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МЕТОДИЧНІ РЕКОМЕНДАЦІЇ
ДЛЯ СТУДЕНТІВ
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Тема заняття	Основні симптоми гастроентерологічної патології. Методи дослідження в гастроентерології
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KHARKOV NATIONAL MEDICAL UNIVERSITY
DEPARTMENT OF INTERNAL MEDICINE N3

METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS

«Common symptoms of gastrointestinal pathology. Methods of investigation in gastroenterology»

Kharkiv 2014

Content module №2. Basic concepts of diagnostics, treatment and prevention of the main diseases of the digestive system.
Practical class №10. Basic symptoms of gastrointestinal pathologies. Research methods in gastroenterology

Relevance

Organs of digestion constitute integrated system which performs an important role in the body metabolism. Their basic function, that is, a set of processes which provide mechanical and chemical processing of food, its transformation to components which do not have any specificity and are suitable for absorption and participation in the body metabolism. Complexity of clinical symptoms interpretation in the majority of patients with diseases of gastrointestinal tract suggests that there is a need in studying and acquiring skills in acquisition of patients' complaints, case histories, skills in carrying out physical examination of sick, in mastering current methods of research, including instrumental investigation. Correct interpretation of the received data allows to administer symptomatic therapy in the right way.

The educational purposes:

- To learn students to distinguish the basic symptoms and syndromes in diseases of organs of digestion;
- To teach students physical examination methods;
- To teach students methods of research in diagnosis of gastrointestinal diseases; indications and contra-indications for their employment; techniques of their employment; diagnostic value of each of them;
- To teach students to interpret the examination results independently;
- To teach students to administer symptomatic treatment in gastrointestinal diseases.

What should the student know?

- The basic clinical syndromes in gastrointestinal diseases;
- The general and alarm symptoms in gastrointestinal diseases;
- Physical symptoms in gastrointestinal pathologies;
- Methods of physical examination of patients with gastrointestinal pathology;
- Diagnostics of H.pylori infection and other infectious factors;
- Biochemical and immunoenzyme research methods;
- Diagnosis by esophagogastroduodenoscopy, colonoscopy, biopsy, indications, contra-indications;
- Methods of intragastric and intraesophageal pH-measurement, duodenal probing and clinical estimation of results;
- Radiological and isotope methods in diagnosis of diseases of the digestive tract and liver;
- Ultrasonic research of abdominal cavity organs;
- Symptomatic treatment in gastrointestinal diseases.

What should the student be able to do?

- To differentiate clinical and physical syndromes in gastrointestinal diseases;
- To interpret results of biochemical and immunoenzyme investigation;
- To interpret the data of esophagogastroduodenoscopy, colonoscopy, rectoromanoscopy and

biopsy;
- To interpret the data intragastric and intraesophageal pH measurement. duodenal probing;

- To interpret the data of radiological and isotope methods of diagnosis in diseases of the digestive tract and liver;
- To interpret the data of ultrasonic investigation of the organs of the abdominal cavity;
- To administer symptomatic treatment to patients with gastrointestinal diseases.

The list of practical skills which the student should acquire
- Examination of the belly;
- Visual examination of the belly;
- Superficial palpation of the belly;
- Deep methodical sliding palpation of the organs of the abdominal cavity according to Obraztsov-Strazhesko method:
- Determination of the signs of ascites,
- Palpation, percussion of the liver;
- Palpation, percussion of the spleen;
- Irritation symptom of the abdomen;
- Inspection of skin and mucous membranes

The basic gastrointestinal syndromes.
Appetite disturbances:
- Bulimia: increase in appetite;
- Anorexia: decrease in appetite up to full absence;
- Distortion: attraction or disgust for certain products;

Pain in the stomach:
- Localization,
- Factors of occurrence,
- Character,
- Irradiation,
- Factors of strengthening and easing of a pain.
- Association of the pain with other manifestation of gastrointestinal diseases;

Disorders of motor function of gastrointestinal organs
Syndromes of motor function disorders of the esophagus.
Dysphagia - complication of passage of a food lump through the esophagus;
Regurgitation – reflux of a lump of food to the oral cavity or the nasopharynx;
Heartburn - burning retrosternal discomfort which occurs in motor function disorders of the inferior esophagus and its lower sphincter;
Syndromes of motor function disorders of the stomach:
- Acceleration or delay in stomach emptying;
- Gastric dyspepsia;
- Gastrostasis , vomiting;
- Nausea,

Syndromes of motor function disorder of the small intestine - diarrhea
Syndromes of motor function disorder of the large intestine - constipation
Syndromes of motor functions disorder (dyskinesia) of the gallbladder and bile passage
Syndrome of digestion and absorbtion disorders (maldigestion and malabsorption)

