II

Recent Trends in Management of Rectal cancer

An Essay
Submitted for Partial Fulfillment of
Master Degree in General surgery

Presented by

Ahamad Adel M. Mansour
M.B.B.CH.

Under supervision of

Prof. Dr. / M. ALAA EL-DIN A. OSMAN
Professor doctor of general surgery
Faculty of medicine - Ain shams university

Dr. / Hisham A. Mohamed
Assistant professor of general surgery
Faculty of medicine – Misr University for science and technology

Dr./ Mohamed Mohamed Bahaa El-Dien
Lecturer in general surgery
Faculty of medicine - Ain shams university

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MMR	Mismatch repair gene
٥-FU	٥-fluorouracil
C٢٢٥	Cetuximab
CPT-١١	Irinotecan
EGFR	Epidermal growth factor receptor
FUDR	Fluorodeoxyuridine
FVC	Forced vital capacity
HER	Human epidermal growth factor receptor
LOH	Loss of heterozygosity
LOS	Length of hospital stay
MCRC	Irinotecan –refractory metastatic colorectal cancer
RT-PCR	Reverse-transcriptase polymerase chain reaction
SMA	Superior mesenteric artery
VEGF	Vascular endothelial growth factor
AFAP	Attenuated "FAP"
NCCN	National comprehensive cancer network

APC	Adenomatous polyposis coli

CEA	Carcinoembryonic antigen
CHRPE	Congenital hypertrophy of the retinal pigment epithelium
DCC	Deleted in colorectal cancer) located on the long arm of chromosome ١٨
FAP	Familial Adenomatous Polyposis Syndrome
HNPCC	Hereditary nonpolyposis colorectal cancer syndrome
IMA	Inferior mesenteric artery
MCC	(Mutated in colorectal cancer) located on the long arm of chromosome ٥)
NCI	National cancer institute
SMAD٤	Mothers against decapentaplegic homolog ٤
TGF	Transforming growth factor-β
Co٢	Carbon dioxide
SRA	Superior rectal artery
S٣	Sacral nerve ٣
CAPMS	Central Agency for Public Mobilization and statistics
CIN	chromosomal instability
MIN	Microsatellite instability

RER	Replication error
COX-٢	Cyclooxygenase-٢.
IBD	Irritable bowel disease
AJCC/UICC	The American Joint Committee on Cancer and the International Union Against Cancer
TNM	Tumor Node Metastasis classification
FS	Flexible sigmoidoscopy
FOBT	Fecal occult blood test
CT	Computed tomography
MRC	Magnetic resonance colonography
DCBE	Double contrast barium enema
MRI	Magnetic resonance imaging
eMRI	Endorectal MRI
PET	Positron emission tomography scanning
ERUS	Endorectal Ultrasound
USMSTF	the U.S. Multisociety Task Force on Colorectal Cancer
TEM	Transanal Endoscopic Microsurgery
H٢o	Water

TME	total mesorectal excision
LAR	low anterior resection
APR	Abdominoperineal resection
ANP	autonomic nerve preservation
PANPs	pelvic autonomic nerve plexuses
US	Ultrasound scan
IMV	Inferior mesenteric vein
LCA	Left colic artery
CAPMS	Central Agency for Public Mobilization and statistics
NSABP	The National Surgical Adjuvant Breast and Bowel Project
NCCTG	The North Central Cancer Treatment Group
NCI	National Cancer Institution
IORT	Intraoperative radiotherapy
MOF	Methotrexat, Oxaloplatin, ٥-Flurouracil
eMRI	Endorectal Magnetic Resonant Image
Pod١	Post operative day ١

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INTRODUCTION

Worldwide, rectal cancer is the fourth commonest cancer after lung, stomach and breast cancer. In addition, it is the fourth leading cause of cancer death after lung, stomach and liver cancer and accounts for ١٠-١١ % of mortalities from cancers **(Atkin et al., ٢٠٠٣).**

While in Egypt the estimated incidence as recorded by the national cancer institute is ١.٩ % of cancer patients ***(Elatter ٢٠٠٢).***

Regarding the etiology and predisposing factors for rectal cancer, the dietary factors play an imporrtant role, fibers believed to decrease risk of developing rectal cancer while fats increase risk of rectal cancer. However family history of colorectal cancer and genetic risk factors as polyposis syndrome, nonpolyposis syndromes and preexisting disease also play an important role ***(Umar et al., ٢٠٠٤).***

It is now well accepted that the majority of rectal carcinoma evolve from adenomatous polyps; this sequence of events is the adenoma-carcinoma sequence. Polyp is a nonspecific clinical term that describes any projection from the surface of intestinal mucosa regardless of its histological nature ***(Smith et al., ٢٠٠١).***

