


APPENDICITIS

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Acute appendicitis –

is an inflammation of vermiform appendix
caused by festering microflora.

Acute appendicitis is the most common
cause of intraabdominal infection in
developed countries and appendicectomy
is the most common emergency surgical
operation

Several thin, parallel white lines of varying lengths and orientations are positioned in the bottom right corner of the slide, creating a modern, abstract graphic element.

Most frequent causes of **acute appendicitis** are festering microbes:

- Intestinal stick
- Streptococcus
- Staphylococcus

Moreover, microflora can be present in the cavity of appendix or range by hematogenic route

For women – by lymphogenic one

ETIOLOGY AND PATHOGENESIS

Factors, witch promote the origin of appendicitis

Change of reactivity of organism

Constipation and atony of intestine

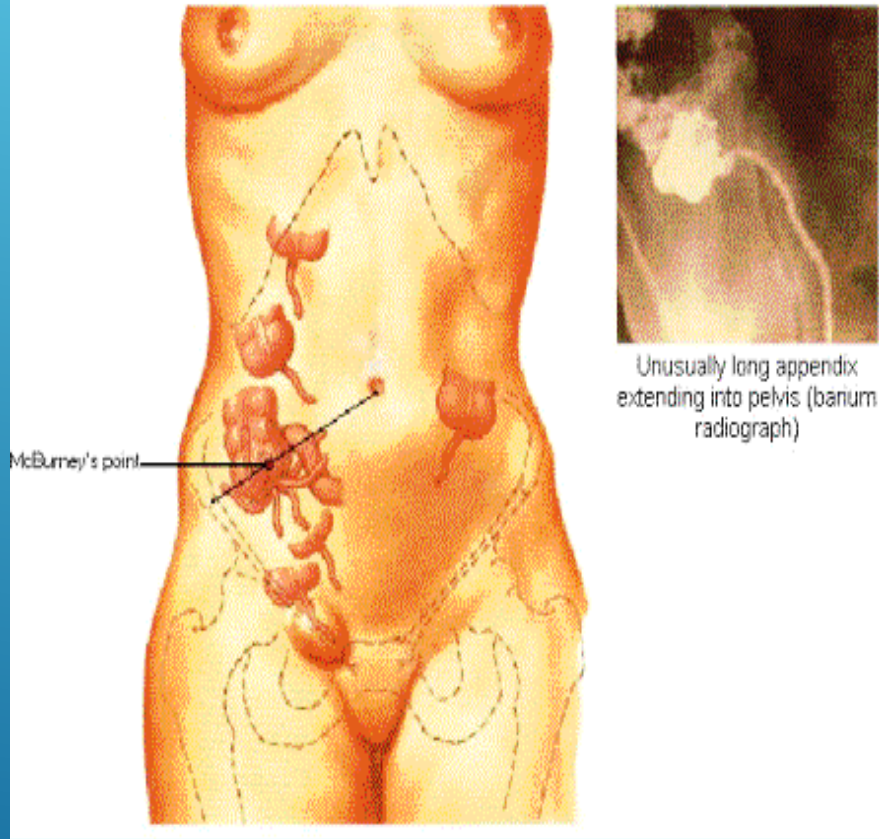
Twisting or bends of appendix

Excrement stone in its cavity

Thrombosis of vessels of appendix and gangrene of the wall as a part of inflammatory process

ETIOLOGY AND PATHOGENESIS

Vermiform Appendix Variations in Position



- ▶ Classic in a right iliac area
- ▶ Retrocecal and retroperitoneal
- ▶ Pelvic location
- ▶ Medially location
- ▶ Subhepatic location
- ▶ Left-side location

Variants of location of the appendix



PATHOMORPHOLOGY

- ▶ Simple (superficial) and destructive (phlegmonous, gangrenous) appendicitis which are morphological stages of acute inflammation that is completed by necrosis and can be distinguished
- ▶ In simple appendicitis the changes are observed, mainly, in the distal part of appendix. There is stasis in capillaries and venules, edema and hemorrhage
- ▶ In gangrenous appendicitis the appendix is thickened, its serous thinning tunic is covered by dimmed fibrinogen, differentiating of the layer structure through destruction is not succeeded

PATHOMORPHOLOGY

- ▶ **Appendiceal colic**
- ▶ **Simple superficial appendicitis**
- ▶ **Destructive appendicitis:**
 - phlegmonous gangrenous perforated
- ▶ **Complicated appendicitis:**
 - appendiceal infiltrate, appendiceal abscess, peritonitis
- ▶ **Other complications:**
 - pylephlebitis, sepsis, retroperitoneal phlegmon, local abscesses