- Disorder of intracavitary digestion of fibers and fats;
- Disorder of absorption of vitamin B12 and ionized iron;
- Secondary disturbances of absorption of liposoluble vitamins and water-soluble vitamins and electrolytes;
- Disorder of parietal digestion of carbohydrates;
- Disturbances of endocellular transport of the basic types of food substances;
- Disorder of lymph outflow from lymphatic collectors of the small intestine;

Clinical manifestation of maldigestion and malabsorption (diarrhea, flatulency, decrease in body weight, anaemia, polyvitaminic deficiency, electrolyte disorders)
Symptoms and syndromes of liver disorder:

- Hepatomegaly (enlargement of the liver);
- Banti syndrome (enlargement of the liver and spleen);
- Jaundice – yellow color of mucous membranes and sclerae, caused by disbalance in formation and secretion of bilirubin;
- Portal hypertension - pressure increase in portal veins;
- Ascites - liquid accumulation in abdominal cavity;
- Hepatic deficiency - disorder of the basic functions of the liver;

Alarm symptoms also include the so-called «acute abdomen». The term «acute abdomen» denotes clinical complex of symptoms which develop in disorders damage and acute diseases of abdominal cavity.
Recognition of a dangerous situation is the task of primary diagnosis which is usually carried out outside hospital (houses or in a polyclinic).
It is necessary to remember that *„acute abdomen*" is not diagnosis, but it presents indications for urgent hospitalization.
The pains in the stomach are caused by:

<u>RIGHT hypochondrium</u>
I. *Lungs and thorax:* 1 .Right lower lobe pneumonia
> Fractures of the right lower ribs
> Embolism of the pulmonary artery and pulmonary infarction
II. *Liver.* 1. Acute hepatitis (of any etiology)
2. Hepatomegaly (of any etiology)
3. Sequestral crisis with blood accumulation in the liver (sickle cell anaemia)
4. Liver tumours (benign and malignant)
5. Liver abscess
6. Liver trauma
III. Biliary passage: 1. Acute cholecystitis and biliary colic
1. Chronic cholecystitis
2. Dyskinesia of biliary passage
3. Calculous pancreatitis
IV.Stomach:
1. Exacerbation of gastric ulcer disease
2. Gastritis
3. Acute enlargement of the stomach
4. Perforated gastric ulcer
V. *Duodenum:*
1. Exacerbation of duodenal ulcer disease

2. Perforated duodenal ulcer
VI. Pancreas: 1. Acute pancreatitis (pain in the right and in the left hypochondrium)
2. Head of pancreas cancer
VII. *Kidneys:* 1. Pyelonephritis (morbidity in costospinal angle)
2. Renal colic
VIII. Heart: 1. Angina pectoris and a myocardial infarction 2. Pericarditis
IX. *Intestine*: 1. retrocecal appendicitis
X. *Other reasons:*
1. Herpes zoster
2. Subphrenic abscess

Epigastric AREA

I. *Heart*: 1. Angina pectoris and a myocardial infarction 2. Pericarditis
II. *Esophagus, stomach and intestine.*
1. esophagitis
A gastritis
A Gastric and duodenal ulcer disease
A Hernia of esophageal apertures of the diaphragm and
its complications
Esophageal perforation
Esophageal achalasia
III. Pancreas: 1. Acute pancreatitis
2. Pancreas tumours
IV. *Other reasons.* 1. Fracture of the sternum. 2. Tietze's syndrome (costal chondritis)
LEFT hypochondrium

I. *Lungs and thorax*: 1 Left lower lobe pneumonia
2. Fractures of the left lower ribs
II. *Spleen:* 1 .splenomegaly (of any etiology)
2. Spleen trauma
3. Spleen abscess
4. Lienal aneurysm
III. Stomach: 1. Gastric tumours (benign and malignant)
1. Gastritis
2. Exacerbation of gastric ulcer disease
3. Perforated gastric ulcer
IV. Pancreas: 1. Acute pancreatitis (pain in the right and left hypochondrium)
2. Cancer of the pancreas tail
3. Pancreatic cyst
V. Kidneys: 1. Pyelonephritis
2. Renal colic
VI. *Heart:* 1. Angina pectoris and myocardial infarction
VII. *Intestine:* 1. Tumours of the colon in the area of the left curve

UMBILICAL AREA
I. Pancreas: 1. Pancreatitis
2. Pancreas tumours (benign and malignant)

II. *Intestine:* 1. Mechanical obstruction of intestine
2. Appendicitis (early stage)
3. Thrombosis and embolism of mesenterium vessels, intestinal infarction (early stage)
4. Strangulated inguinal hernia
5. Umbilical hernia
6. Abdominal exfoliative aneurysm of the aorta, rupture of aneurysm
7. Diverticulitis (of the small and large intestine)
8. Gastroenteritis
9. Volvulus of the greater omentum