Screening plays an important role as many early cases of rectal cancers produce no symptoms and are discovered during digital or proctoscopic examination or even by fecal occult blood testing. However symptoms varies from bleeding per rectum which is the most common presentation, change in bowel habits, abdominal pain, bowel obstruction or pelvic pain, to malaise which is a non specific symptom ***(Elizabeth et al., ٢٠٠٧).***

The aim of rectal cancer treatment is radical excision of the rectum together with the mesorectum and associated lymph node. A sphincter saving operation (anterior resection) is usually possible for tumors of the upper two-third of rectum. Although removal of the rectum with permanent colostomy (abdominoperineal excision) is often required for tumors of the lower third of rectum .however, the introduction of stapling techniques has enabled many more of these patients to be treated by a sphincter-saving procedure provided minimum distal margin of clearance of ٢ cm. can be secured. Recently the introduction of total mesorectal excision and pre- and post-operative radiotherapy has increased the local control and decrease recurrence. In addition, recently, it has been demonstrated that surgery for rectal cancer can be carried out laparoscopically assisted either for abdomino-perineal excision or anterior resection ***(Norman ٢٠٠٤).***

Aim of the work

To spotlight on the methods of early detection and proper treatment of rectal cancer with highlighting the recent trends in management of rectal cancer

SURGICAL ANATOMY OF THE RECTUM

The rectum is the straight and terminal portion of the digestive tract. The superior third of the rectum is covered by the peritoneum over its anterior and lateral surfaces. Inaddition, the rectum is surrounded by a fascia (fasciapropria) which defines the limits of the mesorectum from behind ***(John,*** ***٢٠٠٦).***

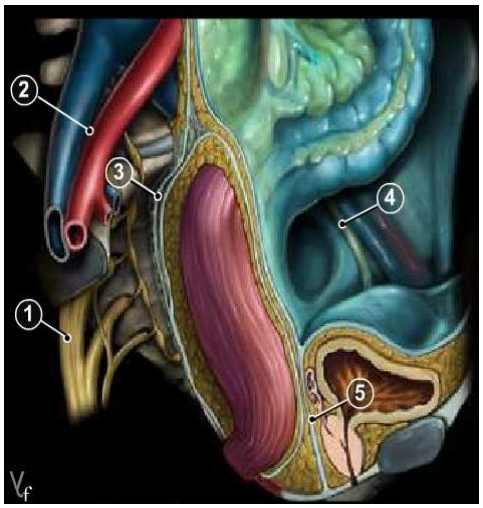

Fig. (١): Morphology of rectum **(Leroy, ٢٠٠١).**

١. Sacral nerves, ٢. Iliac vessels, ٣. Presacral fascia, ٤.Ureter, ٥. Denonvilliers'fascia

Topographically, the rectum, mesorectum and fascia propria are surrounded by the pelvic fascia located anterior to the sacrum and the sacral nerves, medial to the ureters, large

pelvic vessels and hypogastric nerve plexus, and posterior to the urinary/genital organs. These various fascial layers comprise circular zones in close proximity. Theoretically, therefore, a surgical plane exists between the fascia propria of the rectum and the parietal fasciae. This plane is used in the TME technique described by Heald, in which dissection is performed between the ٢ fasciae inferiorly to the pelvic floor ***(Ghummy, ٢٠٠٥)***.

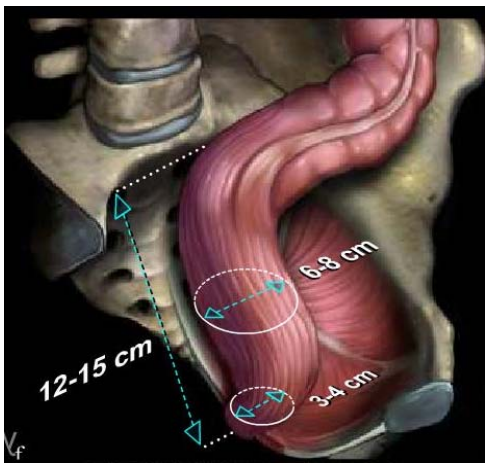

Fig.(٢): Topography of rectum **(Milsom, ٢٠٠١).**

Morphologically The rectum has the shape of a cylindrical reservoir, from ١٢ cm to ١٥ cm long, and extends from the sacral promontory posteriorly against the anterior surface of the sacral concavity. Proximally and distally it is ٣ to ٤ cm in diameter, and its middle portion is from ٦ to ٨ cm in diameter, although it may be much wider ***(Richard, ٢٠٠٥).***