Pylephlebitis



Diagnosis

1. Anamnesis.
2. Objective examination.
3. General blood and urine analyses.
4. Vaginal examination for women.
5. Rectal examination for men.

Differential diagnostics

Gastrointestinal

- Cholecystitis
- Crohn's disease
- Duodenal ulcer
- Gastroenteritis
- Intestinal obstruction
- Meckel's diverticulitis
- Mesenteric lymphadenitis
- Necrotizing enterocolitis
- Neoplasm (carcinoid, carcinoma, lymphoma)

Gynecologic

- Ectopic pregnancy
- Endometriosis
- Ovarian torsion
- Pelvic inflammatory disease
- Ruptured ovarian cyst
- Tubo-ovarian abscess

Differential diagnostics

Systemic

- Diabetic ketoacidosis
- Henoch-Schonlein purpura
- FMF

Pulmonary

- Pleuritis
- Pneumonia (basilar)
- Pulmonary infarction

Genitourinary

- Kidney stone
- Pyelonephritis
- Wilms' tumor

Other

- Parasitic infection
- Psoas abscess
- Rectus sheath hematoma

Differential diagnostics of acute appendicitis with perforative peptic ulcer

- Pain in the right iliac region
- Muscular tenderness in the right iliac region
- Single vomiting and diarrhea
- Sharp acute diffuse pain
- Ulcerative anamnesis
- Absence of hepatic dullness
- On X-ray of the abdomen air above the liver (air sickle)
- Rigidity of anterior abdominal wall

Differential diagnostics of acute appendicitis with intestinal obstruction

- Constant pain in the right iliac region
- Muscular tenderness in the right iliac region
- Single vomiting and diarrhea
- Periodic acute diffuse pain
- Constant vomiting and nausea without any relief
- Retention of stool and gases
- Abdominal distension
- On X-ray of the abdomen Kloiber's cups (air-fluid levels)
- Splashing sound, increased peristalsis

Differential diagnostics of acute appendicitis with acute cholecystitis

- Constant pain in the right iliac region
- Muscular tenderness in the right iliac region
- Single vomiting and diarrhea
- Acute pain in a right hypochondrium with irradiation to the scapula
- Muscular tenderness in a right hypochondrium
- Vomiting by bile and nausea without any relief
- Ortner's symptom, phrenic symptom, Murphy's sign
- Increased serum bilirubin

Differential diagnostics of acute appendicitis with gynecologic disorders

- Constant pain in the right iliac region
- Muscular tenderness in the right iliac region
- Single vomiting and diarrhea
- Acute pain in a lower part of the abdomen
- Dependence on menstrual cycle
- Vaginal discharge
- Blood by puncture of vaginal vault
- Bimanual vaginal investigation

Differential diagnostics of acute appendicitis with renal colic

- Constant pain in the right iliac region
- Muscular tenderness in the right iliac region
- Single vomiting and diarrhea
- Periodic acute pain in the lumbar region with irradiation to thigh
- Vomiting and nausea
- Pasternatsky's sign
- Fresh erythrocytes in urine analysis

Treatment of Acute Appendicitis

Appendectomy---*SURGERY*

Laparoscopic or Open Appendectomy

**Plastron appendicitis— delayed
appendectomy (6 weeks later)



****Periappendicular abscess----
percutaneous drainage+ delayed
appendectomy (6 weeks later)**

