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Case Report

Features of Diagnosis and Treatment of Appendicitis During the COVID-19 Pandemic

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Abstract

This article provides a brief description of acute appendicitis, methods of its diagnosis, considers typical clinical cases, examples of tactics for managing patients with acute appendicitism. The sequence of management of a patient with acute appendicitis, steps to a speedy recovery of the patient, including surgical interventions, his discharge with positive dynamics are generalized. Particular attention is paid to the course and further development of complications of acute appendicitis. Appendicitis during the COVID-19 pandemic. The need for timely treatment of the population for medical care in order to avoid the development of complications (in particular- from acute conditions), for a qualitatively better prognosis and a speedy recovery in the postoperative period is emphasized.

Keywords: Surgery; Appendicitis; Acute Condition; COVID-19 Pandemic; Surgical Intervention; Gangrenous Form of Acute Appendicitis; Diagnosis; Treatment; Medical Care; Clinical Picture

Ostryy appendicitis - acute nonspecific infectious and inflammatory disease of the appendix of the cecum, requiring emergency surgical intervention. Acute appendicitis is the most common disease of the abdominal organs, requiring surgical treatment. The incidence is 40-50 patients per 10,000 population (2,C.3). The highest incidence is observed in adolescents and in persons under 35 years of age (4,C.6). Acute appendicitis accounts for about 30% of surgical interventions on the abdominal organs (2,C.3). Types of acute appendicitis:

- Catarrhal (simple, superficial);

- Phlegmonous;
- Empyema of the appendix;
- Gangrenous.

Appendicitis with untimely treatment leads to a huge number of complications (2,C.19):

- Perforation of the appendix;
- Appendicular infilat (preoperative detection);
- Appendicular infiltrate (intraoperative detection);
- Peri appendicular abscess (preoperative detection);
- Peri appendicular abscess (intraoperative detection);
- Peritonitis.

During the pandemic, the medical sphere in the Russian Federation suffered, a huge number of people in need, were afraid to seek help, as they were convinced that in all medical institutions there is an opportunity to get infected, and those who were not afraid to face overcrowded hospitals (3,C.80). People waited for hours for an ambulance, during the period of the widest distribution, the waiting time reached 10 hours. Among other things, the mechanisms leading to inadequate reactivity of the body during the period of Covid-19 have been proven. This has all led to an increase in cases of complications of acute appendicitis.

- Objective: To identify possible complications and the course of appendicitis in the context of the coronavirus pandemic.
- Objectives: To study and analyze clinical cases in patients with appendicitis during the coronavirus pandemic.

Material and Methods

Clinical cases, medical histories, educational literature.

Clinical Cases

Clinical case 1

Patient P. 06.09.21g. at lunch called an ambulance at the place of residence with complaints of abdominal pain, nausea, repeated vomiting, general weakness and fever to 39 degrees. The paramedic of the ambulance team made a preliminary diagnosis of acute appendicitis, and the patient was taken to the surgical department of the 9th GKB. In the 9th hospital, during an objective examination by the surgeon, abdominal soreness in the right hypochondrium, mesogastricia, as well as dubious appendicular and peritoneal symptoms were observed. When passing urine tests, protein 0.3 g/l were detected; blood - leukocytosis 31 * 10^9/L. On the basis of which a preliminary diagnosis was made - pelvioperitonitis, torsion, rupture of ovarian cysts. With this diagnosis, the patient was sent to the gynecological division of1RKB. Upon admission to the hospital, the patient complained of stabbing pains in the right iliac region, weakness and lack of appetite. The patient considered herself from 04.09.21., when repeated vomiting appeared, from 05.09.21 notes the appearance of abdominal pain, in the evening 05.09.21 the pain shifted to the right iliac region. The patient took enterosgel, furazolidone, chamomile decoction. Vomiting stopped, abdominal pain persists. The patient had no surgeries. The condition with Admission: body temperature 36.4, general condition closer to satisfactory, outer covers and mucous membranes of pale pink color, clean. Blood pressure is low (95/65). The tongue is dry, covered with a white coating. BHD 15. Regular stool, feces decorated (05.09.21). Rezto painfulovary. The right appendage is determined enlarged. When conducting instrumental methods of research - X-ray contrast examination, radiography of the abdominal organs, as well as Ultrasound of the abdominal organs revealed a thin intestinal obstruction. In the study of blood (06.09.21) leukocytosis - 29.69 * 10^9.Based on these studies, the patient was diagnosed - torsion of the leg of the tumor of the right ovary, pelvioperitonitis. Patient P. was prescribed surgical treatment - diagnosticlaparoscopy.

