ISSN NO: 2770-2936
March, 2026

Laparoscopy In The Diagnosis Of Acute Surgical Diseases Of The Abdominal Organs

Tashkent State Medical University, Tashkent
Head of department of faculty and hospital surgery № 1 professor **Khakimov M.Sh.**
Assistant of department of faculty and hospital surgery № 1 PhD **Jumanazarov A.U.**
Assistant of oncology, oncohemotology an palliative care **Ismailova U.A.**

Abstract: The article presents an analysis of the results of using diagnostic laparoscopy in 47 patients with suspected acute surgical pathology of the abdominal organs from 2020 to 2025. The author emphasizes the high informative value of the method, which allows for diagnostic verification and determination of treatment tactics with minimal trauma. Particular attention is paid to the diagnosis of acute appendicitis, including the use of the Krieger technique to identify catarrhal forms. The study proves that the implementation of laparoscopy significantly reduces the number of "unjustified" appendectomies and avoids diagnostic errors, the frequency of which reaches 30% with the traditional approach.
Key words: Acute surgical pathology, diagnostic laparoscopy, acute appendicitis, laparoscopic appendectomy, Krieger technique, differential diagnosis.

In recent years, there has been a trend toward decreasing the invasiveness of surgical interventions, largely due to the rapid development of laparoscopic techniques. The attractiveness of these interventions is their low invasiveness and significantly shorter postoperative recovery period [1-7].

In emergency surgery, laparoscopy is generally used as a diagnostic procedure, and the surgery is performed open. In such cases, laparoscopy is required to accurately verify the diagnosis, allowing for a clear determination of subsequent management. Furthermore, concomitant abdominal diseases must be identified [2, 4, 7].

In emergency abdominal surgery, one of the most common conditions is acute appendicitis (AAP), which must be differentiated from many other conditions. According to various authors, the diagnostic error rate for AAP reaches 30%, and the mortality rate after appendectomy ranges from 0.4% [1, 3, 5, 6]. It should be noted that fatal outcomes are most often observed after "unjustified" appendectomies [1].

OA often presents with subtle or atypical symptoms. The need to provide emergency care to patients and the risk of developing severe complications if it is not provided promptly requires surgeons to utilize all possible emergency diagnostic methods, including invasive ones. Diagnostic laparoscopy is the most effective examination, the invasiveness of which is fully justified by its high information yield.

In emergency surgery, diagnostic laparoscopy was used as a diagnostic intervention, and the surgery itself was performed traditionally. However, the introduction of endoscopic technology today has made it possible to perform LAE. In this situation, the role of diagnostic laparoscopy has significantly increased. This is due to the need not only to accurately diagnose OA but also to assess the feasibility of endoscopic surgery. We analyzed the clinical records of 47 patients admitted with suspected acute abdominal surgical pathology between 2020 and 2025, who underwent diagnostic laparoscopy to verify the diagnosis.

Laparoscopy was performed under intravenous anesthesia. When diagnostic difficulties arose due to the presence of adhesions or anatomical peculiarities of the appendix, an additional manipulator was used.

As a result of diagnostic laparoscopy with suspected acute abdominal surgical pathology, 17 (36.1%) were diagnosed with OA, with OA not previously suspected in 4 (8.5%) of these patients. Acute abdominal surgical diseases were excluded in 12 (25.5%) patients (Table 1).

Table № 1

Results of diagnostic laparoscopy with suspected acute surgical pathology of abdominal organs

Diagnosis before laparoscopy	Total number of laparoscopies	AA	PP	AO	EP	RTOC	ROC	AX	AX	AP	ASO abs

ISSN NO: 2770-2936
March, 2026

OA	31	13	2	1	-	2	1	2	1	-	9
PP	5	1	2	-	-	1	-	-	-	-	1
OAEP	3	-	-	1	1	-	-	-	-	-	1
RoTOC	4	1	1	-	-	1	1	-	-	-	-
AX	2	1	-	-	-	-	-	-	-	-	1
AP	2	1	-	-	-	-	-	1	-	-	-
Total	47	17	5	2	1	4	2	3	1	-	12

Note: OA – acute appendicitis; PP – pelvioperitonitis; OAEPAЯВМБ – ovarian apoplexy or ectopic pregnancy; OA – ovarian apoplexy; EP – ectopic pregnancy; RoTOC – ruptured or torsion of ovarian cyst; ROC – ruptured ovarian cyst; OCT– ovarian cyst torsion; AX – acute cholecystitis; PUDS– perforation of the ulcer of the duodenum; AP – acute pancreatitis; ASP– acute surgical pathology.

The most difficult and responsible task was the diagnosis of catarrhal OA due to the lack of clear visual signs. As mentioned above, to diagnose catarrhal OA, we used the method of Krieger A.G. (2000), which allowed us to diagnose acute catarrhal appendicitis only in 1 case. In the remaining 16 cases, the phlegmonous form of OA was diagnosed. All 17 patients were included in the clinical material of the main group. It should be noted that in no case with a disease duration of more than 24 hours was the diagnosis of appendicitis confirmed. In all cases, there were no technical issues with visualization of the appendix; the appendix was examined along its entire length. All patients underwent LAE. It should be noted that all patients without acute abdominal surgical pathology were given the Krieger maneuver.

We used the Krieger maneuver (2000), which revealed the following: the appendix, fully brought into view, is lifted with an instrument positioned under its midsection. If edema is present, the appendix does not hang from the instrument but maintains its previous horizontal position, indicating appendicitis, and the unchanged appendix hangs freely from the instrument.

