

Clinical Analysis of Surgical Treatment of Acute Appendicitis

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ABSTRACT Objective: To study the surgical treatment of acute appendicitis and its effects. **Methods:** 52 cases of patients with acute appendicitis were observed. **Results:** The 52 patients were discharged after timely surgery and treatment. **Conclusion:** Acute appendicitis can be effectively treated by using surgical methods. Appropriate timing could reduce the incidence of post-operative complications.

KEYWORDS

Surgical treatment
Acute appendicitis
Clinical analysis

1. Introduction

Acute appendicitis is a common surgical procedure of the abdomen normally occurring in young people. Clinical manifestations consist of lower right abdominal pain, back pain and tenderness, accompanied by vomiting, nausea and other complications. In patients with acute appendicitis, it is important to choose the right time and operation method. It can effectively reduce the occurrence of post-operative complications and reduce difficulty during surgery. 52 cases of acute appendicitis in our hospital were observed of its pathogenicity. Its points of attention discussed and the results summarized.

2. Materials and methods

2.1. General information

Between November 2012 and June 2015, 52 patients with acute appendicitis were treated with surgery comprising of 26 cases from both men and women, aged between 18–72 years old with an average age of 45 years old. Patient's details were tabulated in Table 1.

Table 1. Details of the patients analyzed.

Symptom	Acute simple appendicitis	Acute suppurative appendicitis	Gangrenous appendicitis	Abscess of appendix
Quantity (case)	35	12	4	1

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2.2. Method

Appendectomy was done via incision of the right or the left lateral positions.

2.3. Operation time

In this study, 52 patients were treated according to the treatment time and methods in Table 2.

3. Results

In this group, 52 patients were cured via surgical removal of the appendix and with proper treatment. During hospitalization, gangrenous and perforated appendicitis incision infection was observed in 1 case and appendicular abscess incision infection in 1 case which improved after treatment. No residual abscess formation and occurrence of bleeding in the abdominal cavity were observed. Post-operatively, no adhesive intestinal obstruction, appendix stump and intestinal fistula complications occurred.

4. Discussion

Clinical pathological classification of acute appendicitis is mainly divided into 4 types: appendicular abscess, acute appendicitis, gangrenous and perforated appendicitis, and acute purulent appendicitis. According to principle, appendicitis should be treated as soon as possible via surgical treatment after diagnosis. Only simple appendicitis does not require surgical treatment. Patients who received surgical treatment before, after, or because of their acute appendicitis have not been confirmed, as well as incidences of clear inflammatory appendix mass forming 72 h after laparoscopic appendectomy (LA) or open appendectomy (OA). Kurt Semm completed the world's first laparoscopic surgery for patients with acute appendicitis, and since then researchers have carried out a more detailed and in-depth study of laparoscopic surgery of acute appendicitis. After

Table 2. Treatment time and methods.

Time	4–11 h	7–24 h	1–7 d
Symptom	Gangrenous appendicitis	Acute simple appendicitis Acute suppurative appendicitis	Abscess of appendix abscess The right lower abdomen signs, fever
Treatment method	Appendectomy surgery	Resection of appendix	Application of antibiotics, Resection of appendix
Quantity (case)	7	Simple = 31; purulent = 12	2

a long analysis, most experts believed that compared with other surgical procedures, LA has the characteristics of low infection rate, hospitalization time and minimal complications with no obvious infections. It has been considered that most of the large gross appendix can be removed by this method. There are several aspects that needed to be followed to further understand the diagnosis of appendicitis and the expected advantages of laparoscopic operation [1,2].

4.1. Diagnosis of acute appendicitis

Appendicitis is one of the most common abdominal surgical diseases. It has a rapid onset and progress. If it is not handled properly, serious complications may appear. For patients with acute appendicitis, a detailed history should be obtained so as to avoid the generation of wu. At present, the diagnosis of acute appendicitis still lacks an objective diagnostic method, which is still based on clinical diagnosis. Generally, clinical diagnosis of acute appendicitis is mainly navel or epigastric pain lasting a few hours and fixed in the right part of the abdomen. For certain cases, rapid development of the symptom may begin that is limited to the lower right quadrant. In order to reduce the rate of misdiagnosis, clinicians should systematically examine the symptoms and to make sure the diagnosis is correct by improving auxiliary examinations.

4.2. Appendicitis operation of the post-operative note

With continuous development of modern medicine, treatment of appendicitis has improved. The current treatment is surgical removal of the appendix via appendicitis resection on the right or the left side of the incision. Pre-operative preparation should be improved as soon as acute appendicitis is diagnosed including effective antibiotic treatment to correct electrolyte disorders, acid-base imbalance, dehydration and other phenomena [3].

