
Research Article

Comparing Appendectomy and Conservative Treatment for Patients with Uncomplicated Acute Appendicitis

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Abstract:

Background: Acute appendicitis is one of the most common causes of acute abdomen pain. Gold standard treatment of acute appendicitis is the appendectomy. In this study, we investigated in selected cases whether antibiotherapy can be preferred instead of urgent surgery.

Material and Method: Patients who were admitted to the emergency room between January 1, 2016, and December 31, 2016, with abdominal pain and who were diagnosed with acute appendicitis as a result of physical examination, laboratory and radiological examination were divided into two groups. Patients who did not want to undergo surgery and received medical treatment were determined as group 1 antibiotherapy and who underwent appendectomy were determined as group 2. Physical examination, laboratory values, radiological examination results, scores according to the Alvarado scoring system, clinical follow-up data, received treatment, complications were recorded. Hospitalization period, return period to work, post-treatment complaints, control findings and laboratory values were compared.

Results: Of the 133 patients included in the study, 59 (44.4%) were female and 74 (55.6%) were male. Mean age was 42.8 (18-92 years). Whereas antibiotherapy was given 54 patients (group 1, 40.6%), 79 patients were urgently prepared for appendectomy (group 2, 59.4%). No differences were found between the two groups in terms of gender. The mean age was 53.8 (18-93 years) in group 1 and 35.3 (18-71 years) in group 2. The mean erythrocyte was 14844 (4400-22000/mm³) in the group 1 and 11800 (6500-21000/mm³) in the group 2. The mean C-reactive protein was 64.5% in the antibiotherapy group and 39.9% in the appendectomy group. The mean appendicitis diameter was determined as 9.4 (6-13 mm) in the group 1, and as 8.5 (6-13 mm) in the group 2. The mean Alvarado scores were 8.62 in the group 1 and 8.51 in the group 2. None of the 43 patients in group 1 have had relapsed acute appendicitis and appendectomy has not been performed again, even in another center.

Conclusion: For acute appendicitis, patients who do not accept the operation for various reasons or who are at high risk of having surgery due to existing health problems, medical treatment approach instead of emergency surgery may be a safe and easy option.

Keywords: appendicitis, emergency treatment, complication.

Introduction

Acute appendicitis is one of the most common causes of acute abdomen pain. Every day, many patients with abdominal pain complaints are admitted to the emergencies and are diagnosed with acute appendicitis and operated [1, 2]. Gold standard treatment of acute appendicitis is the appendectomy. Today, after the development and popularization of laparoscopic interventions, appendectomy has become the preferred method in the treatment of acute appendicitis. However,

appendectomy, whether open or laparoscopic, poses many risks in terms of surgery and anesthesia, like as all other surgical procedures, leading to costs, resulting in complications at certain rates [3-5]. In the present study, which is planned without criticizing the valuable place of appendectomy in the treatment of patients with acute appendicitis, it was aimed to investigate whether antibiotherapy can be preferred to the emergency surgical

procedure in the selected cases.

Material and Method

Following the approval of the ethics committee of Hitit University Faculty of Medicine (07.04.2017-27), the patients who were admitted to the emergency department of the Hitit University Erol Olçok Training and Research Hospital with abdominal pain complaint, over 18 years of age, having acute appendicitis confirmed as a result of physical, laboratory and radiological examination were included in the study between 01 January 2016 and 31 December 2016. Informed consent was obtained from all patients. The patients who agreed to participate in the study were divided into two groups. Group 1 refers the antibiotherapy group, and group 2 refers the surgery group.

The diagnosis was supposed to be confirmed in case the appendiceal diameter was determined to be 6 mm or more by radiological methods such as ultrasonography or computerized tomography which was planned during emergency room admission. All patients' physical examination findings, laboratory values (complete blood count, C-reactive protein levels, sedimentation rates), radiological findings, scores according to Alvarado scoring system, clinical follow-up data, treatments were recorded. In addition, all patients' hospitalization times, return to work times, post-treatment complaints, findings of control examinations and laboratory values were noted. Patients under the age of 18, pregnant women, patients whose diagnosis was not confirmed radiologically, patients with perforation, patients with immune system disease were excluded. The files of patients who were treated and followed up by the same surgical team were examined and included in the study.

Patients who did not agree to undergo surgery were included in the antibiotherapy group (Group 1) by taking their signed consent.

