Role of surgery in metastatic Colorectal cancers

Essay

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Thanks to ALLAH, the most merciful and the most compassionate, without his help nothing could be done.

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Moataz Salah Khattab

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AAA	:	Abdominal aortic aneurysms
AJCC	:	American Joint Committee on Cancer
APR	:	Abdominal perineal resection
ASA	:	American Society of Anesthesiologists
ASCO	:	American Society of Clinical Oncology
CA	:	carbohydrate antigen
CBC	:	Complete blood count
CEA	:	Carcinoembryonic antigen
CUSA	:	Cavitron Ultrasonic Surgical Aspirator
CRC	:	Colorectal cancer
CRLM	:	CRC liver metastasis
CT	:	Computed tomography
CTC	:	Computed tomographic colonography
CTx	:	Chemotherapy
DCBE	:	Double contrast barium enema
EUS	:	endorectal ultrasound
ESR	:	Erythrocyte sedimentation rate
EHD	:	extra hepatic disease
FNA	:	fine needle aspiration
FDG-PET	:	fluorodeoxyglucose positron emission tomography
HNPCC	:	hereditary nonpolyposis colorectal cancer
ICG	:	indocyanine green

List of Abbreviations

IMA	:	inferior mesenteric artery
IHC	:	Immunohistochemistry
JSCCR	:	Japanese Society of Cancer of the Colon and Rectum
KT	:	Krukenberg tumor
LN	:	Lymph node
LAR	:	low anterior resection
MRI	:	magnetic resonance imaging
MBP	:	Mechanical Bowel preparation
NCI	:	National Cancer Institute
NCCN	:	National Comprehensive Cancer Network
PET	:	positron emission tomography
PCR	:	polymerase chain reaction
QOL	:	quality of life
RFA	:	radiofrequency ablation
RT	:	Radiotherapy
SMA	:	superior mesenteric artery
TME	:	total mesorectal excision
TEM	:	transanal endoscopic microsurgery
VATS	:	Video-assisted thoracoscopic surgery
WHO	:	World health organization

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Abstract

Colorectal cancer (CRC) is a global public health concern, with an increasing incidence and mortality rates in the developing countries.

Colorectal cancer is one of the most frequent malignant tumors and a leading cause of cancer-related death. One third of the patients develop a metastasis during the course of the disease. Because of that, it is very important to know about the evolution of the illness, how to make a quick diagnosis and how to provide an appropriate treatment depending on the tumor and the location of the metastases. The aim of this study is to highlight the methods of diagnosis and the role of surgery in treatment of metastatic lesion of colorectal tumors. Colorectal cancer is one of the most frequent malignant tumors and a leading cause of cancer-related death. One third of the patients develop a metastasis during the course of the disease. Because of that, it is very important to know about the evolution of the illness, how to make a quick diagnosis and how to provide an appropriate treatment depending on the tumor and the location of the metastases. The liver is the most common site of metastasis from CRC; this is thought to be due to the venous drainage of the colon and rectum. Approximately 50% of CRC patients will develop liver metastasis during the course of the disease. In patients with metastatic CRC, the liver is the sole organ with metastases in approximately one-third of patients. Common sites of extra-hepatic metastatic disease include the lung, nodal metastases, Bone metastases, Brain metastases, ovarian metastases as well as the peritoneum. Surgical resection is the current treatment of choice for colorectal cancer metastases isolated to the liver, and has been proven to be the only potentially curative therapy. The combination of advances in medical therapy, such as systemic chemotherapy (CTX), and the function of surgery for metastatic disease, have enhanced prognosis with prolongation of the median survival rate and cure. Treatment of lymphatic metastasis, given its close relation with the growth of the primary tumor, is the same as for the original lesion: primary resection with exeresis of the nodes of the lymphatic area that drain the tumor.

Keywords: CRC:Colorectal cancer, CRLM: CRC liver metastasis, CT: Computed tomography, CTC: Computed tomographic colonography, CTx:Chemotherapy, AAA: Abdominal aortic aneurysms, ASA:American Society of Anesthesiologists

Introduction

Colorectal cancer (CRC) is a global public health concern, with an increasing incidence and mortality rates in the developing countries.[1,2]

Colorectal cancer is one of the most frequent malignant tumors and a leading cause of cancer-related death. One third of the patients develop a metastasis during the course of the disease. Because of that, it is very important to know about the evolution of the illness, how to make a quick diagnosis and how to provide an appropriate treatment depending on the tumor and the location of the metastases.[3]

Fortunately, both incidence and mortality rate for colon cancer are on the decline, this is largely attributed to improved detection & removal of premalignant adenomas as well as improved screening of high risk patients.[4]

