List of Abbreviations

AJCC	:	American Joint Committee on Cancer
CAA	:	Coloanal anastomosis
DALM	:	Dysplasia-associated lesion or mass
EEA	:	End-to-end
EGFR	:	Epidermal growth factor receptor
FAP	:	Familial adenomatous polyposis
FOPT	:	Fecal occult blood testing
FS	:	Flexible Sigmoidoscopy
HCG	:	Human chorionic gonadotrophine
HNPCC	:	Hereditary non polyposis colorectal cancer
MMR	:	Mismatch repair
PET	:	Positron Emission Tomography
TME	:	Total mesorectal excision
TNF	:	Tumor Necrosis Factor
VEGF	:	Vascular endothelial growth factor

List of Figures

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الملخص العربي

تعد الأمعاء الغليظة رابع مكان أكثر شيوعا لحدوث السرطان بعد الرئة والمعدة والثدي ، ورابع سبب للوفاة من الأورام بعد الرئة والمعدة وسرطان الكبد ، وأعلى معدلات حدوث المرض كانت في أمريكا الشمالية وشمال أوروبا وأقل المعدلات كانت في صحارى إفريقيا والهند، ففى أمريكا وبريطانيا كان معدل حدوث سرطان المستقيم والقولون منذ الولادة حوالي ٦% ومعدل الوفاة حوالى٣%، وقد تساوت نسبة حدوث سرطان القولون في الرجال والنساء .ولكن سرطان المستقيم أكثر حدوثا في الرجال بحوالي ٢٠:٢٥ %من النساء. وفى مصر قيس معدل حدوث سرطان القولون والمستقيم بواسطة المعهد القومي للأورام وجد إن المعدل ١.٩% من جميع حالات السرطان.

وهناك مجموعات أكثر عرضة لمرض سرطان القولون والمستقيم أكثرهم خطورة لحدوث المرض هؤلاء المصابون بمرض وراثي مثل الزوائد اللحمية الوراثية في القولون، وسرطان القولون والمستقيم الوراثي بدون زوائد لحمية، والدراسات المرضية و الجينية والمتوطنة أثبتت أن معظم

حالات سرطان القولون والمستقيم حدثت على زوائد لحمية غددية والتخلص منها أدى إلي وقف تطور المرض في مكان الزوائد.

وكذلك من يعانون من أمراض الزوائد اللحمية العائلي (الوراثي) يكونوا حوالي مئات أو آلاف الأورام الحميدة الغددية والتخلص منها أدى إلي وقف تطور المرض في مكان الزوائد في سن العاشرة وكذلك نسبة ١٠٠% حدوث سرطان القولون والمستقيم في سن الأربعين، وقد وجد عشوائيا أن سرطان القولون والمستقيم يتزايد مع وجود الأورام الغددية الحميدة ومجموعة أخرى تعانى من مخاطر حدوث سرطان القولون والمستقيم ممن يعانون أمراض القولون المتقرح و مرض كرونز، والأشخاص ذو التاريخ العائلي لسرطان القولون و المستقيم أو الزوائد الغددية الكبيرة أو الأورام الغددية الحميدة ممن ليس لهم تاريخ عائلي لمرض السرطان في القولون والمستقيم.

وفي أمريكا قد نصحوا بعمل الأشعات التشخيصية لمن يعانون من مخاطر حدوث المرض وقد انخفض معدل حدوث المرض لمن تم استخدام الأشعة التشخيصية المبدئية

لهم ولم ينخفض المعدل في بريطانيا لعدم استخدامهم الأشعة التشخيصية مسبقا. وفى محاولات عشوائية تبين أن استخدام الأشعة التشخيصية مسبقا يقلل من حدوث المرض أو الوفاة.

وهناك طرق عديدة و حديثة من الأشعات التشخيصية لتحديد الأورام السرطانية ذات كفاءة عالية ومن أهمها منظار القولون والمستقيم ، والأشعات التشخيصية تعتمد على القابلية والأمان والتكلفة المادية.