4.2.1. How to find the appendix accurately and quickly

The appendix is located in the right of the abdomen; in particular, in the navel and the right iliac. The specific location of the appendix varies, so proper identification should be considered. To locate the position of the appendix, the tenderness point method is usually prescribed. A strong reaction to pain is an obvious site and this is generally done by going along the colon towards the top of the cecum (ectopic appendix). If the conventional method could

not locate the appendix, then it may be located in the peritoneum. For such patients, the side of the peritoneum can be incised to reach inside the cecum and ascend up the colon to reach the appendix.

4.2.2. Incision selection and attention items of appendix

For patients who have been identified with appendicitis, selection of the incision should be appropriate for the size of the incision. If the pain point is at the oblique position, the incision is generally applied to the abdomen. In order to reduce interference in the abdominal cavity, doctors should choose to explore the incision and reduce harm to patients. Gauze should be padded onto the peritoneal area before turning on the suction device, which can effectively reduce the production of pus. Purulent fluids should be absorbed and wiped; a circular clamp used to explore the bladder (uterus), rectal fossa, intestine and left iliac fossa. In order to protect the wound from contamination, direct contact with the equipment must be avoided [4].

The general procedure of appendicitis with minimal contamination and easy operation is the CIS resection method. If the deep tissue and the appendix tip adhesion cannot be raised or retrograde resection is difficult, this procedure can be used to remove the submucosal appendix.

4.2.3. To prevent post-operative complications

One of the post-operative complications of appendicitis is wound infection and it is necessary to implement aseptic techniques in order to control post-operative wound infections. Improved hemostasis and gentle intra-operative actions could reduce damage to other organs. Direct contact with the appendix should also be avoided to reduce contamination and infection of the incision. Some doctors believe that the simple use of antibiotics can effectively ensure that the wound is not infected. In fact, operation technique and aseptic conditions is the key to reducing postoperative infections. Before suturing, the subcutaneous hematocoele should be squeezed to reduce residual accumulation of blood during early stitching. This will help to reduce the chance of infection. Foreign body wounds, surgical injury, local inflammation, and post-operative intestinal adhesion complications can occur. Early post-operative patient discharge could effectively prevent this complication.

To sum it up, treatment of acute appendicitis via surgery is an effective treatment method. Surgical methods and its timing are crucial. The appropriate choice can reduce the

incidence of post-operative complications, so it should be based on the specific circumstance of the patient to choose the appropriate timing for appendectomy.

4.3. Advantages of surgical treatment of acute appendicitis

The world's first LA was done by Kurt Semm. Since then, laparoscopic technology has been widely used in the clinical treatment of acute appendicitis. Laparoscopic surgery for acute appendicitis has been accepted by a majority of patients and clinicians, mainly because of its significant advantages.

In the operation for acute appendicitis, laparoscopic surgery can provide an operational visual area that is relatively large, and the patient's pelvis can be fully exposed, making it easy for surgery if an abnormal situation would occur. This procedure could also treat a regional area and avoid peripheral tissue damage. It can also thoroughly remove abdominal effusion, further preventing abscess incision. As for open surgery, because of limited operation space, patients are very prone to abscess, and studies have found that by utilizing laparoscopic surgery in patients with acute appendicitis, the probability became very low and it showed that laparoscopic surgery has certain advantages [5].

The use of laparoscopic surgery for the treatment of acute appendicitis creates a small trauma area with only a slight pain and the patient's gastrointestinal function recovery is rapid. Laparoscopic surgery is a minimally invasive technique; as compared to open surgery as surgical incision expansion is required, combined with purulent perforation. In laparoscopic surgery, doctors do not need to get their hands deep into the patient's internal abdomen thus avoiding exposure of the patient's organs and reduce

or avoid stimulation of the intestines caused by air. The use of laparoscopic surgery in addition to antibiotics would reduce the recovery time needed. Vision in laparoscopic surgery is very wide and doctors are able to complete the removal of pus in the pelvic cavity. In addition, the use of drainage tubes during the operation process will be more effective for clean-up of the abdominal cavity, avoiding contamination. Abdominal inflammation can be greatly reduced thus maximizing recovery time. Therefore, this would reduce the usage of antibiotics.

LA would result in fewer complications. After an OA, the patient would be easily exposed to infections, and abscesses can occur as well as other complications. LA can reduce abdominal wall perforation and the inflamed appendix can be removed by using the Trocar. Therefore, inflammation of the appendix due to bacterial infection and surgical incision can be avoided.

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