Recent Trends In Management of Colorectal Carcinoma

An essay

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الاتجاهات الحديثة
فى
معالجة سرطان القولون و المستقيم

رسالة

توطئه للحصول على درجة الماجستير في الجراحة العامة

مقدمة من

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Abbreviation	Name
AJCC	American Joint Committee on Cancer
ANP	Autonomic nerve preserving
APC	adenomatous polyposis coli
APR	Abdominoperineal resection
CEA	Carcinoembryonic antigen
CRT	Chemoradiation Therapy
CT	computer-assisted tomography
ERUS	Endorectal ultrasound
FOBT	Fecal occult blood test
FS	Flexible sigmoidscopy
FU	Fluorouracil
HNPCC	Hereditary nonpolyposis colorectal cancer
IORT	Intraoperative radiation therapy
LAR	low anterior resection
MRI	magnetic resonance imaging
TEM	Transanal endoscopic microsurgery
TME	Total mesorectal excision

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INTRODUCTION

Colorectal carcinoma is the fourth most common internal malignancy; it is second only to carcinoma of the lung as a cause of carcinoma death. **(*Jemal 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. ***(Rolandelli & Roslyn , 2001).***

The majority of colorectal cancers are in the rectum (38%), the sigmoid colon (21%) and the rectosigmoid junction (7%). The descending colon (4%) and the transverse colon (5.5%) are less common sites of tumor formation, whereas in the ascending colon (5%) and the caecum (12%) the incidence is slightly higher. The incidence in the appendix is about 0.5%; in the hepatic flexure is 2%; in the splenic flexure is 3%; and in the anus is 2 %. ***(Mortensen & Jones, 2004)***

The etiology of colorectal cancer can be seen as an interaction between genetic factors but the basic underlying cause appears to be an accumulation of genetic mutation, which leads to the development of benign adenomas with subsequent

transformation to invasive malignancy (the adenocarcinoma sequence). ***(Cuschieri & Robert, 2001)***

Both ulcerative colitis and Crohn's disease carry an increased risk of developing colorectal cancer. Established risk factors for cancer among patients with inflammatory bowel disease (IBD) include the younger age at diagnosis, greater extent, and duration of disease, increased severity of inflammation and family history of colorectal cancer. Recent evidence suggests that current medical therapies and surgical techniques for inflammatory bowel disease may be reducing the incidence of colorectal cancer. ***(Zisman & Rubine, 2008).***

Most patients with colorectal polyps and early colorectal cancer are asymptomatic. Patients with advanced cancers may present with abdominal symptoms such as pain, persistent changes in bowel habits or bleeding from the rectum. General symptoms and signs can include loss of appetite, weight loss, nausea and vomiting, or unexplained iron deficiency anemia. General examination may reveal signs of advanced disease such as abdominal mass. The draft National Health and Medical Research Council guidelines for the prevention, early detection and management of colorectal cancer recommend a thorough

examination of the anus, rectum and colon for all symptomatic patients. The use of sigmoidoscopy at the time of the digital rectal examination is recommended to detect anal abnormalities such as hemorrhoids and fissures at the initial examination. The draft guidelines recommend colonoscopy as the most accurate investigation for assessing the colon and rectum. ***(Alfered & Arden , 2006).***

Surgical options for colorectal cancer depend on the location of the primary tumor. Before surgical resection, evaluation for sites of metastatic disease is important. A careful physical examination determines the presence of hepatomegaly, ascites, or adenopathy ***(Alfered & Arden , 2006).***

In particular, colon cancer can often be prevented entirely by removing polyps before they become malignant. Therefore, current guidelines recommend screening of adults who are at average risk for colorectal cancer ***(Smith et al, 2005)***

AIM OF THE WORK

The aim of this essay is to identify the new modalities and recent updates in diagnosis and treatment of colorectal carcinoma.

