

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها على هذه الأفلام قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ٢٥-٥٠ مئوية ورطوية نسبية من ٢٠-١٠ في درجة حرارة من ٢٥-١٥ مئوية ورطوية نسبية من ٢٠-١٠ To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

بعض الوثائـــق الأصليــة تالفـه

بالرسالة صفحات لم ترد بالاصل

ALTERED RADIATION THERAPY IN LOCALLY ADVANCED CARCINOMA OF THE CERVIX UTERI

Thesis

Submitted in Partial Fulfillment of the Requirement for M.D. Degree in Radiotherapy

Вu

Khaled Osman Abdel Fattah Zaza

M.B., B.Ch. M.Sc. in Radiotherapy Assistant lecturer of Radiotherapy National Cancer Institute, Cairo University

Supervised by

Prof. Ibrahim Ezzat

Professor of Radiotherapy and Nuclear Medicine National Cancer Institute Cairo University

Prof. Anas El-Mahdi

Professor of Radiation Oncology and Biophysics Eastern Virginia Medical School Virginia, USA

Prof. Shadia El-Gerzawi

Professor & Chairman, Department of Pathology National Cancer Institute Cairo University

Prof. Mervat El-Naggar

Professor of Radiotherapy and Nuclear Medicine National Cancer Institute Cairo University

National Cancer Institute Cairo University 2000

هرائد الرحن الرحيم الله قالوا سبحانك لاعلم لنا إلاما علمتنا إنك أنت العليم الحكيم ♦

صلق الله العظيم

(سوسرة البقرة ٣٢)

TO MY FAMILY

Acknowledgement

-25

I am greatly indebted to **Prof. Ibrahim Ezzat**, Professor of Radiotherapy and Nuclear Medicine at the National Cancer Institute, Cairo University, who devoted much of his precious attention and advice. He supervised the work all through with his knowledge and insight. He kept enriching the ideas with a great patience and devotion.

I am also deeply indebted to **Prof. Anas El-Mahdi**, Professor of Radiotherapy and Biophysics at Eastern Virginia Medical School, Virginia, USA, who suggested this topic. Although miles away, he was always in the heart of this study, guided me throughout the whole work and helped me to be acquainted with recent development in this topic. This work could not be done without his encouragement and help.

I am also grateful to **Prof. Shadia El-Gerzawi**, Professor and Chairman of Pathology department at the National Cancer Institute, Cairo University, whose guidance has helped me greatly during this work. Her remarks were the backbone for the analysis of flow cytometry and immunohistochemistry results. She kept reinforcing the idea with unlimited patience and kindness.

My greatest appreciation and thanks go to **Prof. Mervat El-Naggar**, Professor of Radiotherapy and Nuclear Medicine at the National Cancer Institute, Cairo University. She was always guiding me all through the fine details of my work, giving me as much of her precious time as I needed. Her experience and skill added a great deal to this work.

I will never forget the fatherly attention and the unlimited assistance of **Prof. Bernard Aron**, Professor of radiation oncology at the University of Cincinnati, Ohio, USA. His top-notch experience was the guideline for my footsteps through this work. My heartily thanks go to him and his respectful wife, **Janice**, who made the stay of my family and I in the USA home away from home. I extend my thanks to all members of his department who did not save an effort to make every thing I needed for my work possible.

My deepest thanks go to **Prof. Jose Mira**, head of the cytology unit at the pathology department, University of Cincinnati, USA, who helped me achieve the practical research in this work. His remarks were always wise and valuable. His wonderful personality eased all the difficulties that were faced. I can not forget to thank **Mary-Ann Miller and her team** who prepared all the specimens at the University of Cincinnati laboratories.

