ROLE OF LAPAROSCOPY IN COLORECTAL CANCER MANAGEMENT

An essay

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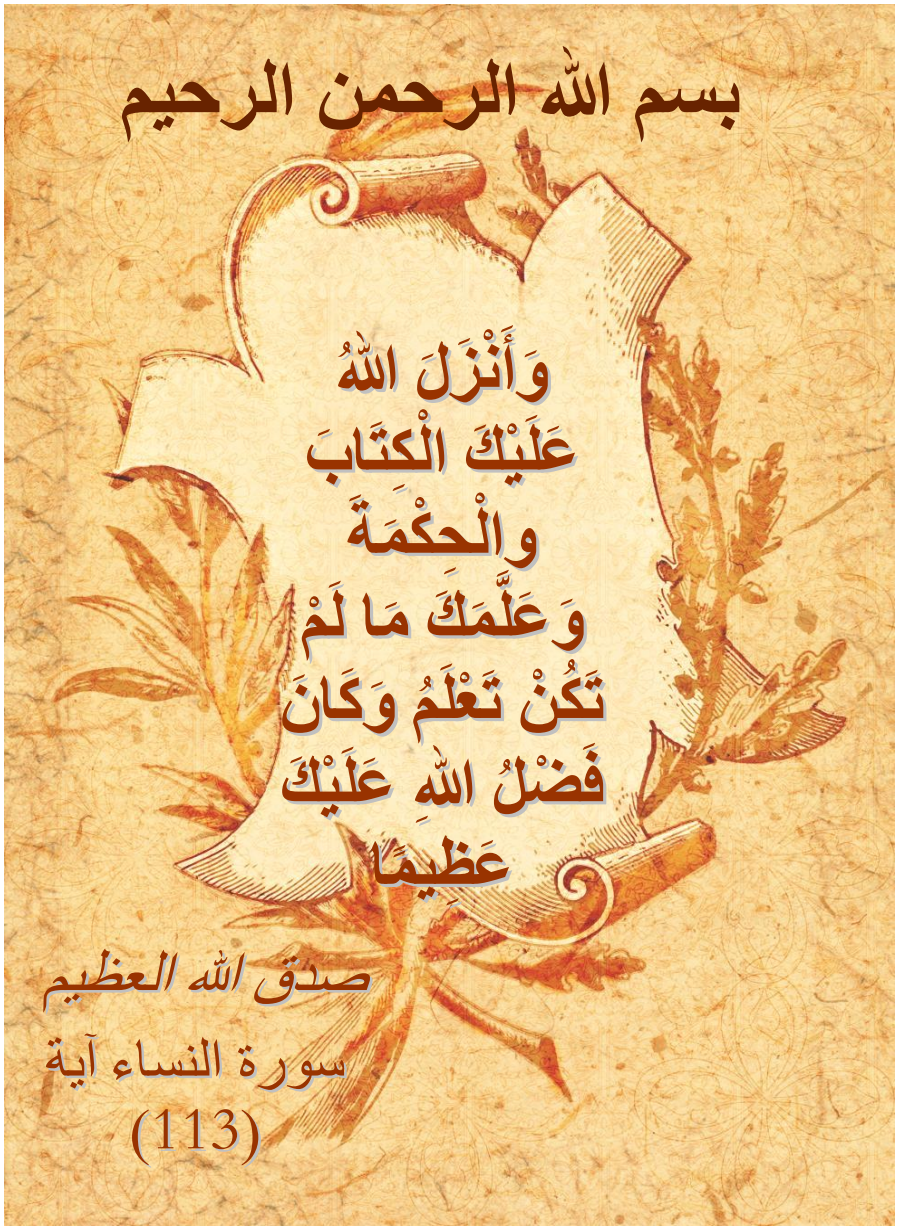
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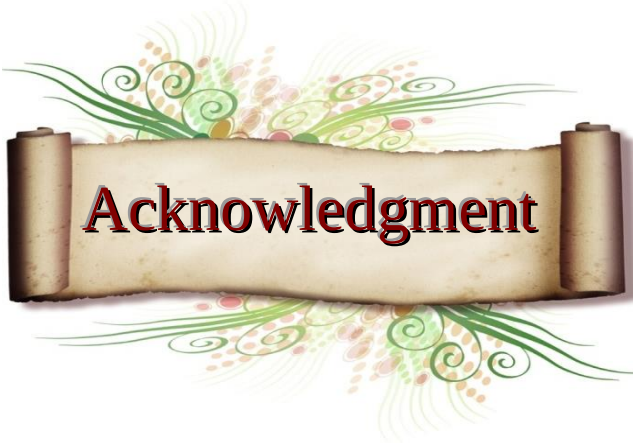

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Introduction

In 2008, colorectal cancer was ranked the 3rd among the most incident forms of non skin cancers in the U.S for both men and women. Colorectal cancer is also one of the leading causes of cancer deaths; more than 50.000 Americans die each year of colon or rectal cancer (***Jemal et al., 2008***).