CHAPTER 1:

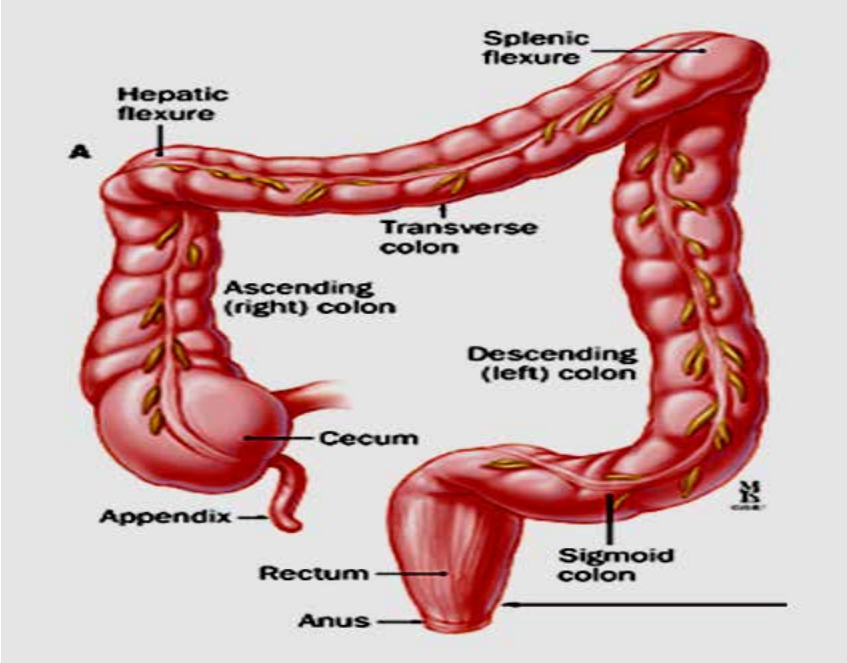
EMBRYOLOGY & SURGICAL ANATOMY

I-EMBRYOLOGY

The colon is produced by both the midgut and the hindgut. The midgut is responsible for the genesis of the cecum, the ascending colon, and the proximal ⅔ of the transverse colon. The hindgut is responsible for the remainder of the colon, the rectum, and the proximal part of the anus. To be more specific, the distal ⅓ of the transverse colon, the descending colon, the sigmoid colon, the rectum and the proximal part of the anal canal develop from the hindgut. ***(Skandalakis et al ,2004)***

II-Surgical Anatomy of The Colon & Rectum

The colon extends from the end of the ileum to the rectum. The cecum, ascending colon, hepatic flexure, and proximal transverse colon comprise the right colon. The distal transverse colon, splenic flexure, descending colon, sigmoid colon, and rectosigmoid comprise the left colon ***(Yeatman & Bland,1989)*** **(Fig-1).**



(Fig-1): Anatomy of the colon ***(Yeatman and Bland , 1989).***

The ascending and descending portions are fixed in the retroperitoneal space; the transverse colon and sigmoid colon are suspended in the peritoneal cavity by their mesocolons. The caliber of the lumen is greatest at the cecum and diminishes distally ***(George et al*, *2003).***

Anatomic differences between the small and large intestines include position, caliber, degree of fixation, and, in the colon, the presence of three distinct characteristics: the taeniae coli, the haustra, and the appendices epiploicae. The three taeniae coli, anterior (taenia libera), posteromedial (taenia mesocolica), and posterolateral (taenia omentalis), represent

bands of the outer longitudinal coat of muscle that traverse the colon from the base of the appendix to the rectosigmoid junction, where they merge. The muscular longitudinal layer is actually a complete coat around the colon, although it is considerably thicker at the taeniae ***(Fraser et al, 1981).***

The haustra are separated by the plicae semilunares or crescentic folds of the bowel wall, which give the colon its characteristic radiographic appearance when filled with air or barium. The appendices epiploicae are small appendages of fat that protrude from the serosal aspect of the colon ***(Marcio, 2005).***

Parts of large intestine

1-Cecum and appendix:

The cecum is the saccular commencement of the colon. It is located in the right iliac fossa, where it lies on the iliacus muscle cranial to the lateral half of the inguinal ligament. At times, it may cross the pelvic brim to lie in the true pelvis. Anteriorly, it usually is in contact with the anterior abdominal wall. Superiorly, it is continuous with the ascending colon, and at some point along its medial border, the ileum enters it at the ileocecal ostium. This opening is surrounded by two flaps that protrude into the lumen and contain circular muscle derived