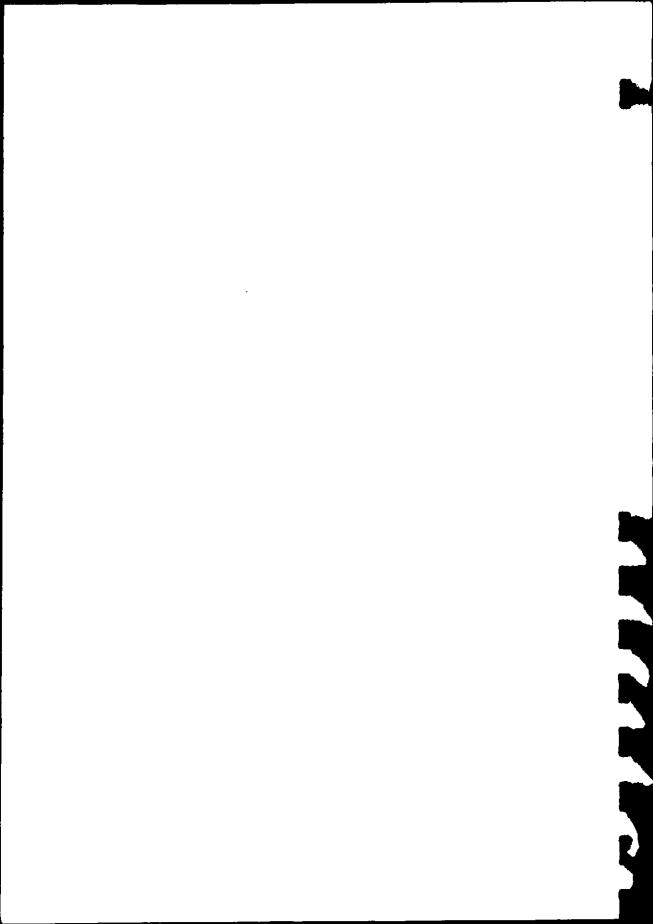
My thanks are also due to **Prof. Peter Gartside**, Professor of biostatistics at the University of Cincinnati, Ohio, USA and **Dr. Omar El-Hattab**, Assistant Professor of Epidemiology, National Cancer Institute, Cairo University for their valuable assistance in all of the statistical results of this study.

I extend my thanks to all members of our radiotherapy department, National Cancer Institute, for their great help and encouragement.

Khaled Zaza

CONTENTS

Introduction and aim of work	
Review of literature Chapter 1: Management modalities for locally advance cervix uteri cancer	ed 1
Chapter 2: Standard radiotherapy for locally advanced cervix uteri cancer	d 26
Chapter 3: Altered fractionation schedules for locally advanced cervix uteri cancer	50
Chapter 4: Re-evaluation of the FIGO staging system for cervix uteri cancer	60
Chapter 5: Predictors of response to treatment for locally advanced cervix uteri cancer	66
Patients and Methods	88
Results	109
Discussion	189
Summary and conclusion	203
References	207
Arabic summary	



LIST OF TABLES

Number	Title	Page
1.1	Site of failure correlated with treatment group and stage	25
2.1	Guidelines for treatment with irradiation for locally advanced carcinoma of the cervix uteri	31
1	FIGO staging system	90
2	Tumour burden score	92
3	Karnofsky index for performance status	93
4	Gynaecologic oncology group (GOG), common toxicity criteria (CTC),genito-urinary	102-103
IV-1	Age of patients in each arm	114
IV-2	Presenting symptoms for patients in each arm	114
IV-3	Haemoglobin level for patients in each arm	114
IV-4	Pathology grade of patients in each arm	115
IV-5	Size of cervix uteri mass	115
IV-6	Laterality of parametrial involvement in patients in each arm	115
IV-7	Distribution of patients by FIGO stage	116
IV-8	Tumour burden score (TBS) in each arm	116
IV-9	FCM analysis in patients having evaluable DNA	117

IV-10	Ki 67 distribution in each arm	117
IV-11	Factor VIII distribution in each arm	117
IV-12	Analysis of pattern of failure	130
IV-13.a	Distribution of treatment failure by stage	131
IV-13.b	Pattern of failure in relation to stage in all patients	131
IV-14	Acute and chronic side effects in relation to arms of treatment	186
IV-15.a	Acute radiation complications by stage for patients in arm I	187
IV-15.b	Acute radiation complications by stage for patients in arm II	187
IV-16.a	Chronic radiation complications by stage for patients in arm I	188
IV-16.b	Chronic radiation complications by stage for patients in arm II	188

Ų

LIST OF FIGURES

Number	Title	Page
5.1.a	The cell cycle	68
5.1.b	DNA content in relation to the cell cycle	68
5.2	Mechanism of flow cytometry	73
5.3	The cell cycle is governed by a series of cyclin dependent kinases	85
1	Postero-anterior simulation film for AP//PA external beam fields	96
2	Lateral simulation film for lateral external beam fields	97
3.a.1	FCM histogram showing a diploid pattern with a high SPF (21.7%)	106
3.a.2	FCM histogram showing a diploid pattern with a low SPF (8.9%)	106
3.b	FCM histogram showing an aneuploid pattern with a diploid internal reference peak and a high SPF (28.2%)	106
4	Method for preparing paraffin-embedded tissue for flow cytometry	107
IV-1	Distribution of 60 patients in both arms of this study according to their age group	118
IV-2	Distribution of 60 patients in both arms of this study according to their presenting symptom	119
IV-3	Distribution of 60 patients in both arms of this study according to their haemoglobin level	120