Operation protocol

During the operation, a Veresh needle was inserted into the abdominal cavity, through the anterior abdominal wall in the paraumbilical region, in compliance with control tests. Laparoscope, manipulators were introduced. Revision of the abdominal cavity: traces of liquid pus in the pelvis (culture was taken on the MFL and sensitivity to a/b). In the region of the uterine appendages, a volumetric formation made by loops of the small and large intestine soldered together, on the walls of purulent-fibrinous plaque. With the allocation of the uterine appendages (liquid pus poured into the abdominal cavity up to 50ml), the latter are represented by a moderately hyperemic hypertrophied fallopian tube, the fimbria

are free, there is no discharge from the tube. The ovary is of normal shape, size, in adhesions with the fallopian tube, adjacent loops and intestines. During the revision of the intestine, an appendicular process with signs of destructive changes is isolated.

Diagnosis

Right-sided salpingitis, periadnexitis. Acute gangrenous perforation appendicitis. Purulent pelvioperitonitis. Also, the patient was prescribed medication, including: cefoperazone + sulbactam in /in 2 gr. per day, metrogil 100.0 3 times a day in/in, diclofenac 3 ml/m, physical solution 250.0 + drotaverine 4.0 in/in drip, r-r glucose 5% 500, r-r novocaine 25% 50 in/drip 1 time per day, atropine 10 ml + physical r-r 500, in/drip 1 r/d, cerukal 2.0 in/m 2 r/d.

Also, the patient underwent a PCR study for a new coronavirus infection: 06.09.21. Contingent code 42 are individuals with signs of SARS that do not exclude the novel coronavirus andCOVID-19 infection. Not vaccinated.

During the prescribed treatment, the patient's condition improved. The patient was transferred to outpatient treatment.

Clinical case 2

Patient L. 13.09.2021 at one o'clock in the afternoon called an ambulance at the place of residence with complaints of abdominal pain on the right, nausea, vomiting, fever to 38.5 degrees. The paramedic of the ambulance team made a preliminary diagnosis of the patient - acute appendicitis and the patient was sent to the surgical department 1 of the RCB, where she reached on her own. In the surgical department 1 of the RCB, the patient received complaints of pain in the right iliac region, nausea, vomiting mucus, which was 1 time. The patient considers himself from 12.09.21 g, after lunch, when the pain in the right part of the living began. The next day the pain began to intensify and the patient L. caused the BSMP and was taken to the duty surgery 1 RCB. During the general examination by the doctor, the patient had dryness of the tongue, its lining with a gray coating, moderate pain in the right iliac region (napryagaet the abdominal wall on palpation), slight uniform bloating, positive symptoms of irritation of the peritoneum: Shchetkin-Blumberg, Voskresensky - in the right iliac region. Also, positive symptoms of Rovzing, Sitkovskogo, Bartomier-Michelson, Kushnarenko were revealed. When taking a blood test (13.09.2021), leukocytosis was detected - 13.84 * 10^9/l, in the urine - turbidity. With ultrasound of the abdominal organs (13.09.2021) in the right iliac region, fuzzy hyperechoicity was observed without convincing peristalsis up to 3.5 cm and effusion up to 3 mm. Based on these studies, the patient was diagnosed with unspecified appendicitis, acute appendicitis. The patient was prescribed emergency surgical treatment, symptomatic therapy, dressings.

