Evaluation of the Feasibility of Laparoscopic Appendectomy in Complicated Cases

Thesis

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INTRODUCTION

Acute Appendicitis is the most common cause Acute Abdominal pain that requires surgical treatment. There is an approximately 6% to 7% lifetime risk of developing Appendicitis. Appendicitis is primarily a disease of Adolescents and young Adults with a peak incidence in the second and third decades of life ***(Stephen et al., 2012)***.

Appendicitis is sufficiently common that Appendectomy is the most frequently performed urgent abdominal operation, and is often the first major procedure performed by a surgeon in training. But despite of extraordinary advances in modern radiographic Imaging and diagnostic laboratory Investigations, the Diagnosis of Appendicitis remains essentially clinical requiring a mixture of observation, clinical acumen and surgical science. In an age accustomed to early and accurate preoperative diagnosis, Acute Appendicitis remains an enigmatic challenge and a reminder of the art of surgical Diagnosis ***(Ronan et al., 2008)***.

The use of Laparoscopy in the Diagnosis of Abdominal Diseases has rapidly expanded over the last few years. The indications for Laparoscopy are numerous and still expanding. However, there are several widely accepted indications for diagnostic laparoscopy. Although not traditionally considered

an indication for laparoscopy, the increasing use of laparoscopic Appendectomy has liberalized the laparoscopic Evaluation of right lower Quadrant pain. Laparoscopy helps diagnose the problem and, in most Instances, the treatment can be carried out using the Laparoscopic Technique. The Situation of the Female with right lower Quadrant (RLQ) pain is especially well suited to differentiation and Treatment through the Laparoscope ***(Keat et al., 2004).***

The wide differential Diagnosis and high negative Appendectomy rate especially in Females during child bearing period have led many to adopt Laparoscope for both diagnostic and Surgical Treatment ***(Keat et al., 2004).***

Laparoscopic Appendectomy has become established as the Treatment of choice for Acute Appendicitis by several Studies. these Studies have demonstrated that there is less pain, shorter hospital stay, and quicker return to full activities following Laparoscopic Appendectomy when compared with open Appendectomy ***(Khalil et al., 2011)***.

Laparoscopic Appendectomy for complicated Appendicitis remains controversial. Although most Studies have shown an Advantage for Laparoscopic Appendectomy, Others have shown a decrease in Complications for perforated Appendicitis treated by open Appendectomy ***(D'Ambr et al., 2011)***.

Complicated appendicitis, (defined by perforation with purulent peritoneal collection, abscess formation, and generalized peritonitis), comprises 20% to 30% of all cases of appendicitis. It has been associated with a significant risk of postoperative septic complications, including wound infections and intraabdominal abscess formation ***(Krukowski et al., 1988)***.

The Feasibility and Validity of the laparoscopic Approach has caused significant controversy mainly due to early reports of the increased incidence of Intraabdominal Abscess rates ***(Frizzele et al., 1996)***.

Conversely, several more recent trials have found a statistically significant Reduction in early postoperative Complications with the Laparoscopic Approach to the point that it has actually been proposed as the Method of Choice for complicated Appendicitis ***(Wullstein et al., 2001)***.

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ANATOMICAL REVIEW

In Humans, The vermiform Appendix is a small, finger sized Structure, arising from the posteromedial Caecal wall (1.7- 2.5 cm) below and behind the Iliocecal Valve ***(Blakemore et al., 2001).***

The Appendix communicates with the caecum with an orifice which is guarded by a crescentic Mucosal Fold "Valvula processus vermiformis", absence or incompetence of which may account for the Presence of fecal material within the process. It is considered as a continuation of the Caecum arising from its inferior tip. During infancy, more rapid growth of the right and anterior portions of the Caecum causes rotation of the appendix posterior and medially to its adult position ***(Condon and Télford, 1991).***