III. *Other reasons:* 1. Uraemia and other disorders of metabolism
2. Leukosis
3. Painful crisis (sickle cell anaemia)

RIGHT iliac AREA

I. *Intestine:*

1. Acute appendicitis
2. Acute mesenteric adenitis
3. Strangulated inguinal hernia
4. Lateral ventral hernia
5. Ileitis (Crone disease)
6. Rupture of cecum (new growth, foreign body, diverticulitis)
7. Inflammation of Meckel diverticulum
8. Typhlitis (in neutropenia)
9. Diverticulitis of the sigmoid (in dolichosigmoid)
10. Perforated gastric or duodenal ulcer
11. Pelviorectal paraproctitis

II. Kidneys:

1. Pyelonephritis
2. Renal colic

III.Female reproductive organs:

1. Acute salpingitis, pyosalpinx, pyovar
2. Extra-uterine pregnancy
3. Twisting of ovarian cyst pedicle
4. Endometriosis
5. Ovarian pains

IV. *Vessels*: 1. Aneurysm of ileac artery

V. V. *Other reasons:* 1. The Psoas-abscess
2. Vaginal hematoma of the rectus abdominis

LEFT ileac AREA

Intestine:

1. Diverticulitis of the sigmoid colon
2. Rupture of the descending colon (new growths, foreign body)
3. Strangulated inguinal hernia
4. Lateral ventral hernia
5. Pelviorectal paraproctitis

I. *Female reproductive organs*:

1. Acute salpingitis, pyosalpinx, pyovar

2. Extra-uterine pregnancy
3. Twisting of the ovarian cyst pedicle
4. Endometriosis

II. Kidneys: 1. Pyelonephritis
2. Renal colic

III. Other reasons:

1. The Psoas-abscess
2. Rupture of the aneurysm of abdominal aorta
3. Vaginal hematoma of rectus abdominis
4. Volvulus of appendix apeploica
5. Aneurysm of ileac artery

Pain in the abdominal cavity can be caused by one of the three big nosological groups:

- Diseases of organs of the abdominal cavity (including acute diseases which require urgent surgical intervention, in fact, they are regarded as signs of "acute abdomen"*),*
- Irradiating pains in diseases, localized behind the abdominal cavity (the so-called pseudoabdominal syndrome - the PAS), complex of symptoms which includes the signs similar to the clinical picture *of "acute abdomen",* but it is formed by pathology of other organs, such as heart, lungs, pleura, endocrine organs, intoxications, some forms of poisonings, etc.);
- Systemic diseases

Given that this group of diseases includes the ones which require surgical treatment, the pain symptom will always be regarded as urgent, at least unless acute surgical pathology, i.e. *"acute abdomen"* is confirmed or excluded.

Differentiated diagnosis of pains in abdominal cavity should begin with history taking.

HISTORY TAKING

Casetaking should begin with finding-out the circumstances of pain occurrence:

> *Pain localization.*

Pain in the projection of the damaged organ is conditioned by irritation of parietal peritoneum (for example, in acute cholecystitis and appendicitis). Therefore first of all it is necessary to determine diseases of the organs, located in immediate proximity to the pain centre. Diseases of organs of retroperitoneum (kidneys, pancreas) are usually accompanied by pain in the back or in the flank but also quite often cause acute pain in the abdomen, confusing the doctor. Diseases of organs which do not contact with parietal peritoneum and also non-inflammatory diseases of abdominal organs (for example, the initial stage of mechanical obstruction of the small intestine) are accompanied by extended pain without certain localization. Diseases of the organs located in immediate proximity to each other often present such a similar clinical picture that it makes differentiated diagnosis difficult even for the skilled doctor.

B. *Pain irradiation.*

is an important diagnostic sign which supplements clinical picture. When organs of subdiaphragmatic space (spleen rupture, haemoperitoneum, abscess) are damaged, the pain irradiates to shoulder girdle and lateral surface of the neck on the side of the damage, as the diaphragm is innervated by IV cervical spinal nerve. In biliary colic the pain, as a rule, covers right hypochondrium and irradiates to the right shoulder and under the right shoulder blade. Pain in pancreatitis usually irradiates to the back, it it is frequent called belt-like. Pain in renal colic, as a rule, begins in the flank, irradiates to the groin along the ureter and is accompanied by accelerated and painful urination.

C. Pain character.

The pain in the abdomen can be constant or crump-like (colic).

1. Constant pain can increase and decrease but does not cease completely and does not occur in the form of attacks. Constant pain is typical in inflammatory and tumor diseases of internal organs. In many cases the pain in acute cholecystitis is equated with biliary colic. It is wrong as in acute cholecystitis the pain is constant and does not cease.

2. Crump-like pain usually occurs in obstruction of a hollow organ (intestinal obstruction, urolithic disease) or in increased pressure in the organ lumen due to other reasons (increased peristalsis after the treatment of paralytic intestinal obstruction, gastroenteritis). It is necessary to remember that some diseases begin with crump-like pains which then become constant (intestinal obstruction complicated by intestinal infarction).

