Laparoscopic Versus Open Appendectomy

Thesis

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List of Abbreviations

AAA : Abdominal Aortic Aneurysm

CT : Computed tomography

DKA : Diabetic Ketoacidosis

GALT : Gut-associated lymphoid tissue

GYN : Gynecologic

IgA : Immunoglobulin A

LA : Laparoscopic Appendectomy

MI : Myocardial Infarction

OB : Obstetric

OL : Open Appendectomy

PID : Pelvic Inflammatory Disease

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Introduction

Appendicitis is the most common cause of surgical abdomen in all age groups .Approximately 7–10 % of the general population develops acute appendicitis with the maximal incidence being in the second and third decades of life**.**

Open appendectomy has been the gold standard for treating patients with acute appendicitis for more than a century, but the efficiency and superiority of laparoscopic approach compared to the open technique is the subject of much debate nowadays **(Kurtz and Heimann, 2001)**.

The introduction of laparoscopic surgery has dramatically changed the field of surgery and now it is possible to perform almost any kind of procedure under laparoscopic visualization. Laparoscopic appendectomy was first described by Kurt Semm in 1983 and the application of the laparoscopic approach for acute appendicitis was first reported by Schreiber in 1987. With advances in technology and surgical technique, laparoscopic appendectomy has become the novel alternative in the treatment of appendicitis in the last 2 decades **(Kehgias et al., 2008).**

There is evidence that minimal surgical trauma through laparoscopic approach resulted in significant shorter hospital stay, less postoperative pain, faster return to daily activities in several settings related with gastrointestinal surgery **(Biondi et al., 2014)**.

However, several retrospective studies, several randomized trials and meta-analyses **(Wei and Qi, 2010)**. Comparing laparoscopic with open appendectomy have provided conflicting results. Some of these studies have demonstrated better clinical outcomes with the laparoscopic approach **(Bresciani, 2005)**. While other studies have shown marginal or no clinical benefits **(Olmi and Magnone, 2005)** and higher surgical costs. Bearing in mind that laparoscopic appendectomy, unlike other laparoscopic procedures **(Biondi et al., 2014)**, has not been found superior to open surgery for acute appendicitis, we designed the present study to determine any possible benefits of the laparoscopic approach.

Aim of the Work

To compare laparoscopic appendectomy versus open appendectomy as regards operative time, findings, postoperative complications, pain and hospital stay.

Review of Literature

Anatomy

1. Historical Background:

The appendix was probably first noted as early as the Egyptian civilization (3000 BC). During the mummification process, abdominal parts were removed and placed in Coptic jars with inscriptions describing the contents. When these jars were uncovered, inscriptions referring to the "worm of the intestine" were discovered**, (Herrinton, 1991).**

Aristotle and Galen did not identify the appendix because they both dissected lower animals, which do not have appendices, **(Herrinton, 1991).**

Leonardo da Vinci first depicted the appendix in anatomic drawings in 1492**, (Ho HS, 1999).**

In 1521, Jacopo Beregari da Capri, a professor of anatomy in Bologna, identified the appendix as an anatomic structure. In the 1500s, Vesalius (1543) and Pare (1582) referred to the appendix as the caecum. Laurentine compared the appendix to a twisted worm in 1600, and Phillipe Verheyen coined the term appendix vermiformis in 1710, **(Herrinton, 1991).**

In 1886, Reginald Fitz of Boston correctly identified the appendix as the primary cause of right lower quadrant inflammation. He coined the term *appendicitis* and recommended early surgical treatment of the disease **(Ellis et al., 1997).**

Credit for performance of the first appendectomy goes to Claudius Amyand, a surgeon at St. George's Hospital in London in 1736**.**The first published account of appendectomy for appendicitis was by Krönlein in 1886. However, this patient died 2 days postoperatively. Fergus, in Canada, performed the first elective appendectomy in 1883**, (Ellis et al., 1997).**

The greatest contributor to the advancement in the treatment of appendicitis is Charles McBurney. In 1889, he published his landmark paper in the *New York Medical Journal* describing the indications for early laparotomy for the treatment of appendicitis. It is in this paper that he described McBurney's point as the point of "maximum tenderness", when one examines a case with appendicitis**, (John et al., 2007).**

2. Embryology and development of appendix:

The appendix and the cecum develop as outpouchings of the caudal limb of the midgut loop in the sixth week of human development. The appendix becomes

distinguishable by its failure to enlarge as fast as the proximal cecum. This difference in growth rate continues into postnatal life. By the fifth month, the appendix elongates into its vermiform shape**, (Williams et al., 1994).**

At birth, the appendix is located at the tip of the cecum, but due to unequal elongation of the lateral wall of the cecum, the adult appendix typically originates from the posteromedial wall of the cecum, caudal to the ileocecal valve**, (Soybel et al., 2000).**

Congenital Anomalies:

Appendiceal variations are few, and are all rare.

- Absence of the Appendix: Congenital absence of the appendix is extremely rare**, (Hei, 2003).**
- Ectopic Appendix: In cases of malrotation of the bowel, where the caecum fails to descend to its normal position, the appendix may be found in the epigastrium, abutting against the stomach or beneath the right lobe of the liver .In this situation, the symptoms and signs of acute appendicitis may mimic acute cholecystitis**, (Ellis et al., 1997).**
- Left-Sided Appendix:

  1. Situs inversus viscerum.