Contents

Management of Rectal Cancer

Essay
Submitted for Partial Fulfillment of
The Master ***Degree in General Surgery***

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علاج حالات سرطان المستقيم

رسالة توطئة للحصول علي درجة الماجستير
فى الجراحة العامة

مقدمة من:

الطبيب/ أمير زين العابدين علي
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Introduction

Worldwide, the colorectal cancer is the fourth most frequently diagnosed cancer, in US colorectal cancer is the fourth most frequently cancer in men after skin, prostate and lung cancer; it is also the fourth most frequent cancer in women after: skin, lung, and breast cancer. Although colorectal cancer has the second highest cancer related mortality rate after lung cancer.

Highest incidence rates occur in North America, North Europe and Australia, lowest rate are found in sub-Saharan Africa and India ***(Inciardi et al, 2000)***.

This malignancy occurs in all ethenic groups, with Africans Americans having the highest prevalence and mortality rates, and Native Americans have the lowest prevalence.

Recto-sigmoid cancer presents 10% of large bowel cancers, while rectal cancer represents 21% of all large bowel cancer.

Cancer of the rectum occurs20-50% more frequently in men, while cancer colon is equally frequent in both sexes ***(Atkin et al., 2003)***.

Colo-rectal cancer is now understood to be a genetic disorder. Transformation of normal cell to malignant cell is achieved through step-by-step accumulation of genetic alternation. This concept fits with the well established polyp-cancer sequence ***(Jass, 1999).***

In sporadic bowel cancer the risk of developing metachronous adenomatous polyps or colorectal cancer

increases with the number of adenomas detected initially ***(Atkin et al, 2003)***.

US is the only country that has advocated endoscopy screening for the purpose of detecting the neoplasia in the premalignant phase, and is the only country in which rates are falling ***(Atkin et al, 2003)***.

There are many methods now available for rectal cancer screening with adequate evidence of benefit. The precise choice of screening regimen with a particular health care setting will depend on issues of acceptability, safety, feasibility and cost effectiveness ***(Atkin, et al., 2003)***.

Seventy percent of patients with colorectal cancer with apparently localized disease, in these patients surgery can be curative, but relapse after complete resection is frequent. Many trials including adjuvant therapy have rapidly developed to decrease the recurrence rate and increasing the survival of the patient ***(Enker et al., 2000)***.

Aim of the work

The essay is a trial to focus the light on rectal cancer incidence, risk factors, pathology, diagnostic effective methods of screening and recent modalities of treatment, hopping to achieve early detection and effective treatment.

Anatomy of the Rectum

Development:

The lower end of the hindgut dilates to form an expanded part called the cloaca (endodermal). The cloaca is connected to the umbilicus by the allantois and is closed below by the cloacal membrane which is bilaminar i.e., formed of 2 layers:

a) outer ectodermal layer, b) inner endodermal layer.

The tissue between the hindgut and allantois forms the urorectal Septum which grows caudally towards the cloacal membrane dividing the cloaca into:

i) anterior part called the primitive urogenital sinus.
ii) posterior part called the anorectal canal.

At the same time the cloacal membrane is divided into the urogenital membrane anteriorly and the anal membrane posteriorly. An ectodermal depression called the proctoderm is formed opposite the lower end of the recto-anal canal and is separated from it by the anal membrane ***(Goligher et al., 1984)***.

The rectum (with its termination the anal canal) is derived from the anorectal canal (the dorsal part of the cloaca). The anal membrane breaks down, at a site probably represented by the pectinate line in the anal canal, the anal valves are said to indicate the remains of the membrane.

The part of the anal canal continuous with the rectum above the pectinate line is endodermal, and the part below which is derived from ectodermal origin, hence the difference in the blood and nerve supplies and lymph drainage of the upper and lower parts of the anal canal ***(Rintoul et al., 1995).***

Gross anatomy:

The Latin word "rectum" means straight, as if ruled .The rectum was originally named in monkeys in which it is straight, but the human rectum appears to be misnamed. A part from following the posterior concavity of the sacrum and coccyx, it shows three slight lateral curves or flexures that are most prominent when the viscus is distended Upper and lower curves convex to the right and middle curve convex to the left.