D. Duration of pains.

Episodic short-term pains which are not accompanied by other clinical symptoms and changes of laboratory indices which rarely are a consequence of a serious disease. But, long-term constant or attacking pains practically always are a result of pathological process. In the majority of surgical diseases the pain lasts from several hours to several days. Pains which 1ast for months are certainly not unsafe. Emergency hospitalization is necessary only in case there was an acute deterioration of the condition against their background (a classical example is rupture of duodenal ulcer). If the patient presents complaints of pains in the abdomen, which last for years, it necessary to suspect simulation or mental frustration, to estimate social conditions of the patient's life.

E. Pain intensity.

As a rule, the graver surgical disease, the stronger the pain it is accompanied by. The pain which occurs when the contents of gastrointestinal tract gets into abdominal cavity, can be so strong that even the most patient persons have to consult a doctor. Practically all patients intuitively estimate the condition and intensity of the pain correctly. Therefore the complaints about painful sensations which again occur in the abdomen even in healthy persons, should never be ignored.

F. Pain occurrence.

In some surgical diseases (perforation of hollow organs, thromboembolism of arteries, torsion of organs which had good blood supply) acute pain in the abdomen occurs suddenly, it frequently appears in good health state. The condition gets worse fast. The patient willingly and in detail describes circumstances of pain occurrence. In other diseases, appendicitis, diverticulitis, mechanical intestinal obstruction, painful sensations develop not so fast! However, in some hours the pain can become very strong.

G. Vomiting

Some diseases are always accompanied by persistent vomiting, in others it occurs seldom or absent at all. Frequent vomiting is typical for initial stage of acute pancreatitis and acute cholecystitis. In mechanical intestinal obstruction the frequency and intensity of vomiting depends on obstruction localization: the higher it is, the more frequent the vomiting is. Vomiting with fecal smell specifies colonic obstruction or gastrocolonic fistula. Absence in feces of bile testifies the obstruction of gastrointestinal tract proximally the bile papilla.

H. Other data:

1. Age and gender of the patient

have great value for the diagnosis as some diseases develop in certain age. For example, intussusception usually develops in children till 2 years; appendicitis in patients who are not older than 50. Young women are more frequently prone to developing cholecystitis. At the same time it is important to remember about possible exceptions out of these rules.

2. Medicinal anamnesis:

a. Some medicines and narcotics can provoke an aggravation of surgical diseases of abdominal organs. In acute abdominal pain which occurs in patients who take corticosteroids or NSAID, it is

necessary to suspect perforative ulcer. Alcohol, thiasid diuretics, pentamidinum and azathioprinum sometimes promote pancreatitis development. Sulfanilamides and barbiturates can cause an attack of acute alternating porphyria.

b. Medical products which relieve pain. In ulcer disease and reflux-esophagitis administration of antacid reduces pain intensity. In peritonitis it is practically impossible to reduce the pain by medicines from «the house first-aid set» .

2. *Previous diseases.*

For the differentiated diagnosis it is important to find out, whether the painful attack is repeated or has arisen for the first time. For example, repeated painful attacks are characteristic for gastrointestinal and chronic pancreatitis. In frequent hospitalizations concerning the same pains for no apparent reason it is necessary to suspect simulation. It is obligatory to find out which operations the patient underwent. Gynecologic anamnesisis of great importance. Inflammatory diseases of the uterus and adnexa often carry relapse character. In women who have undergone extra-uterine pregnancy there is a high probability of its repetition. Appendectomy could be performed during extirpation of the uterus.

Physical examination

Physical examination is carried out carefully and consistently. The anamnesis and the results of physical examination give 60 % of the information necessary for the correct diagnosis; data of laboratory researches constitute only 10-15 % of this information.

A.General condition and basic physiological indicators:

1. *Appearance of the patient*

Allows to estimate approximate disease severity. Attentively examine the patient, whether he really suffers or lies in bed comfortably, watches TV, speaks on the phone. If during abdominal palpation the patient complains of the pain joking and smiling, the presence of acute surgical disease is improbable.

2. *The position which the patient assumes to ease painful sensations*

Is also an important diagnostic sign. In pancreatitis the patient tries to accept "embryo position", the back is bent, knees and hips are put to the abdomen. In such position the pain weakens, as the lumbar muscles involved into inflammatory process relax. In retrocecal appendicitis patients sometimes bend the right foot in coxofemoral and knee joints: it reduces pressure of the right cross-section muscle upon the inflamed appendix. In extended peritonitis of any etiology the patients lie motionlessly as the slightest movement strengthens the pain.

3. Tachycardia

In acute abdominal pain can be caused by fever and dehydration. In older people who suffer from cardiovascular diseases and take β -adrenoblockers, tachycardias is not frequent. Its absence in any case does not exclude severe diseases of abdominal organs. Increase Fin heart rate during examination (if there is no dehydration) is a sign of deterioration of the condition.

