International Journal of Surgery 27 (2016) 142–146

Contents lists available at ScienceDirect

International Journal of Surgery

journal homepage: www.journal-surgery.net

Original research

Antimicrobial treatment after laparoscopic appendectomy for preventing a post-operative intraabdominal abscess: A Prospective Cohort Study of 1817 patients

Jinbeom Cho, Ilyoung Park, Dosang Lee, Kiyoung Sung, Jongmin Baek, Junhyun Lee*

Department of Surgery, Bucheon St. Mary's Hospital, The Catholic University of Korea, College of Medicine, Sosa-dong, Wonmi-gu, Bucheon-si, Gyunggi-do 420-717, South Korea

HIGHLIGHTS

- The complete infectious source control is more important than antibiotics treatment for preventing a post-appendectomy intraabdominal abscess.
- Prolonged antibiotic treatment cannot prevent post-operative intraabdominal abscess after laparoscopic appendectomy.
- When the infectious source control is incomplete, we recommend a 5-day course of antimicrobial combination therapy and consecutive source control such as peritoneal drainage.

ARTICLE INFO

Article history:
Received 9 December 2015
Received in revised form
15 January 2016
Accepted 21 January 2016
Available online 22 January 2016

Keywords:
Intraabdominal abscess
Laparoscopic appendectomy
Post-operative antibiotics

ABSTRACT

Introduction: Post-operative antimicrobial treatment is usually administered to prevent a post-operative intraabdominal abscess (IAA) after laparoscopic appendectomy (LA). The aim of this study was to identify the role of post-operative antibiotic treatment and the optimal length for the antibiotic course to prevent post-operative IAA after LA.

Methods: Between January 2010 and December 2013, 1817 patients who underwent three-port LA were enrolled in this study. Patients were classified into four groups according to the type of appendicitis and infectious source control. The characteristics of antimicrobial treatment and the incidence of IAA were analyzed and compared among the four groups.

Results: The incidence of IAA after three-port LA was 1.5% (27/1817). The mean durations of post-operative antibiotic use were 3.1 days for the non-IAA group and 3.3 days for the IAA group, with no significant difference between the groups ($p = 0.510$).

Discussion: The length of post-operative antibiotic treatment and antimicrobial combination therapy did not affect the development of IAA, and prolonged antibiotic treatment did not prevent IAA. However, when source control was not completely achieved, an IAA was frequently observed in the patient group that received a short course of antibiotic treatment.

Conclusion: The role of antibiotic treatment for preventing post-appendectomy IAA seems to be related with achieving intraperitoneal infectious source control. In the setting of incomplete source control, we recommend a 5-day course of antimicrobial combination therapy and consecutive source control such as peritoneal drainage.

© 2016 IJS Publishing Group Limited. Published by Elsevier Ltd. All rights reserved.

1. Introduction

Laparoscopic appendectomy (LA) is considered the treatment of choice for acute appendicitis; it does not have a higher incidence of intraabdominal abscess (IAA) compared to open appendectomy (OA) [1,2], and it has the benefits of lessened post-operative pain, shorter hospital stays, and earlier return to work compared to OA.

* Corresponding author.
E-mail addresses: jinbum21@catholic.ac.kr (J. Cho), parkiy@catholic.ac.kr (I. Park), dosangs@catholic.ac.kra (D. Lee), skyhfh@catholic.ac.kr (K. Sung), jmbaek99@gmail.com (J. Baek), surgeryjun@catholic.ac.kr (J. Lee).

http://dx.doi.org/10.1016/j.ijsu.2016.01.069
1743-9191/© 2016 IJS Publishing Group Limited. Published by Elsevier Ltd. All rights reserved.

Although technical improvements have been made in LA, some recipients still develop IAA after LA, which is concerning to both the surgeons and patients. Many studies have proven the effectiveness of antimicrobial therapy for preventing post-appendectomy infectious complications. According to the Surgical Infection Society (SIS) guidelines published in 2010, antimicrobial therapy should be administered to all patients who are diagnosed with appendicitis [3]. However, to the best of our knowledge, there seems to be no consensus as to the optimal duration of post-appendectomy antibiotics. Moreover, prolonged antibiotic treatment may be associated with the increased risk of super-infection and excessive medical expenses.

The present study investigated a large number of patients to demonstrate the role of antibiotics for preventing IAA after LA and identify the optimal length of post-appendectomy antibiotic treatment.

2. Methods

2.1. Patient selection and peri-operative management

Between January 2010 and December 2013, 2109 emergency appendectomies were performed at our hospital. Of these 2109 patients, 286 underwent OA, conversion appendectomy, or single-incision LA at the surgeon's discretion. The remaining 1823 patients underwent three-port LA and were included in the present study to ensure homogeneity of the operative method. Of these patients, 6 were excluded because of non-appendicitis pathologies, thus 1817 patients were ultimately enrolled in this study.