All patients in the antibiotherapy group, followed by hospitalization, were given intravenous hydration and intravenous ceftriaxone (1 g. at 12 hours intervals), ceased oral intake. In addition to intravenous fluid therapy on Day 3 of hospitalization, they were fed with liquid food, ceftriaxone therapy was discontinued and ciprofloxacin was begun to be given peroral at the dose of 500 mg/12 hours, then they were discharged on the 4th day. During this process, daily leucocytes and C-reactive protein tests were performed. Oral Ciprofloxacin treatment continued for 7 days.

Preoperative single dose prophylactic cephalosporin was applied 1gr/IV to the appendectomy patients (group 2) and open appendectomy was performed with the standard Mc-Burney incision. Following the removal of intestinal sounds in the postoperative period, oral intake was started and they were discharged mostly on the same day.

All patients were checked during visits to the outpatient clinic or by telephone. If they have any complaints, they were noted and added to their files.

The minimum number of patients for each group was found as 40 by doing power analysis before the study to obtain

statistically significant results (G power>80, 95% confidence interval and 0.05% α error margin). Nonparametric data were evaluated by Kruskal Wallis test. Mean, frequency, standard deviation, minimum and maximum values of parametric data were also calculated, and differences were determined by t-test. Licensed SPSS 22.0 statistical package program of Hitit University was used for these processes.

Results

Between the dates of January 2016 and December 2016, 164 patients admitted to the emergency department of our hospital with complaints of abdominal pain consultations in our clinic or referred by other centers were diagnosed as having acute appendicitis, the treatment and follow-up procedures were performed by the same surgical team, clinical data were examined. 18 patients whose diagnosis was not confirmed radiologically, 2 pregnant patients, 1 younger patient than 18, and 9 patients with perforation diagnosed by preoperative findings and 1 patient with immune system disease were excluded from the study. Except for mentioned 31 patients, of the 133 patients included in the study, 59 (44.4%) were female and 74 (55.6%) were male. The mean age was 42.8 (18-92 years).

While antibiotherapy was given 54 patients (group 1, 40.6%), 79 patients were urgently prepared for appendectomy (group 2, 59.4%). There was no statistically difference in gender number between the two groups. The mean age was 53.8 (18-93 years) in the group 1 and 35.3 (18-71 years) in the group 2. The duration of first pain complaints in group 1 was 21.7 (6-72 hours), whereas 18.7 (6-72 hours) in group 2. When examined the lab analysis results performed in the emergency service, it was seen that the leukocyte values were 14844 (4400-22000/mm³) in the first group and 11800 (6500-21000/mm³) in the second group. C-reactive protein values were 39.9% in the appendectomy group and 64.5% in the antibiotherapy group.

The mean appendix diameters were radiologically diagnosed and determined as 9.4 (6-13 mm) in group 1 and 8.5 (6-13 mm) in group 2. The patients were evaluated according to the Alvarado scoring system, the average was 8.62 in the group 1 and 8.51 in the group 2.

There was no statistically significant difference between the two groups in terms of pain duration before hospitalization, laboratory tests and appendix diameters (radiological) and Alvarado scores ($p < 0,05$).

The patients were evaluated preoperatively in terms of risk of anesthesia, 13 patients in the antibiotherapy-planned group were evaluated as ASA 2 and 2 of them as ASA 3 and 20 of them as ASA 4., 2 of the 13 patients who were evaluated as ASA 2 did not accept the operation because they were in the first postpartum month and in the lactation period, and the other 11 patients had psychiatric disorders, under follow-up by psychiatry clinic, rejected the operation for various reasons and requested to be treated with antibiotics. Twelve patients with moderate to high risk of anesthesia (ASA 3 and 4) which were concluded by the anesthesia physicians underwent

Appendicitis

dialysis treatment due to chronic renal failure and metabolic instabilities. 10 patients had the advanced heart failure, and 9 patients had the advanced chronic obstructive pulmonary disease. 9 patients had a recent history of coronary artery bypass operation and accompanying intensive anticoagulant drug use. In fact, one patient had bypass surgery a week ago and another one 15 days ago. One was terminal malignancy patient. 32 of the patients were using anticoagulant drugs. All these patients were informed about the possible risks of surgery and anesthesia in detail, they refused urgent surgery and their signed consent was obtained. Of the 79 patients who underwent an urgent appendectomy, 34 were evaluated as ASA 1, 36 as ASA 2 and 9 as ASA 3. The mean hospitalization time was 2.7 days for group 1 (2-4 days) and 1.7 days for group 2 (1-8 days).