Although anatomists traditionally assign the origin of the rectum to the level of the third sacral vertebra, surgeons generally consider the rectum to begin at the level of the sacral promontory ***(Rintoul et al., 1995).***

The lowest part is slightly dilated as the rectal ampulla. Corresponding to the three curves seen externally, there are three sickle shaped, transverse rectal folds ,formerly called rectal valves (of Houston) that project into the lumen (Fig.1).

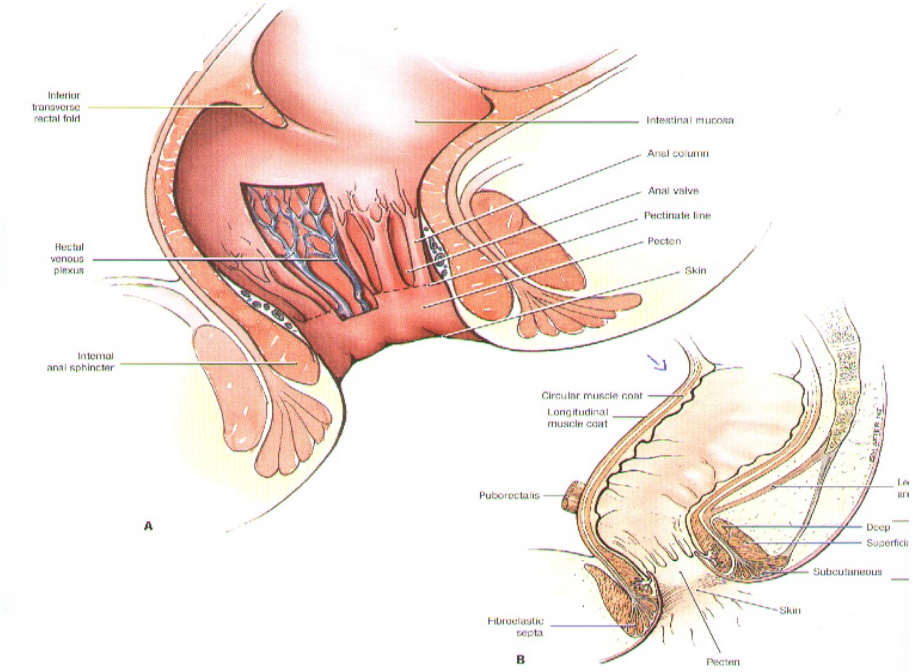

Fig (1): gross anatomy of the rectum:
(A) Internal surface **(B) Median section**

They are produced by the circular muscle of the wall and are not confined merely to the mucous membrane. Their purpose is not clear, but they may be concerned in the separation of flatus from the fecal mass, giving shelf-like support while allowing flatus to pass ***(Skandalakis et al., 2000).***

The rectum, which is about 12 cm long, is continuous with the sigmoid colon at the level of the third piece of the sacrum. The transition between the rectum and the sigmoid colon is a gradual one.

At this junctional region the sigmoid mesocolon ends and the rectum has no mesentery. The taeniae of the sigmoid colon gradually broaden to form wide anterior and posterior muscular bands, which meet laterally to give the rectum a complete outer layer of longitudinal muscle; so the rectum has no sacculations. There are also no appendices epiploicae in the rectum ***(Skandalakis et al., 2000).***

The rectum turns downwards and backwards as the anal canal 2-3 cm in front of the tip of the coccyx. The anorectal junction is sling forwards by the U-loop of the puborectalis, which merges with the top of the external sphincter of the anal canal, forming a palpable edge (the anorectal ring).

On rectal examination, the posterior wall of the rectum appears to make a right-angled bend at the anorectal junction. This angle widens as the puborectalis muscle sling relaxes during defecation to allow faeces to enter the anal canal. Although the rectum has no mesentery, the visceral pelvic fascia around the rectum is referred to by surgeons as the mesorectum. The pararectal lymph nodes are in the mesorectum, which is removed together with the rectum as a package during rectal excision for carcinoma ***(Skandalakis et al., 2000).***