Appendicitis was diagnosed based on the patients' medical history, physical examinations, and radiological findings. Two experienced surgeons who are members of our faculty performed LA using identical operative instruments and the same surgical method over the study period. The surgeons described their operative findings in accordance with the required format. All patients received a single dose of pre-operative intravenous (IV) second-generation cephalosporin and multiple doses of post-operative IV antibiotics based on their clinical settings such as the operative findings, fever, and abdominal symptoms. According to the local bacterial registry of our region and hospital, antimicrobial monotherapy using 1 g of IV cefotaxime twice daily was administered routinely, and for some cases, IV metronidazole combination therapy (500 mg thrice daily) was administered according to the surgeon's judgment. We had no standardized protocol regarding post-appendectomy treatment; instead, it was performed based on the individual surgeon's decision. Therefore, regardless of the type of appendicitis, post-operative antibiotic treatment after LA was continued for several days, usually 2–3 days until patients showed clinical improvement after enteral feeding and there were no signs of infection.

After hospital discharge, all patients were observed post-operatively and followed up with their surgeons at an outpatient clinic for a minimum of 30 days. If the patients complained of any symptoms such as fever or abdominal pain during the follow-up period, the diagnostic work-up was performed to identify the development of IAA.

2.2. Study design

During the operation, the gross morphology of the appendix was classified into two categories. Acute appendicitis was defined as an inflamed appendix without any evidence of a localized abscess or generalized peritonitis; complicated appendicitis consisted of any appendicitis that presented with a periappendiceal abscess, localized purulent fluid collection, or generalized peritonitis. Gangrenous appendicitis without perforation or purulent fluid collection was considered acute appendicitis. If there were discrepancies between the surgical findings and pathological diagnoses, the type of appendicitis was decided based on the surgical findings, as the operative diagnosis is more predictive of the clinical outcome than the pathological diagnosis [4].

We divided all the patients into four groups according to the type of appendicitis and intraperitoneal infectious source control (Fig. 1). The operative details have been previously reported [5]. When surgical findings showed generalized peritonitis or a localized periappendiceal abscess or when pus or an appendicolith was spilled during the procedure, a cleansing procedure using laparoscopic gauze and suction was routinely performed regardless of the type of appendicitis. If this procedure was insufficient to resolve intraperitoneal infectious burden according to the operator's decision, peritoneal irrigation along with suction was consecutively performed. If this second cleansing procedure was also incomplete, according to the surgeon's judgment, a closed suction drain (i.e., a Jackson–Pratt drain) was inserted through the 5-mm supra-pubic trocar site into Douglas' pouch. As peritoneal irrigation was only performed when we doubted whether there was a remnant infectious source after appendiceal resection and the cleansing procedure, peritoneal irrigation documented in the operation record was considered incomplete source control. Comparatively, peritoneal drainage after irrigation documented in the operation record was considered consecutive source control (i.e., second source control followed by operation). We investigated the incidence of IAA and the post-operative antibiotic treatment of each patient group.

2.3. Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences software package (SPSS®, version 19, IBM, Armonk, NY, USA). A Student's t-test was used to compare continuous variables, and the chi-square or Fisher's exact test was used to compare categorical variables. A score test for trend using the chi-square test was performed to analyze the correlation between the length of antibiotic treatment and the development of IAA. A P-value <0.05 (two-sided) was considered statistically significant.

2.4. Ethical approval

This study was approved by the ethics review board of CMC Clinical Research Coordinating Center (HIRB-00194_1-006) and it was performed in accordance with the ethical standards of the 1964 Declaration of Helsinki and its later amendments.

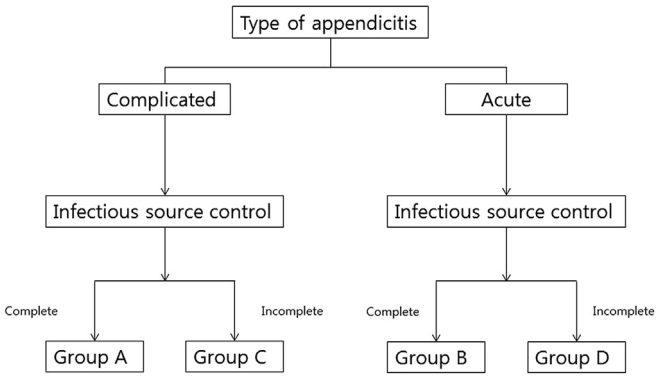

Fig. 1. Classification of the patient groups.

Download English Version:

https://daneshyari.com/en/article/4285509

Download Persian Version:

https://daneshyari.com/article/4285509

Daneshyari.com