In one patient who underwent an emergency appendectomy, bleeding occurred in the subcutaneous tissue postoperatively which could be removed by a simple surgical procedure. In 6 patients, wound infection developed. In the antibiotherapy group, 43 patients (79.7%) did not need any additional treatment while appendectomy was required in 11 patients (20.3%). 7 of these patients had no response to medical treatment since the first hospitalization. After the medical treatment, the clinical symptoms of 2 patients were initially regressed but then the pain started again, the leukocytosis was not normalized, and surgical intervention was performed before the discharge. 2 patients were re-admitted and operated within 15 days of discharge, upon the recurrence of the clinical symptoms.

No postoperative complications such as perforation, intraabdominal abscess, periapical abscess or plastron were developed in any of the patients who were included in group 1.

The mean duration of follow-up was 4.5 months for group 1 and 1.1 months for group 2. During this time, no acute appendicitis symptoms were observed in 43 patients who underwent antibiotherapy as a non-operative approach, or appendectomy was not performed again even in another center.

Discussion

Abdominal pain is one of the most common reasons for admission to emergency services. Acute appendicitis is one of the most common general surgical emergencies [2]. The gold standard in the treatment of patients diagnosed with acute appendicitis is appendectomy. Appendectomy, which is performed frequently both laparoscopic and open method in hospitals every day, include many risks since it is a surgical procedure, it is often applied under general anesthesia and it is a procedure that must be applied in urgent conditions. Although various complications such as perforation, intraabdominal abscess, and sepsis may develop in case of untreated or delayed diagnosis and treatment of acute appendicitis, patients with appendectomy may experience systemic problems caused by surgery or anesthesia such as appendicular leakage, bleeding, intraabdominal abscess,

sepsis, wound infections, iatrogenic organ injury, incisional hernia [1, 6-8]. None of the complications such as perforation, sepsis, and intraabdominal abscess that may occur in delayed or not treated patients with acute appendicitis were seen in the antibiotherapy group. Similar complications did not develop during the follow-up period of the patients.

It is clear that the appendectomy procedure, which is performed under urgent conditions, may put other underlying problems of patients in more difficult situations to be managed [4, 9, 10]. In this study, through preoperative anesthesia evaluation, 41 patients were considered as at the high risk (21 patients ASA 3 and 20 patients ASA 4). Two of patients who gave birth recently, considered to be at lower risk, were breastfeeding and having anxiety about being separated from their children. 11 patients who were using psychiatric drugs with various diagnoses, 2 of which had panic attacks, did not accept surgery due to their anxiety. The choice of antibiotherapy as an alternative for a patient who refuses to undergo surgery has allowed our patients to be treated without any problems. 32 of our patients who are evaluated as ASA 3 and 4 were using anticoagulant medication; 2 patients had undergone coronary bypass surgery very recently; 10 patients had advanced heart failure and 9 patients had an advanced respiratory failure. One of them was a terminal brain tumor patient. Urgent surgery in such a problematic group of patients is difficult both in terms of anesthesia team and surgery team. Antibiotherapy would give us a chance to operate under elective conditions even if the surgery was to be performed [1, 3, 6, 11]. In this way, the most appropriate physical conditions would be provided, the intensive care unit would be prepared as needed and the possible problems of anticoagulant use would be avoided.

11 of the 54 patients in the antibiotherapy group had to undergo an appendectomy. 7 of these were patients whose findings and laboratory values could not be reduced despite the medical treatment applied since initial hospitalization. 5 of these 7 patients did not accept the surgery because of anxiety, 2 of them were patients with cardiac problems, using an anticoagulant. After the fact that symptoms of the patients with panic attacks and anxiety did not decrease despite medical treatment, so the surgical procedure was explained in detail as the only remaining option, they accepted surgery and were operated securely. Premeditations of the patients with cardiac problems during this time were performed at the most appropriate level; no problems occurred in their operations and intensive care unit follow-up was not needed. 2 of the 11 patients responded to medical treatment, and their clinical symptoms and laboratory values declined, but while still hospitalized, their symptoms exacerbated, so they underwent surgery. 2 patients were admitted again to the hospital after being discharged and operated upon repeated complaints. Patients who underwent antibiotherapy and then had to undergo surgery did not experience appendicitis perforation, and no postoperative complications were developed.

Conclusion

Appendicitis

As a result, without underestimating the valuable place of appendectomy, in cases the most appropriate conditions are not provided due to both the patient's medical history and medical center's lack of equipment, we believe that medical treatment rather than urgent surgery may be a safe and easy option and that it may provide a surgical facility at least under elective conditions for patients diagnosed with acute appendicitis and who do not accept the operation for various reasons such as current health problems or whom the surgery will create a high risk.

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