4. Tachypnea which in abdominal pains is caused by a reduction in respiratory volume. Superficial breath allows to support minute volume breath at the adequate level. Tachypnea and respiratory alkalosis quite often precede metabolic acidosis which occurs in sepsis.

5 Fever

Is characteristic for many inflammatory processes in abdominal cavity. Body temperature is measured per rectum or in axillary poles. Temperature measurement in oral cavity is possible, but it is less reliable. At an early stage of many severe diseases of organs of abdominal cavity (for example, cholecystitis, appendicitis) fever is not present. If the patient with suspected cholecystitis or appendicitis during the first several hours of the disease the temperature rises to 39- 40°C, the diagnosis should be reconsidered. Association of high temperature (39,5-40,5°C) with abdominal pain takes place only in bacterial peritonitis and abscesses of the abdominal cavity. Chills together

with high temperature are tpical for bacteriemia; in this case blood is taken for cultures and antibiotics of a wide spectrum of action are administered, before confirming the exact diagnosis. It is necessary to find out, whether the patient accepted febrifuges which mask fever. In the dehydrated and elderly patients temperature reaction to an inflammation can also be absent. Hypothermia in sepsis is prognostically a bad sign.

B. Abdominal examination.

Ignoring painful sensations can make the patient angry, complicate the dialogue with him and finally make the primary survey and following supervision difficult. It is necessary to be especially attentive at survey of children. All patients with abdominal pain can be divided in two groups:

- patients of the first group develop clinical picture of acute abdomen and intensive symptoms of mesenterial irritation. If other results of examination confirm the diagnosis (for example, free gas in abdominal cavity on the survey roentgenogram in perforative gastric ulcer), it is necessary to perform urgent surgical intervention;
- the second group includes patients whose condition requires hospitalization for specification of the diagnosis and following surgical intervention (for example: pain in the right hypochondrium: cholelithic disease, confirmed with ultrasound examination, in this case operation is administered following 24-48 hours after admission to clinic). The main objective of primary physical examination is to determine the group to which the case belongs.

Abdominal examination is performed in the following sequence.

1. It begins with visual examination. General condition and position of the patient should be estimated. When examining abdomen the attention is drawn to following signs:

a. Scars and their localization. When determining postoperative scars in patients crump-like abdominal pain it is necessary to suspect adhesive intestinal obstruction. Scar localization makes it possible to draw a conclusion about the character of previous operations and by that to accelerate the differential diagnosis.

b. Abdominal distension. It is necesssary to estimate the degree of abdominal distension: as a rule, the more distal obstruction of intestine is, the more intensive the distension. In high intestinal obstruction the abdomen can be retracted like a boat. Local abdominal bulging is often conditioned by space-occupying mass. And finally, it is necessary to find out the reason for distension whether it is accumulation of liquid(ascitis) or gas.

2. The following stage - auscultation. The phonendoscope should be warm. It is necessary to define the character of intestinal noise.

a. The weakened intestinal noise or its absence for several minutes indicate peritonitis or paralytic intestinal obstruction. In local peritonitis which complicates appendicitis, diverticulitis , etc., intestinal noise is normal.

b. Strengthened, sonorous intestinal noise against crump-like abdominal pains are characteristic of mechanical intestinal obstruction.

c. Vascular noise caused by turbulence of a blood-groove, are observed in aneurysm of abdominal aorta, stenosis of renal and mesenterial arteries.

3. Percussion is always performed after auscultation, as it (just as palpation) stimulates peristalsis. There are following percutaneous sounds:

a. A dull sound is produced by space-occupying mass, free liquid in abdominal cavity (ascitis), intestinal loops filled with liquid.

b. Tympanic sound is heard in presence of free gas in abdominal cavity, a congestion of gases at intestines.

c. Shift of dull sound in the change of position of a body is typival for free liquid, that is for ascitis.

d. Disappearance of hepatic dullness. Usually percussion sound is dulled over the liver. It becomes sonorous in congestion of free gas between abdominal wall and liver and indicates punching

cavitary body.

With the help of percussion it is possible to diagnose peritonitis, not resorting to deep palpation. If abdominal percussion causes pain, peritonitis is possible. Patients with peritonitis are very sensitive to minimal concussions. If his bed is imperceptibly "casually" pushed, the patient will complain of a pain at once. Before radiological examination it is necessary to pay attention to reaction of the patient to movement in a wheelchair through the door threshold or to wheelchair blow against a wall. Similar methods of the latent supervision mean for diagnosis of peritonitis much more than deep palpation and symptom Shchetkin-Blumberg which often yield erroneous results.

