# بسم الله الرحمن الرحيم


MONA MAGHRABY


# شبكة المعلومات الجامعية

# التوثيق الالكتروني والميكروفيلم

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# جامعة عين شمس

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# قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

# يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

***MONA MAGHRABY***

# Complete Mesocolic Excision (CME) Versus Conventional RT Hemicolectomy (CRH) in Patients with Right Sided Colon Cancer: A Systematic review and Meta-analysis

*Submitted for Partial Fulfilment of*
***Master*** *Degree in General Surgery*


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Karim Mohamed Ali Hafez

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# List of Abbreviations

| Abb. | Full term |
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| *ARID1A* | *AT-rich interactive domain 1A* |
| *ASRi* | *Age-standardized incidence rate* |
| *ASRm* | *Age-standardized mortality rate* |
| *BMI* | *Body mass index* |
| *CI* | *Confidence interval* |
| *CME* | *Complete mesocolic exision* |
| *CMECVL* | *Complete mesocolic excision with central vascular ligation* |
| *CRC* | *Colorectal cancer* |
| *CRH* | *Conventional right hemicolectomy* |
| *CVL* | *Central vascular ligation* |
| *DFS* | *Disease free survival* |
| *DSS* | *Disease-specific survival* |
| *ERAS* | *Enhanced Recovery after Surgery* |
| *ESGE* | *European Society of Gastrointestinal Endoscopy* |
| *EURECCA* | *European Registration of Cancer Care* |
| *GIA* | *Gastrointestinal anastomosis* |
| *ICA* | *Ileocolic artery* |
| *JSCCR* | *Japanese Society for Cancer of the Colon and Rectum* |
| *MCA* | *Middle colic artery* |
| *MCV* | *Middle colic vein* |
| *MD* | *Mean difference* |

# List of Abbreviations cont...

| Abb. | Full term |
|---|---|
| *NOS* | *Newcastle-Ottawa Quality Assessment Scale* |
| *OR* | *Odds ratio* |
| *OS* | *Overall survival* |
| *PFS* | *Progression-free survival* |
| *PI3K* | *Phosphatidylinositol 3-kinase* |
| *PRISMA* | *Preferred reporting items for systematic reviews and meta-analyses* |
| *RCA* | *Right colic artery* |
| *RCV* | *Right colic vein* |
| *SMA* | *Superior mesenteric artery* |
| *SMV* | *Superior mesenteric vein* |
| *TA* | *Transverse anastomosis* |

# INTRODUCTION

We live in an era with improved worldwide average living standards and increased access to adequate healthcare that has considerably improved the diagnosis and treatment of diseases. These measures have had an impact on average life expectancy in most regions of the world. However, although death rates from communicable diseases have improved globally as a result of these medical improvements, cancer-related mortality has increased by almost 40% over the past 40 years. A further 60% increase is expected in the coming 15 years, with 13 million people estimated to die of cancer in 2030. The main causes of cancer-related mortality have also changed, attributable to alterations in disease incidence, introduction of screening programmes and therapeutic improvements ***(Kuipers et al., 2013).***

Colorectal cancer was rather rare in 1950, but has become a predominant cancer in Western countries, now accounting for approximately 10% of cancer-related mortality. Reasons explaining this increased incidence include population ageing and the preponderance of poor dietary habits, smoking, low physical activity and obesity in western countries ***(Capelle et al., 2010).***

New treatments for primary and metastatic colorectal cancer have been developed and include laparoscopic surgery for primary disease; resection of metastatic disease affecting, for example, the liver and lungs; radiotherapy for rectal cancer and some forms of metastatic disease; and neoadjuvant and palliative chemotherapy ***(Papamichael et al., 2013).***

Surgery is the mainstay curative treatment for patients with non-metastasized colorectal cancer. However, outcome is strongly related to the quality of surgery, the quality of pre-operative staging and treatment selection. The dissection should ideally follow the embryological anatomical planes to ensure that the tumour and its principle zone of lymphatic spread are removed. Special attention should be given to the circumferential surgical resection margins. In more-advanced cases of rectal cancer, neoadjuvant treatment (for example, preoperative chemotherapy for T4 colon cancer, and (chemo)radiotherapy for locally advanced cancer) can reduce tumour load and even tumour stage, and might be necessary to optimize the chances for a successful resection. Thus, a multidisciplinary approach before beginning treatment, based on adequate staging information, is mandatory ***(Breugom et al., 2014).***

Complete mesocolic excision (CME) with central vascular ligation (CVL) represents an extension to the colonic cancer of the already standardized resection for rectal cancer. It adheres to the same guiding principle that sharp surgical

dissection, following embryological planes, with central vascular ligation, should improve oncological outcomes ***(Negoi et al., 2017).***

Hohenberger et al published the technical details of a new concept termed CME and central ligation for colonic cancer. During CME with CVL for right-sided tumors, the ileocolic and right colic vessels should be ligated at their origin from the superior mesenteric artery ***(Hohenberger et al., 2007).***

Using CME and CVL, Hohenberger et al reported a reduction of the local five-year recurrence rate from 6.5% to 3.6% and an increase in the cancer-related five-year survival rate from 82.1% to 89.1%. This specimen-oriented technique is associated with the removal of more tissue compared with standard surgery, a wider distance from the tumor to the high vascular tie, a longer length of large bowel, a wider area of removed mesentery and a greater lymph node yield. These differences may partially explain the higher reported survival rates with CME and CVL ***(West et al., 2010).***

Despite advances in surgical and medical therapies, cure rates and long-term survival have changed little in the past several decades. Against this background, and given that colorectal cancer is preceded by a polypoid precursor, screening programmes for early detection have gained momentum ***(De Jonge et al., 2012).***