Up to 70% of patients with Colorectal cancer develop liver metastases Colon cancer is a systemic disease in 19% of the patients, the liver and the lung are the most common locations for a metastasis. Colorectal adenocarcinoma is the most common cancer leading to pulmonary metastasectomy.[5]

The liver is the most common site of metastasis from CRC; this is thought to be due to the venous drainage of the colon and rectum. Approximately 50% of CRC patients will develop liver metastasis during the course of the disease.[6] In patients with metastatic CRC, the

liver is the sole organ with metastases in approximately one-third of patients.[7]

Common sites of extra-hepatic metastatic disease include the lung, nodal metastases, Bone metastases, Brain metastases, ovarian metastases as well as the peritoneum.[8]

The lung is one of the most common metastatic sites for colorectal carcinoma. About 2-7% of patients with primary CRC will present with isolated lung metastasis, while about 10% of patients will have synchronous pulmonary and colorectal metastasis. The lung is the most accepted extra hepatic disease (EHD) site managed with surgical resection. In 1944, Blalock reported the first successful resection of pulmonary metastasis from colorectal carcinoma.[9]

Surgery plays an important role in the treatment of patients with limited metastatic disease of colorectal cancer (CRC). Hepatic metastatic disease from colorectal cancer (CRC) is a significant clinical problem. The liver is the dominant metastatic site for patients with CRC. The available regional treatments for hepatic metastases from CRC include surgical resection, local tumor ablation (ie, instillation of alcohol or acetic acid directly into the metastatic lesions, radiofrequency ablation [RFA], regional hepatic intraarterial chemotherapy or chemoembolization, and radiation therapy (RT). Among these treatments, only surgery is associated with a survival plateau. Pulmonary metastasectomy is currently indicated for patients

with the following criteria: primary tumor controlled; no evidence of metastases outside lung parenchyma; possibility of complete resection (R0).[10]

Aim of the Work

The aim of this study is to highlight the methods of diagnosis and the role of surgery in treatment of metastatic lesion of colorectal tumors.

Review of literature

I- Brief of anatomy of colon and rectum

The colon and rectum constitute a tube of variable diameter about 150 cm in length. The terminal ileum empties into the cecum through a thickened, nipple-shaped invagination, the ileocecal valve.

Ceacum

The cecum is a capacious sac-like segment of the proximal colon with an average diameter of 7.5 cm and length of 10 cm. (figure 1).[11]

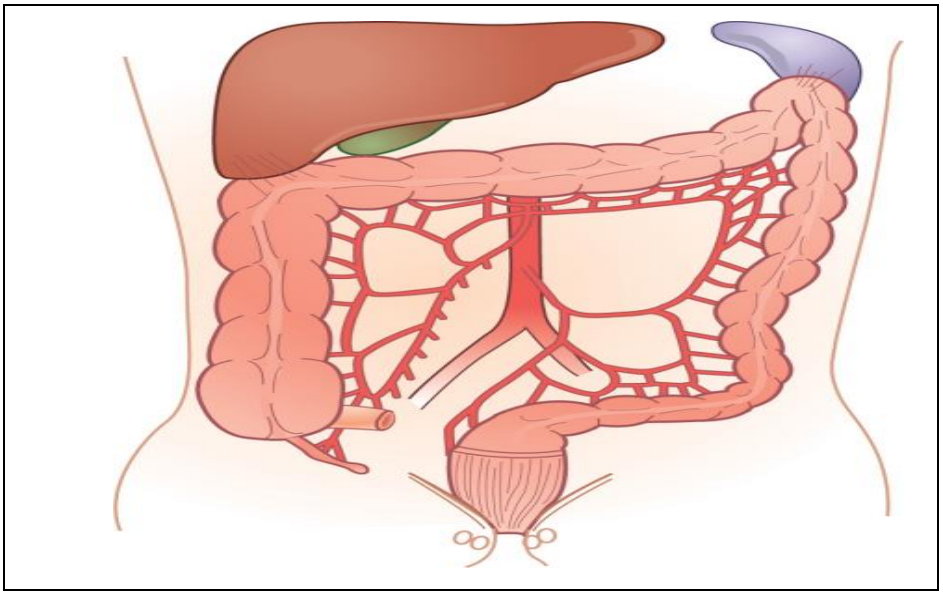

Figure (1): Anatomy of the colon and rectum: coronal view. The diameter of the right colon is larger than the diameter of the left side. Note the higher location of the splenic flexure compared with the hepatic flexure, and the extraperitoneal location of the rectum.[11]

Appendix

The appendix extends from the cecum about 3 cm below the ileocecal valve as a blind-ending elongated tube 8 to 10 cm in length.[12]