DEDICATION

To my mother — My first teacher

To my father — My hero

To my husband — MY other hero

To my brothers , sisters and friends

To all those un believable persons

I am trying to say thank you

ACKNOWLEDGMENT

First of all I great thank go to Allah

I thank my supervisor Dr Moneira Abd Allah

For she is expert supervision , guidance motivation

and support throughout the course of this work .

Finally I must thank all my colleagues in the

Department of histopathology and Cytology

ABSTRACT

This study carried out in Khartoum state during the period February 2012- September 2012. The study aimed to detect the expression of carcino embryonic antigen (CEA) tumor marker in colorectal carcinomas and its association with cytokeratiens 20 (CK20) using immunohistochemistery technique.

Fifty formalin-fixed paraffin embedded tissues that were previously diagnosed as colon cancer with different histological types classified as non mucin secreting which the highest one that constituted 43(86%), followed by mucin secreting carcinoma 4(8%) ,2(4%) tubular carcinoma and1(2%) lymphoma, most cases were classified according to tumor grades as moderately differentiated tumor.

The age of study group range between(30- 80) years and majority of cases within age grouping 41-50 years and 51-60years constituted 16(32%) cases for each.

Males were affected more than females constituting 28(56%) and 22(44%) respectively.

Forty one (82%) of cases were positive for CEA tumor marker.

Out of 47(94%) positive for CK20, 40(80%) were positive for CEA, while other 3(6%) cases that negative for CK20, 1(2%) was positive for CEA.

According to this findings the study conclude that CEA has high expression among colorectal carcinomas grades with significant correlation between CK20 and CEA expression .

خلاصة الأطروحة

أجريت هذه الدراسة في ولاية الخرطوم في الفترة من فبراير إلى سبتمبر 2012م .

هدفت الدراسة للكشف عن واسمه السرطان CEA في مرضي سرطان القولون وارتباطه مع CK20 باستخدام كيمياء مناعة الأنسجة .

خمسون نسيج مثبت بالفورملين مغمور بشمع البرافين وتم تشخيصه مسبقاً على أنه كسرطان قولون مع مختلف الأنواع صنف كالأتي :-

السرطان الغدى وكان اعلي واحد حيث يمثل (86%) 43 يليه السرطان ذو الإفراز المخاطي (8%) 4 ، والسرطان الأنبوبي (2%)1 والسرطان الليمفاوي (4%)2 .

ومعظم الحالات صنفت استناداً على حدة السرطان على أنها ورم متوسط التمييز .

وكانت أعمار المجموعة تحت الدراسة تتراوح بين 80-30 سنه ومعظم الحالات كانت في الفئات العمرية من 41-50 سنه و 51-60 سنه حيث تمثل (32%) 16 لكل واحدة .

معدل الإصابة عند الذكور اعلي منه عند الإناث (56%) 28 ، (44%) 22 على التوالي .

واحد وأربعون(82%) من الحالات كانت ايجابية بالوا سمه الورمية CEA .

خارج (94%)47 ايجابية لـ CK20 و (80%) 40 ايجابية لـ CEA . بينما الثلاثة (6%) حالات آخري التي كانت سلبية لـ CK20 واحدة (2%) كانت ايجابية لـ CEA .

استناداً على هذه النتائج خلصت الدراسة إلى أن اعلي تعبير بالواسمة الورمية CEA في سرطان القولون ودرجاته مع وجود علاقة متخصصة بين واسمات الورم CK20 و CEA .

CONTENT

CONTENT	PAGE
Dedication	I
Acknowledge	II
Abstract in English	III
Abstract in Arabic	IV
List of content	V-VIII
List of table	IX
List of Figures	X
CHAPTER ONE	
Introduction	1
Objective	2
CHAPTER TWO	
Literature Review	4
Anatomy of colon	4
Morphology of colon	5
Physiology of colon	5
Histology of colon	6
Diseases of colon	6
Inflammatory bowel disease	6
Ulcerative colitis	7
Benign condition	7
Condyloma accuminatum	7

Diverticular disease	7
Volvulus of colon	7
Bowel endometrosis	8
Malignant condition	8
Stage 0 (carcinoma in situ)	8
Stag 1	9
Stage II	9
Stage III	9
Stage IV	10
Risk factors of colon cancer	11
Hereditary factors	11
Other factors	12
Screening and early diagnosis	13
Prevention	13
Treatment of colon cancer	14
Methods of diagnosis	15
Clinical examination	15
Laboratory investigation	16
Tumor marker	17
Types of tumor markers	17
Clinical application of tumor marker	17
How to measure tumor marker	18
Carcinoembryonic antigen (CEA)	19

The biology of CEA	19
The clinical role for CEA	25
CEA and screening	27
CEA as diagnostic test	28
CEA as prognostic indicator	30
Immunohistochemistery diagnosis	31
CHAPTER THREE	
Study design	35
Study area	35
Study sample	35
Sample collection and preparation	35
The staining procedure	36
The immunohistochemical procedure	36
Statistical analysis	37
Ethical consideration	37
CHAPTER FOUR	
Result	38
CHAPTER FIVE	
Discussion	48
Conclusion	51
Recommendation	52
Reference	53
Appendix	55

LIST OF TABLE

TABLE NO	ISSUE	PAGE
Table no (1)	Histological diagnosis in relation to age among cases	45
Table no (2)	Relation between histological diagnosis and sex for colon carcinoma	46
Table no (3)	Relation between histological diagnosis and CEA expression for colon carcinoma	47
Table no (4)	Relation between histological grade and CEA expression for colon carcinoma	48
Table no (5)	Relation between CK20 expression and CEA expression for colon carcinoma	49
Table no (6)	Relation between histological diagnosis and histological grading for colon carcinoma	50

LIST OF FIGURES

GRAPH NO	ISSUE	PAGE
Graph no (1)	Description of histological diagnosis	40
Graph no (2)	Description of age among study group	41
Graph no (3)	Description of sex among study group	42
Graph no (4)	Description of histological grade	43
Graph no(5)	Description of CEA expression	44