Operation 13.09.21

- **Clinical diagnosis:** K 37.0 appendicitis unspecified. Acute appendicitis.
- **Operation:** Appendectomy endoscopic in acute appendicitis LAE, drainage of the abdominal cavity.
- **Type:** Emergency, radical.
- Preoperative epicrisis, indications for surgery and anesthesia.
- The presence of clinical and echographic signs of acute appendicitis is an indication for urgent surgical treatment.
- **Planned surgery:** Appendectomy under ETA.
- **Diagnosis (after surgery):** Acute gangrenous-perforative appendicitis.

Operation protocol

In the right iliac fossa and in the pelvis - a small amount of turbid serous exudate. Theche rveobrazny process is located in the abdominal cavity laterocecally, in size: 9 * 1 cm, hyperemic, infiltrated, sworn, with a coating of fibrin, loosely soldered («shrouded») with b/omentum - adhesions are divided. The base of the process is ligated with Raeder loops (1 - distal, 2 - proximal), the process is cut off, removed from the abdomen. Drainage is installed in the pelvic cavity (PCV - a tube 7 mm in diameter). Revision of the abdominal cavity is performed (including the ileum examined), no other pathology was found.

Operation 15.09.2021

- **Clinical diagnosis:** K 37.0 appendicitis unspecified. Acute appendicitis.
- **Surgery:** Laparotomy for septic complications - common purulent peritonitis. Laparotomy. Audit. Autopsy, rehabilitation of abscess. Sanitation, drainage of the abdominalcavity.

- **Type:** Emergency, radical.
- Preoperative epicrisis, indications for surgery and anesthesia
- The clinical picture of pelvioperitonitis is an indication for emergency surgical treatment.
- **Planned operation:** Laparotomy, elimination of the source of peritonitis, sanitation, drainage of the abdominal cavity.
- **Anesthesia:** ETA.

Operation protocol

A revision of the abdominal floor was performed. From the lateral side of the dome of the cecum, an abscess of up to 50 ml of liquid dark gray pus with a smell (sowing) was opened - removed with an electroaspirator. The abscess cavity is sanitized with a 3% solution of hydrogen peroxide and an aqueous solution of chlorhexidine. The stump of the appendix is kept. The abdominal cavity is sanitized: with NaCl saline to «clean» washing waters: drained. Fibrin from the loops of the small intestine is not removed all. The abdominal cavity is drained with PCV tube 1 cm in diameter (small pelvis). The laparotomic wound is sutured.

- PCR test for novel coronavirus infection COVID-19: Negative.
- The contingent code is 42 persons with signs of SARS, which do not exclude the new coronavirus infection COVID-19.
- During the treatment, the patient became better, there are no signs of sepsis.
- The patient was transferred to outpatient treatment.

Figure 1: Purulent inflammation in the depth of the crypt of the mucous membrane of the appendix. Coloration with hematoxylin and eosin. X 200.

Figure 2: Spread of purulent inflammationI on the mesenteric appendix. Coloration with hematoxylin and eosin. X 200.

Figure 3: Fibrinous-purulent periappendicitis with lymphatic infiltration. Coloration with hematoxylin and eosin. X 200.

Figure 4: Ulcerative defect of the mucous membrane with phlegmonous appendicitis. Coloration with hematoxylin and eosin. X 200.

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Figure 5: Phlegmon of the wall of the appendix with lymphatic infiltration. Coloration with hematoxylin and eosin. X 200.

Conclusion

Thus, studying domestic and foreign literature, as well as clinical cases, we found a direct dependence of the complication of acute appendicitis on the coronavirus pandemic. The course of acute appendicitis was accompanied by various complications that were associated with untimely medical care, due to the huge burden on the sphere of health protection of the Russian Federation. A tendency was found to transition acute appendicitis to peritonitis, abscess of the appendix stump, pile fl Also, pathological activity of the immune system was detected in patients with appendicitis who were infected with the Covid-19 virus: all were found lymphatic infiltration of the appendix tissues. But despite the complications, all patients were provided with professional medical care, the condition of patients improved after treatment [1-4].

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