4. Palpation is the final abdominal examination stage. Hands of the doctor should be warm. It is especially important in exmination of children, otherwise the child will resist to a touch.

a. Not to cause strong pain at the very beginning of research.palpation begins with less painful area. It allows to avoid any pressure of muscles of abdominal wall and to keep contact to the patient. And painful area is examined at the end.

b. At first superficial rough palpation is performed. Define zones of the greatest morbidity.

c. Unilateral strain of rectus abdominis is a symptom of peritonitis. It is the easiest for revealing, palpating the abdomen with two hands symmetrized in relation to the white line.

d. Abdominal examination are finished by deep palpation. If the diagnosis of extended peritonitis till this moment is already established, deep palpation is unnecessary and inhumane. Deep palpation helps to investigate all organs of abdominal cavity methodically; estimate morbidity, strain of muscles of the anterior abdominal walls, reveal space-occupying masses and define the size of organs.

e. "tabular abdomen" is a classical sign of perforative gastric ulcers. Action of hydrochloric acid on abdomen causes strong pain and muscular spasm. Sometimes there is a difficultly to distinguish true rigidity of muscles of the anterior abdominal wall from spontaneous protective reaction. In these cases the patient is asked to bend feet in knees and to put them to abdomen to help him relax. In some cases to distinguish true rigidity from any protective reaction it is necessary to introduce small dose of morphine.

5. Sometimes over the inflammation centre the skin hypersensibility is observed. It is an interesting biological phenomenon, but it has no diagnostic value.

LABORATORY RESEARCH

Laboratory research can give considerable aid in differential diagnosis of acute abdomen. However the results of blood and urine tests and the data of radiological examination do not allow to make, or to exclude any of variants of the diagnosis and without the detailed anamnesis and physical examination they are useless. «It is necessary to treat the patient, not his analysis of blood or x-ray picture».

Laboratory investigations which give the precious information concern:

A. Clinical blood analysis. Count of leukocytes in blood helps to establish, whether abdominal pain is associated with inflammatory process. Leukocytosis is typical for inflammation though there are many exceptions. In appendicitis the quantity of leukocytes in blood can be normal. Therefore it is necessary to define leukocytic formula, especially when the total leukocyte count is normal or is slightly increased. Shift of leukocytic formula to the left (increase in relative quantity of immature granulocytes) is a more important diagnostic sign than leukocytic. The general analysis of blood allows not only to determine anaemia (by a decrease in absolute level of haemoglobin and hematocrit) but also to establish its type (by morphology erythrocytes).

B. General urinalysis is an accessible and inexpensive method of determination of diseases of kidneys and urinogenital tract. Hematuria confirms the diagnosis of urolithic disease. Leukocyturia and bacteriuria specify an infection of urinary tract. Proteinuria is a nonspecific sign. Relative density of urine allows to estimate water balance. All these investigations can be performed quickly

by means of test strips.

C.Serum amylase and lipase activity. The diagnosis of acute pancreatitis is always clinical. Amylase and lipase activity increase confirms the diagnosis. Remember, that amylase activity increase is a nonspecific sign which is observed in many other diseases (mechanical intestinal obstruction, intestine infarction, perforative ulcer, extra-uterine pregnancy). As amylase is eliminated by kidneys, in renal insufficiency its activity in serum is also increased. In acute pancreatitis amylase activity usually reaches a maximum in a day and is normalised by the end of 2-3 days. Therefore to confirm the diagnosis it is expedient to define also lipase activity. It is necessary to mention that the increase in activity of both enzymes does not correlate with pancreatitis severity. Moreover, in chronic pancreatitis which is accompanied by the gland necrosis, amylase and lipase activity can not change. If blood amylase activity exceeds 2000 u/l, it is necessary to suspect calculous pancreatitis.

D. Helicobacter Pylori (HP). Determined with the help (ureasis test), microbiological, histologic, serological research methods. Express-method is based on presence of high ureasis activity of HP which leads to changes of colouring of the special environment where bioptate a mucous membrane right after the endoscopy is placed. The histologic method is the most exact and based on microorganism detection in preparations of gastric mucosa which are stained by hematoxylin-eosin, according to Romanovsky-Gimze, by silver. The microbiological method allows to reveal HP in bioptate, to identify microorganism type, to define its sensitivity to antimicrobic means. Test systems, including immunofermental (ELISA) are developed. Recently there has been introduced not radioactive respiratory test with C13 with high sensitivity and specifity for HP infection diagnosis.