When assessing the condition of the appendix, it is important to keep in mind that the diameter of the appendix is not a criterion, as the initial parameters of the appendix are unknown. Furthermore, with acute catarrhal appendicitis, there cannot be any effusion in the abdominal cavity, as the inflammation does not extend beyond the submucosa. The presence of effusion in the abdominal cavity, combined with macroscopic catarrhal changes in the appendix, indicated secondary changes.

The diagnosis of phlegmonous and gangrenous appendicitis was straightforward.

Serious difficulties arose in cases where effusion was detected in the right iliac fossa, and changes in the appendix were secondary. The main problem arose when it was necessary to exclude terminal ileitis and acute gynecological pathology. In terminal ileitis, a segment of the ileum, extending up to 30 cm, was clearly hyperemic, with a clearly delineated affected area. A targeted examination of the mesentery revealed signs of regional lymphadenitis. Serous effusion was detected in the abdominal cavity.

OA was most often differentiated from acute gynecological pathology, particularly salpingo-oophoritis, which was the cause of pelvic peritonitis. In this case, the fallopian tubes were clearly hyperemic and edematous, with purulent discharge coming from the lumen.

In cases of ovarian apoplexy or ectopic pregnancy, thin blood or fluid intensely stained with hemorrhage was detected in the pelvis. Cyst rupture was characterized by the presence of serous-hemorrhagic fluid.

In cases of duodenal ulcer perforation, serous-fibrinous fluid stained with bile was detected in the abdominal cavity. If laparoscopy failed to visualize the appendix, the diagnosis of appendicitis was not ruled out. The presence of turbid effusion and fibrin flakes in the absence of pathology in other organs was interpreted as "local peritonitis, possibly of appendiceal etiology." In this case, the surgery was performed without removing the patient from the operating table.

There were no indications for repeat laparoscopies.

A comparison with the control group was of interest. Of the 84 patients in whom catarrhal appendicitis was diagnosed intraoperatively, without prior diagnostic laparoscopy, it turned out that morphological examination revealed "simple" appendicitis in only 28 (33.3%) cases, while in the remaining cases, no signs of acute inflammation were detected. Clearly, had these patients undergone diagnostic laparoscopy, the number of unnecessary surgeries would have been significantly lower. It is worth noting that, according to

ISSN NO: 2770-2936
March, 2026

A.G. Krieger, (2000), of 163 patients undergoing traditional appendectomy for acute simple appendicitis, a diagnosis of acute catarrhal appendicitis was morphologically confirmed in only 6 (3.7%) cases [2].

Symptoms that established the diagnosis of acute phlegmonous appendicitis included severe hyperemia and infiltration of the appendiceal walls, combined with fibrinous deposits on the serous layer. For gangrenous appendicitis, this included the presence of dirty-green or dirty-gray foci and massive fibrinous deposits on the appendix and its mesentery, which could be so abundant that they prevented a detailed assessment of the entire appendix.

A crucial aspect of laparoscopic diagnosis was the detection of a perforation in the appendix, which was diagnosed in 6 cases. These surgeries were performed using EndoGIA-30 stapling devices.

In cases of other acute surgical or gynecological pathologies, laparoscopic or traditional surgical interventions were performed according to the accepted approach.

Thus, as our results demonstrate, diagnostic laparoscopy is significantly more frequently required for the diagnosis of OA than for other conditions. When laparoscopic diagnosis is based on examination of the appendix, the likelihood of misdiagnosis is minimal. Diagnosis based on indirect data is less reliable. If the appendix cannot be visualized and there are no indirect signs of inflammation, the possibility of OA cannot be ruled out. Treatment decisions in similar situations should be based on the clinical manifestations of the disease. Laparoscopic diagnosis of acute catarrhal appendicitis presents the greatest challenges. However, as our clinical experience has shown, the use of A.G. Krieger's maneuver is a valuable aid. The use of diagnostic laparoscopy in diagnosing OA has significantly reduced the number of unnecessary appendectomies and avoided potential serious complications.

List of references:

1. Кулик Я.П., Поколюхин С.Н. Время делать выбор: профилактическая или лечебная аппендэктомия? // Ж. Хирургия. – 2019. - № 7. – С. 23-26.
2. Лапароскопия в диагностике острого аппендицита / Кригер А.Г., Шуркалин Б.К., Шогенов А.А. и др. / Ж. Хирургия. – 2000. - № 8. – С. 14-19.
3. Острый аппендицит /Кригер А.Г., Федоров А.В., Воскресенский П.К. и др. // Москва: Медпрактика-М, 2002. - 244 с.
4. Роль лапароскопии в диагностике и лечении острой хирургической патологии и травм органов брюшной полости / Хаджибаев А.М., Атаджанов Ш.К., Арипов У.Р. и др. // Ж. Вестник хирургии им. И.И. Грекова. - 2016. - № 3. – С. 58-60.
5. Совцов С.А. Острый аппендицит – спорная проблемы // Ж. Хирургия. - 2002. - № 1. – С. 59-61.
6. Alaminos M.M., Castejon C.J., Valladares J.C. Deferred appendectomy in a case of appendiceal mass // J. Cir Pediat. – 1998. - № 4. – P. 168-170.
7. Barboza B.E. Acute appendicitis in the laparoscopic surgery era // J. Rev Gastroenterol Peru. – 2022. - № 4. – P. 273-274.