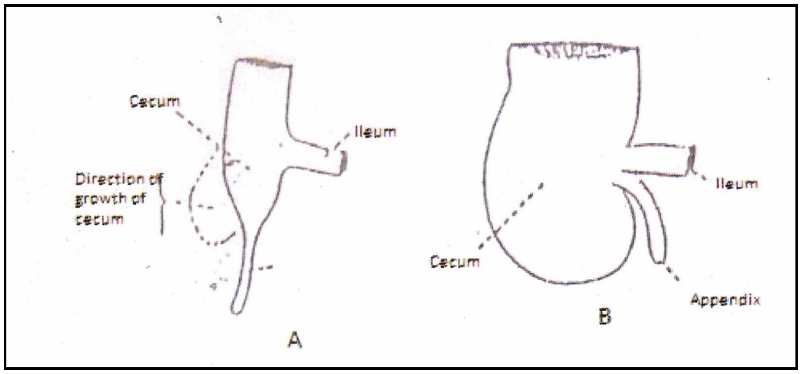

Figure (1): A: Development of the Appendix: The dotted line shows how the Appendix is pushed medially by the outgrowth of the right wall of the Caecum. B. the Adult ***(Decker and Plessis, 1986).***

The Lumen may be widely patent in early Childhood and is often partially or wholly obliterated in the size from early Adulthood later decades of life. The Appendix usually contains numerous patches of lymphoid tissue although these tend to decrease in old age ***(Borley, 2008).***

The adjective "vermiform" literally means "wormlike" and reflects the narrow, elongated shape of the intestinal Appendage. The appendix is typically between two and eight inches long. It is longer in children and may get atrophy or diminish after midadult life ***(Borley, 2008).***

The word "Caecum" actually means "blind" in Latin, reflecting the fact that the bottom of the caecum is blind pouch. The Anatomical definition of a vermiform appendix is a narrowed, thickened, lymphoid rich caecal apex ***(Blakemore et al., 2001).***

Relations of the Caecum & the appendix:

The Location of the Appendix is dependent on the positions of the Caecum which usually lies in the right Iliac fossa. Relations of the caecum and appendix are as follows:

- Infront: If the caecum becomes distended, it may come in contact with the antprior abdominal wall.
- Behind: it rests on the iliacus & psoas major muscles with femoral nerve between the two muscles. It may lie also on the external iliac artery.

- Medially: Coils of small intestine ***(Skandalakis et al., 2004).***

The Relation of the Base of the Appendix to the Caecum is constant and it is the site of convergence of the three Taeniae Coli on the Ascending colon and Caecum. The Anterior Caecal Taenia is usually distinct and traceable to the Appendix, affording guide to it. The Surface marking for the Appendicular base which is the point of on the posteromedial wall of the Caecum, is at the junction of the lateral and middle thirds of Line joining the Right Anterior superior Iliac Spine to the Umbilicus. On the surface of the abdomen this is called "McBurney's point" ***(Chummy, 2011).***

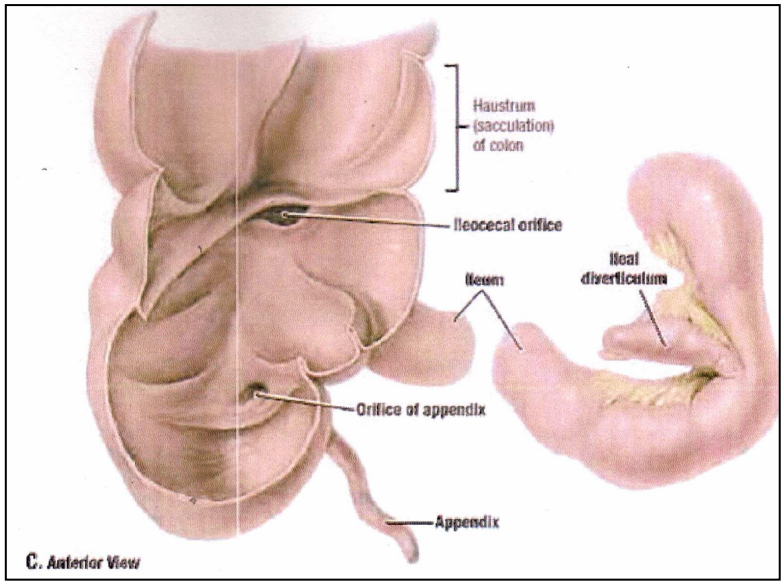

Figure (2): The Interior of the Caecum ***(Agur et al., 2009).***