CLASSIFICATION (BY V. KOLESNIKOV)

- ▶ The disease begins with a sudden pain in the abdomen. It is localized in a right iliac area, has moderate intensity, permanent character and does not irradiate.
- ▶ In 70% of patients the pain arises in a epigastric area – it is an epigastric phase of acute appendicitis. In 2-4 hours it shifts to the area of appendix (the *Kocher's symptom*)

SYMPTOMS AND CLINICAL STAGING

- ▶ During the examination it is possible to mark, that the right half of stomach retracts during breathing, and the patient wants to lie down on the right side with legs falled.
- ▶ Tenderness pain is the basic and decisive signs of acute appendicitis during the examination by palpation in the right iliac area, tension of muscle of abdominal wall, positive symptoms of peritoneal irritation.
- ▶ About 100 pain symptoms characteristic of acute appendicitis are known, however only some of them have the real practical value.

SYMPTOMS AND CLINICAL STAGING

Blumberg's sign

- ▶ after gradual pressing by fingers on a anterior abdominal wall from the place of pain quickly, but not acutely, the hand is taken away.

Strengthening of pain is considered as a positive symptom in that place. Obligatory here is tension of muscles of anterior abdominal wall.

SYMPTOMS AND CLINICAL STAGING

Voskresenky's sign

- ▶ By a left hand the shirt of patient is drawn downward and fixed on pubis. By the taps of 2-4 fingers of right hand epigastric area is pressed and during exhalation of patient quickly and evenly the hand slides in the direction of right iliac area, without taking the hand away. Thus there is an acute increase of pain.

SYMPTOMS AND CLINICAL STAGING

Bartomier's sign

Is the increase of pain intensity during the palpation in right iliac area of patient in position on the left side.

In such position the omentum and loops of thin intestine is displaced to the left, and the appendix becomes accessible for the palpation sense the pain.

SYMPTOMS AND CLINICAL STAGING

Sitkovsky's sign

A patient, that lies on left, feels the pain which arises or increases in a right iliac area.

The mechanism of intensification of pain is explained by displacement of cecum to the left, by drawing of mesentery of the inflamed appendix.

SYMPTOMS AND CLINICAL STAGING

Rovsing's sign

By a left hand a sigmoid bowel is pressed to the back wall of stomach. By a right hand by ballotting palpation a descending bowel is pressed.

Appearance of pain in a right iliac area is considered as a sign characteristic of appendicitis.

SYMPTOMS AND CLINICAL STAGING

Obraxcov's sign

With the position of patient on the back by index and middle fingers the right iliac area of most painful place is pressed and the patient is asked to heave up the straightened right leg. At appendicitis pain increases acutely.

SYMPTOMS AND CLINICAL STAGING

Rozdolsky's sign

At percussion there is painfulness in a right iliac area

SYMPTOMS AND CLINICAL STAGING

- ▶ **Anamnesis**
- ▶ **Information of objective examination**
- ▶ **General analysis of blood and urine**
- ▶ **Vaginal examination for women or rectal examination for men**

The general analysis of blood does not carry specific information, which would specify the presence of acute appendicitis. Much leukocytosis and change of formula to the in most cases can point to the present inflammatory process.

investigations

Acute appendicitis in children

In infants acute appendicitis can be seen infrequently, but, quite often carries atypical character. All this is characterized, mainly, by the features of anatomy of appendix, insufficient of plastic properties of the peritoneum, short omentum and high reactivity of child's organism.

CLINICAL VARIANTS

Acute appendicitis in children

The inflammatory process in the appendix of children rapidly progresses in the first half of the day, there can be destruction, even perforation.

The child, more frequently than an adult, suffer from vomiting.

Already the positive symptoms of irritation of peritoneum can show up during the first hours of a disease.

In the blood test there is high leukocytosis.

CLINICAL VARIANTS

Acute appendicitis in people of declining and old ages

are not seen with often, as in persons of middle ages and youth. This group of patients is hospitalized rather late usually than: in 2-3 days from the beginning of the disease

The intensity of pain in such patients is small. They almost don't pay attention to the epigastric phase of appendicitis

Frequently nausea and vomiting is present and the temperature reaction is expressed poorly

CLINICAL VARIANTS

Acute appendicitis in people of declining and old ages

Frequently nausea and vomiting is present and the temperature reaction is expressed poorly.