Colorectal cancer, commonly known as colon cancer or bowel cancer, is a cancer from uncontrolled cell growth in the colon or rectum (parts of the large intestine), or in the appendix. Genetic analysis shows that colon and rectal tumours are genetically similar ***(Cancer Genome Atlas Network 2012)***.

The symptoms and signs of colorectal cancer depend on the location of tumor in the bowel, and whether it has spread elsewhere in the body (metastasis). The classic warning signs include: worsening constipation, blood in the stool, weight loss, loss of appetite and nausea or vomiting in someone over 50 years old. While rectal bleeding or anemia are high-risk features in those over the age of 50 ***(Tadataka et al., 2008)***.

Greater than 75-95% of colon cancer occurs in people with little or no genetic risk. Other risk factors

include older age, male gender, high intake of fat, alcohol and meat, obesity, smoking and lack of physical exercise. People with inflammatory bowel disease (ulcerative colitis and Crohn's disease) are at increased risk of colon cancer ***(Watson et al., 2011)***.

Diagnosis of colorectal cancer is via tumor biopsy typically done during sigmoidoscopy or colonoscopy. The extent of the disease is then usually determined by a CT scan of the chest, abdomen and pelvis. There are other potential imaging tests such as PET scan and MRI which may be used in certain cases. Colon cancer staging is done next based on the TNM system which is determined by how much the initial tumor has spread, if and where lymph nodes are involved, and if and how many metastases there are ***(Cunningham et al., 2010)***.

The three main screening tests are fecal occult blood testing, flexible sigmoidoscopy and colonoscopy. Virtual colonoscopy via a CT scan appears as good as standard colonoscopy for detecting cancers and large adenomas but is expensive, associated with radiation exposure, and cannot remove any detected abnormal growths like standard colonoscopy can ***(Cunningham et al., 2010)***.

As successful outcomes have been obtained in operations like cholecystectomy, appendectomy and

hernia repair by the laparoscopic technique, the procedures have become accepted worldwide. The growing experience in laparoscopic surgery expanded the indications and more complicated operations were successfully done with this technique. Even the laparoscopic colon operations have been started in the surgical treatment of not only benign but also malignant colonic diseases ***(Leung et al., 2007)*** **.**

When colorectal cancer is caught early, surgery can be curative. However, when it is detected at later stages (metastases are present), this is less likely and treatment is often directed more at extending life and keeping people comfortable ***(Cunningham et al., 2010)***.

For people with localized cancer, the preferred treatment is complete surgical removal with the attempt of achieving a cure. This can either be done by an open laparotomy or sometimes laparoscopically. If there are only a few metastases in the liver or lungs they may also be removed. Sometimes chemotherapy is used before surgery to shrink the cancer before attempting to remove it ***(Cunningham et al., 2010)***.

Use of laparoscopic techniques to treat colonic diseases, both benign and malignant, is by either the standard laparoscopic surgery (SLS) where mobilization of the bowel is accomplished with laparoscopic tools

only, and a minilaparotomy is created for the purpose of specimen extraction and anastomosis (when appropriate). or hand-assisted laparoscopic surgery (HALS) which involves creation of a small incision at the beginning of the operation through which a hand is inserted to assist in dissection of the bowel, and through which specimen extraction and anastomosis are performed ***(Ringley et al., 2007)*.**

Various controlled prospective trials have demonstrated that laparoscopic surgery for colon cancer has short-term benefits such as less postoperative pain, shorter hospital stay and earlier return to social life than with conventional open surgery. However, criticism concerning the oncologic stability of laparoscopic surgery for colorectal cancer has continued due to port-site recurrences and incomplete lymph node dissection. Nevertheless, the long term oncologic stability of laparoscopic surgery for colon cancer has been established and laparoscopic surgery is now an accepted alternative to conventional open surgery for colon cancer ***(Kim et al., 2009)***.

Aim of the work

The aim of this study is to evaluate the role of laparoscopy in management of colorectal cancer.

ANATOMY OF THE COLON AND RECTUM

Most surgeons are very familiar with the anatomy of every type of colon resection performed. However, there is a different view of the anatomy with laparoscopy; while the anatomy does not change, the view through which the anatomy is seen does change ***(Franklin et al., 2007)***.

The large intestine extends from the distal end of the ileum to the anus, and is l.5m long, although there is considerable variation in its length. Its caliber is greatest near the cecum, and gradually diminishes to the level of mid rectum. It enlarges in the lower third of the rectum to form the rectal ampulla above the anal canal **(*Jeremiah et al., 2005*)**.

The large intestine is divided into five segments. From proximal to distal, these segments are: right colon, transverse colon, left colon, sigmoid colon, and rectum (figure 1.1) **(*Rolandelli et al., 2001*)** .

Throughout its length there is an alternating pattern of fixed and mobile components:

- The cecum and the transverse and sigmoid colons possess considerable mobility.
- The ascending and descending colons are fixed to the posterior wall **(*Richard et al., 2001*)**.