INSTRUMENT RESEARCH

A. Roentgenologic research

1. Roentgenographic examination. Referring the patient to expensive radiological inspection, the doctor should be assured that its result will work on treatment tactics. For example, with complaints typical for appendicitis, morbidity in right iliac areas, tension muscles of abdominal wall in the point the Mcberni and slight leukocytosis it is necessary to perform surgical intervention, instead of roentgenography. In some diseases information value of roentgenography is so insignificant, that its carrying out is not justified. In particular, on the roentgenogram it is possible to reveal only 10 % of bilious stones. If survey roentgenography is necessary, do four pictures (to reveal mechanical intestinal obstruction and free gas in abdominal cavity):

a. Thorax roentgenogram in the back direct projection in standing position for detection of free gas in subdiaphragmatic space is better. Besides, with its help it is possible to reveal disease of lungs, to estimate the sizes of heart, to reveal free gas in thoracic cavity(diaphragm rupture) or hollow organs (hernia of esophageal diaphragm apertures) to reveal medial shift of a gas bubble of the stomach and high standing of the left dome of the diaphragm (spleen damage) and other pathology.

b. The roentgenogram of abdominal cavity in a prone position on the back allows to see gas division in intestines, to establish the reason of abdominal distension (gas or liquid congestion), to reveal the loops of intestines filled with liquid, disorder of soft tissues and concrements. 90 % of uric stones (as they contain calcium) and only 10 % of bilious stones are visible on roentgenograms. It is possible to see calcification of pancreas which is a sign of chronic pancreatitis. The centre of calcification is in right ileac areas in the place with corresponding complaints and data of physical examination indicates acute appendicitis. Gas presence in biliary passage is a sign of a bladder-intestinal fistula which can occur in cholelithic intestinal obstruction. Absence of the shadow of a lumbar muscle indicates pathological process in retroperitoneal space, a bleeding (in a trauma) or inflammation (retrocecal appendicitis, pancreatitis, diverticulitis of sigmoid). And, at last, the picture allows to determine spinal and pelvic pathology.

c. Roentgenogram of abdominal cavity in standing position is used, mainly, for revealing horizontal

levels of liquid and gas in loops of small intestine. In mechanical intestinal obstruction liquid levels in the next part of intestinal loop have different height.

d. Roentgenogram in prone position on the left. Before examination the patient should lie on the left to a side for about 10 minutes so that all free gas which is in abdominal cavity, can gather in the space between the liver and diaphragm. The method allows to reveal even a small amount of gas as subdiaphragmatic space does not contain it in norm. Presence of proper free gas in abdominal cavity is not an indication for operation: it is necessary to establish its source.

2. Special methods. In acute abdominal pain it is usually necessary to perform radiopaque research of organs of the abdominal cavity.

a. Research of upper divisions of gastrointestinal tract with contrast amydothrisoate (Gastrographinum) or baric suspension which is employed at suspicion on esophageal perforation, perforation of gastric or duodenal ulcer, when other methods of diagnostics are not informative. Almost all diseases of upper divisions of gastrointestinal and small intestine can be detected with the help of endoscopy.

b. Irrigoscopy is employed to differentiate colonic and colic mechanical obstruction when survey roentgenography of abdominal cavity yields doubtful results. In perforation of colon and peritonitis irrigoscopy is counter-indicative. The method allows to exclude appendicitis if contrast substance completely fills appendix, but does not allow to confirm the diagnosis if the contrast substance does not get into appendix or fills it not completely. Irrigoscopy presents not only diagnostic but also therapeutic value, for example, in invagination of intestine, torsion of sigmoid. When administering research, it is necessary to realize that presence of barium in intestine (even in small quantities) interferes performing CT and angiography.

c. CT is one of the best methods of diagnosis of diseases of abdominal organs, retroperitoneal space and small pelvis. In acute pancreatitis fast intravenous introduction of contrast substance with the subsequent performance of a series of tomograms allows to estimate a pancreas damage rate. In traumatologic patients with stable haemodynamics CT is more informative, than peritoneal lavage. In children's traumatology CT is a choice method in stomach traumas. At all advantages the method has some disadvantages (the high price, X-ray exposion, allergic reaction to IV introduction of contrast substances). CT should not substitute physical examination or diagnostic operation.

d. Cholescintigraphy with derivatives of iminodiacetic acids (HIDA - 2,6-dimethyl-acetic acid or PIPIDA -paraisopropiliminoacetic acid) approximately 98% sensitivity and high specificity in acute cholecystitis. Not changed gallbladder on scintigram is not visible. Intravenous introduction of morphine during research reduces possibility of wrong positive results. The patient with classical picture of biliary colic with negative result of ultrasonic examination are rendered cholescintiography with introduction of cholecystokinin and the subsequent definition of fraction of emission of gallbladder. The fraction of emission below 50% is characteristic for dyskinesia of biliary passage. Cholecystectomy is administered to a considerable part of such patients.

e. Angiography is provided for revealing of the source of gastrointestinal bleeding and also at suspicion on thromboembolism of mesentery vessels.