Tension of muscles of abdominal wall is absent or is insignificant due to old-age relaxation of muscles

The symptoms of irritation of peritoneum keep the diagnostic value in this group of patients

CLINICAL VARIANTS

Acute appendicitis in pregnant women

both the bend of appendix and violation of its blood flow are causes of the origin of appendicitis. Increase in size uterus causes such changes

The growing uterus displaces the cecum together with the appendix upwards and an overdistension abdominal wall does not create adequate tension

CLINICAL VARIANTS

Acute appendicitis in pregnant women

to remember:

the pregnant women periodically can have a moderate pain in the abdomen and changes in the blood test

CLINICAL VARIANTS

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Appendiceal infiltrate

is the conglomerate of organs and tissue not densely accrete round the inflamed appendix

- It develops on 3-5-th day from the beginning of disease. Infiltrate is dense, not mobile, painful, with unclear contours, mass is palpated in the right iliac area
- Two months after resorption of infiltrate appendectomy is conducted.

The complications of acute appendicitis

Appendiceal abscess

the symptoms of acute appendicitis become more expressed

the temperature of body, rises, the fever appears

tender mass is palpable in the right iliac region

blood test shows leukocytosis

The complications of acute appendicitis

- ▶ **Peritonitis** develops as a result of the timely unoperated appendicitis (diagnosis of this pathology does not cause difficulties)
- ▶ **Pylephlebitis** is a complication of both appendicitis and post appendectomy period (There's thrombophlebitis of veins of appendix, which passes to the veins of bowel mesentery and then to the portal vein)

The complications of acute appendicitis

Acute appendicitis is differentiated from next diseases:

Acute food poisoning

Acute pancreatitis

Perforative peptic and duodenum ulcer

The apoplexy of ovary ore extra-uterine pregnancy

Acute cholecystitis

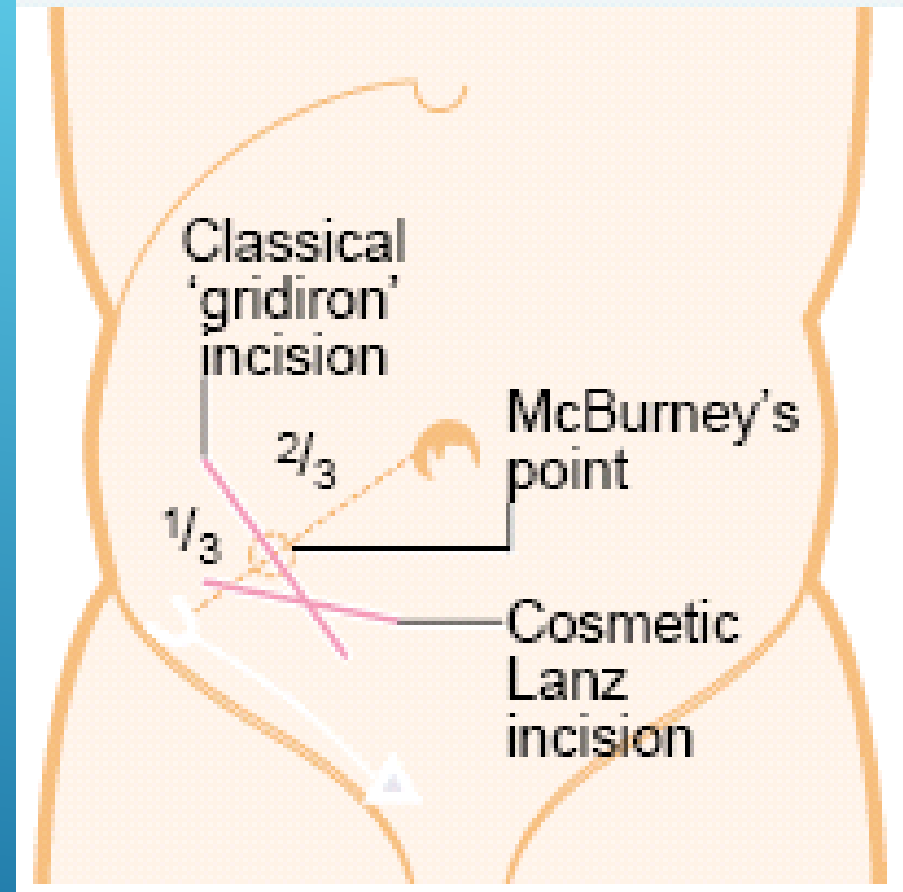
Acute right-side renal colic

Differential diagnosis

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1. Appendectomy by antegrade or retrograde methods
2. Appendectomy by laparoscopic method

1 The skin incision



Treatment of acute appendicitis



Thank you

***Associate professor
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