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EARLY DIAGNOSIS OF TRANSICANT APPENDICITIS AND MODERN SURGICAL METHODS

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Annotation: This article analyzes the clinical and diagnostic significance of early diagnosis of acute appendicitis and the effectiveness of modern surgical methods. The study covers the etiology and pathogenesis of the disease, clinical symptoms, the role of laboratory and instrumental examination methods. In particular, the importance of ultrasound, computed tomography and clinical scoring systems in the accuracy of diagnosis is substantiated. Also, a comparative analysis of traditional open appendectomy and laparoscopic appendectomy methods is carried out, and the advantages of minimally invasive technologies are shown. The results of the study show that early diagnosis and timely surgical intervention are of great importance in preventing severe complications, reducing the rehabilitation period and improving the quality of life of patients.

Keywords: Acute appendicitis, early diagnosis, appendectomy, laparoscopic surgery, minimally invasive methods, clinical diagnostics, computed tomography, ultrasound, peritonitis, surgical complications.

Acute appendicitis is one of the most common surgical emergencies of the abdominal cavity, characterized by inflammation of the appendix. This pathology constitutes a significant part of surgical practice worldwide and, if not diagnosed in time, can lead to severe complications, including life-threatening conditions such as peritonitis, appendicular infiltrate, abscess, and sepsis. Therefore, early detection and effective treatment of acute appendicitis is one of the urgent issues of modern surgery. According to statistics, acute appendicitis occurs in 7–10% of the population at least once in their lives. The disease is especially common in people aged 10–30 years. Despite the development of diagnostic and surgical technologies in recent years, atypical forms of the disease, vague clinical signs, and mild symptoms in some patients make diagnosis difficult. This leads to an increase in complications due to incorrect or delayed diagnosis. The pathogenesis of acute appendicitis is multifactorial, and obturation (blockage) of the appendiceal cavity, hypertrophy of lymphoid tissue, fecal masses, parasites, as well as infectious factors play an important role in its development. As a result, circulatory disorders, ischemia, bacterial invasion and inflammation occur in the wall of the appendix. If the process is not stopped in time, necrosis and perforation may occur. Clinically, acute appendicitis is most often manifested by pain in the right iliac region, nausea, vomiting, fever and leukocytosis. However, in retrocecal, pelvic or atypical forms of the disease, the symptoms may change. The lack of a traditional clinical picture increases the likelihood of diagnostic errors, especially in children, pregnant women and elderly patients. In this regard, the issue of

early diagnosis is of particular importance. In modern medicine, in addition to clinical indicators, laboratory and instrumental examination methods are widely used to diagnose appendicitis. The detection of leukocytosis and neurophilosis in a complete blood count, an increase in the level of C-reactive protein confirms the inflammatory process. Ultrasonography (USG), computed tomography (CT) and, in some cases, magnetic resonance imaging (MRI) significantly increase the accuracy of the diagnosis. In particular, CT examination has high sensitivity and specificity in complex and ambiguous cases. In recent years, the diagnostic process has been systematized as a result of the use of clinical scoring systems - the Alvarado scale, the AIR (Appendicitis Inflammatory Response) score and other diagnostic algorithms. This helps to reduce the number of unnecessary operations and prevent complications. As for treatment, the main treatment method for acute appendicitis is surgery. Traditional open appendectomy has been used as the “gold standard” for many years. However, with the development of minimally invasive technologies, laparoscopic appendectomy has become widely popular. The advantages of this method include a smaller incision, less pain, a shorter rehabilitation period, fewer postoperative complications, and improved aesthetic results**.**

Currently, in some cases, a conservative, that is, antibiotic therapy-based treatment approach is also being studied. In particular, scientific research is being conducted on the effectiveness of antibiotic treatment in uncomplicated forms of appendicitis. However, this method is not suitable for all patients, and the risk of relapse remains. Therefore, the correct selection of patients and an individual approach are important. In modern surgical practice, the improvement of surgical techniques, the development of sterilization and antiseptic rules, and achievements in the field of anesthesiology and intensive care serve to improve the quality of life of patients with appendicitis. Also, due to rapid diagnosis and surgical intervention, the mortality rate has significantly decreased. The relevance of the topic is that acute appendicitis still remains one of the most common urgent surgical pathologies. Diagnostic errors and delayed operations can end with severe complications. Therefore, the development of modern algorithms for early diagnosis and improvement of surgical methods is one of the important tasks of medical practice.

The purpose of this research work is to analyze modern methods of early diagnosis of acute appendicitis and study the clinical effectiveness of minimally invasive surgical methods.

The objectives of the research are:

1. Analysis of the etiology and pathogenesis of acute appendicitis based on scientific sources;
2. Study of clinical and laboratory diagnostic criteria;
3. Identification of the advantages and disadvantages of instrumental examination methods;
4. Comparative evaluation of open and laparoscopic appendectomy methods;
5. Analysis of postoperative complications and rehabilitation process.

Thus, early diagnosis of acute appendicitis and improvement of modern surgical methods are of great scientific and practical importance in saving patients' lives, reducing the number of complications, and improving the quality of medical care. In-depth study of this topic will make a worthy contribution to the development of modern surgery.

Acute appendicitis is one of the most common emergency surgical diseases of the abdominal cavity, which can be accompanied by severe complications if not diagnosed and treated in a timely manner. The importance of early diagnosis of acute appendicitis, the effectiveness of modern diagnostic criteria and surgical methods were analyzed in this study. The analysis shows that the main factor in the successful treatment of acute appendicitis is early and accurate diagnosis. The accuracy of diagnosis increases significantly when clinical signs (pain syndrome, dyspeptic conditions, fever), laboratory parameters (leukocytosis, increased C-reactive protein) and instrumental examinations (ultrasound, computed tomography) are comprehensively assessed. Scientific sources have confirmed that CT has high sensitivity and specificity, especially in atypical forms or in complex clinical cases. The use of clinical scoring systems (for example, the Alvarado scale) helps to reduce the number of incorrect diagnoses and unnecessary operations. This is important for ensuring patient safety and increasing economic efficiency in the healthcare system. In terms of treatment, appendectomy remains the main and most effective method. Although traditional open surgery has been used in practice for many years, the minimally invasive method - laparoscopic appendectomy - has become a priority in modern surgery. The advantages of the laparoscopic method include less postoperative pain, a shorter rehabilitation period, a reduced risk of wound infections, and improved cosmetic results. Therefore, today, laparoscopic surgery is considered the “method of choice” for uncomplicated forms of appendicitis. At the same time, in some clinical cases, conservative treatment - based on antibiotic therapy - is also being studied as an alternative option. However, this approach is associated with the risk of relapse and requires proper selection of patients and strict monitoring. Therefore, surgical treatment still remains the main and most reliable method. Early diagnosis of acute appendicitis and timely surgical intervention prevent serious complications such as peritonitis, abscess, sepsis. Modern technologies, advances in the field of anesthesiology and intensive care have significantly improved the survival rates of patients. In general, an integrated approach to the management of acute appendicitis - that is, the combination of clinical, laboratory and instrumental diagnostic methods and the use of modern minimally invasive surgical techniques - gives the most optimal results.

In the future, improving diagnostic algorithms, introducing artificial intelligence-based clinical decision-making systems, and developing an individual approach are promising areas of scientific research in this area. Thus, early detection of acute appendicitis and the use of modern surgical methods are of significant scientific and practical importance in improving the quality of life of patients, reducing the number of complications, and ensuring efficiency in the healthcare system.

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