f. Ultrasonic examination is a method of choice in diagnosis of cholelithic disease which allows to reveal stones of a bilious bubble and bilious ways. In some difficult cases of ultrasonic examination, especially in connection with colour Doppler research, gives the essential help in appendicitis diagnosis. Presence in right ileac areas of dense oblong formation and a thickening of mucous and serous covers of an appendix (pathognomonic sign) indicates acute appendicitis. In women with complaints of pain in the bottom of abdomen it is recommended to perform ultrasonic examination of the small pelvis. Intraoperation ultrasonic examination facilitates diagnosis of liver and pancreas diseases. Recently rectal and vaginal ultrasound examination has been performed more frequently. In gastric cancer endoscopic ultrasonic examination helps to define disease stage.

g. Peritoneal lavage is used basically at dull abdominal traumas, however in diagnosis of acute

abdomen it also can be useful. Indications for peritoneal lavage except traumas include: ambiguous results od physical examination, disorder of consciousness and non-stable haemodynamics.

h. Diagnostic laparoscopy has been gaining increasing distribution recently. It is used in critical conditions and doubtful results of physical examination. Research can be performed in the beds of the patient under local anaesthesia, it is its basic advantage as compared with diagnostic laparotomy, performed in operational rrooms. The diagnostic laparoscopy is irreplaceable in examination of women with pain in right ileac areas. In this category of patients, up to 30 % of appendectomy operations are erroneous. The laparoscopy allows to reduce the number of unjustified surgical interventions and to receive fuller picture of the condition of abdominal organs.

i. Esophagogastroduodenoscopy

Indications: Dyspepsia, especially for those who are older 40, vomiting with blood, loss of weight, diarrhoeia. It can be diagnostic and therapeutic (palliative cancer treatment, dilatation of esophagus, sclerotherapy of veins of the esophagus and cardia which bleed, diathermo- and laser coagulation of ulcers of a mucous membrane). It is spent with biopsy.

j. Colonoscopy

Consists of total examination of the large intestine with the use of flexible endoscope with fibrous optics. Large intestine through anatomic special very difficult body for inspection. Natural bends of intestine, presence physiological sphyncters in intestine, specific features of the arrangement of its dividions in each person, bends and intestine excesses in case with pathological processes demands an individual approach before research is carried out. During the same time colonoscopy which is performed by the skilled expert, is a safe and therapeutic method of inspection for all parts of the large intestine. The method allows to reveal changes in mucous membrane of intestine and by means of precise biopsy to estimate them with the help of cytologic and a histologic method of research.

Endoscopic retrograde cholangiopancreography (ERCPG)

The method matters in recognition of diseases of organs of pancreatobiliari zones. Consists in filling of bilious and pancreatic channels with contrast substance under the eye control. ERCPG is used both with diagnostic and with the medical purpose. Besides, it allows to investigate a condition of esophagus, stomach, duodenum, large duodenal papilla, pancreatic channel. There is a possibility of carrying out precise biopsy in investigated organs, to eliminate stenosis at the level of sphyncters. Remove stones from channels.

Indications: suspected diseases of pancreas, jaundice of not certain etiology, pain in the upper half of abdomen, especially, which appears after operations on bilious ways, suspicion for choledolithiasis and stenosis of bilious and pancreatic channels. Complications are acute pancreatitis, sepsis, anaphylactic reactions to contrast.

Biopsy of the liver.

Allows to establish morphological and in some cases etiologic diagnosis, to define the activity of inflammatory process in diffuse liver diseases.

Laparoscopy

It is usually performed after other less invasive research methods have appeared not informative.

This method allows to estimate visually condition of liver, gallbladder, spleen, mesentery, serous surfaces, vessels, to perform aim biopsy of liver and sometimes of pancreas, and by correct preparation to perform a number of operative interventions, such as cholecystectomy, appendectomy, etc.

SYMPTOMATIC TREATMENT.

Tests of initial knowledge (10 simple tests reflecting the key moments of the topic)

1.The basic components of bile do not contain:

A. Water

B. Salts of bilious acids
C. Cholesterol phosphatide organic matrix*

2. Incidence of bilious stones in population of economically developed countries makes up:
A. 5-10%
B. 10-15 % *
C. 15-20%
D. 20-25 %

3. Cholesteric stones are observed in patients:
A. Cirrhosis
B. Glut of bile by cholesterol *
C. In advanced age
D. With infections of bilious ways

4. Black pigmentary stones are seen in patients:
A. With hemolytic diseases *
B. With hypertrigliceridеaemia
C. After surgical manipulations on bilious ways
D. Accumulation of insoluble bilirubin in bile

5. The brown pigmentary stones consisting from bilirubinum of calcium are observed in patients:
A. Glut of bile by cholesterol
B. Accumulation of insoluble bilirubin in bile*
C. Cirrhosis
D. After surgical manipulations on bilious ways *

Clinical tasks for individual study (not more than 10 tasks, including problems «КРОК-2»)

№№ 800, 801, 809, 810, 811, 812, 814. 832, 835, 842
The report of clinical analysis of the patient (the uniform form)
Standards of answers to problems
The materials necessary for self-preparation The list of the used literature:

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