Dedication

To

My

Father, mother and my wife and all my family.

Acknowledgment

First I would like to thank almighty Allah for the ability he has given me to accomplish this study, thanks are due to my supervisor Dr Magdi.M.A.Salih Assistant Professor, university of Khartoum, for his helpful advice, I am grateful to Mr Mohammed Sideeg Histopathology Department at Sudan University of Science and Technology for providing help in scientific/technical advice and giving me staining kits. I would like to thank the department of Histopathology and Cytology Lab at Soba University Hospital particularly Alnaa'm Alshakh Alnaa'm, for providing help in collecting the blocks used in

this study, My thanks are extended to Miss Zainab Moh, and Miss Hadeel Mansor at Soba University Hospital, who help me in preperations, and I would thanks Miss Sahar Abd Allah to formatting and printing the research. and thanks for Gays Mohamed registrar histopathologist from soba university hospital to confirmation the results.

Abstract

This retrospective study was conducted at Soba University Hospital and Sudan University of Science and Technology during the period from April to September 2007, The study aimed to detect the presence of Prostatic Specific Antigen PSA, and to identify collagen fibers in tissue affected with prostate cancer and benign prostatic hyperplasia.

49 samples were selected and classified into four categories that were previously diagnosed as: ten samples were diagnosed as benign prostatic hyperplasia, three samples were diagnosed as well differentiated adenocarcinoma, eighteen samples were diagnosed as moderately differentiated adenocarcinoma, and eighteen samples were diagnosed as poorly differentiated adenocarcinoma, PSA was identified using immunohistochemical method, by using dako system (Invision) technique. This study concluded that there was association between PSA and prostatic cancer.

Also Collagen fiber was identified using Masson Trichrome stain, The morphology of collagen fibers, show different characteristic feature according to the pathological process, accordingly it was sparse in amount in case of benign prostatic hyperplasia and was more dense in case of malignant cases more over the amount of fibers is increasing with grading of the tumors.

-: □□□□□□□□□ □□□□□□

أخذت مجموعة من عينات البروستاتا المشخصة باثر رجعى من أرشيف مستشفى سوبا الجامعى فى الفترة بين ابريل الى سبتمبر عام الفين وسبعة للكشف عن الموسم الورمي وتاثر الالياف الغرائية فى سرطان البرستاتا, تسعة واربعون عينة مسب قة التشخيص وكانت نتائج هذه العينات التى تم تأكيدها اثناء الدراسة عن طريق صبغتى الهيمتوكسلين والايوسين وكانت على النحو الاتى:

عشر عينات من فرط تنسج البروستاتا الحميد وثلاث عينات من المرحلة الاولية للسرطان وثمانية عشر من المرحلة الوسطى و ثمانية عشر من المرحلة المتاخرة لسرطان البروستاتا.

استخدمت طريقة كيمياء الأنسجة المناعية Invision للكشف عن الموسم الورمى PSA وخلصت هذه الدراسة عن وجود علاقة بين الموسم PSA وسرطان البرستاتا فى العينات المدروسة, وايضاً تم الكشف عن الألياف الغرائية باستخدام طريقة ماسون للصبغ الثلاثى وخلصت الدراسة لوجود اختلاف فى مظهر الالياف الغرائية وللحالات المرضية المختلفة, حيث لاحظت الدراسة قلة كمية الالياف الغرائية فى حالات فرط تنسج البرستاتا, وزيادة الالياف الغزلية كلما تاثر النسيج بسرطان البرستاتا.

وخلصت هذه الدراسة الى وجود علاقة بين مظهر الالياف الغرائية وحالات سرطانات البروستاتا المختلفة.

List of Content

Dedication	I
Acknowledgment	II
Abstract	III
خلاصة الاطروحة	IV
List of Content	V
List of Figures	VII
List of Tables	VIII
List of Photos	IX

CHAPTER ONE INTRODUCTION AND LITERATURE REVIEW	
1-1- Introduction	1
1-1-1-Anatomy and Physiology	3
1-1-2-Histology	5
1-1-3-Abnormality of Prostate	6
1-1-3-1- Inflammations of Prostate	6
1-1-3-2- Prostatic Nodular Hyperplasia	6
1-1-3-3-Prostatic Intraepithelial Neoplasia	9
1-1-3-4- Prostatic Adenocarcinoma	9
1-1-4- Grades of cancer	10
1-1-5-Tumor markers	10
1-1-5-1-History of tumor markers	11
1-1-5-2- Role of tumor markers	12

1-1-6-Prostate specific antigen	13
1-1-7-Collagen fibers	15
1-1-7-1-Formation of collagen fibers	15
1-1-7-2-Types of collagen fibers	16
1-2-Literature review	18
1-3Objectives	22
CHAPTER TWO MATERIAL AND METHOD	
2- Materials and Methods	23
2-1- Study design	23
2-2-Study area	23
2-3-Study population and selection criteria	23
2-4-Sample size	23
2-5-Sample collection & preparation	24
CHAPTER THREE RESULTS	
3-1-Result	27
3-2-Photos	37
CHAPTER FOUR DISCUSSION	
4-Discussion	44
CHAPTER FIVE CONCOLUSION AND RECOMMENDATION	
5-Conclusion and recommendation	46
References	47
Appendix	53

List of Figures

Figure1. ……30

The age of the study groups

Figure2. ……31

Prostate specific antigen results

Figure3. ……..……..……..32

Grades of cancer among study groups

List of Tables

Table 1:……..……..33

.Age group and different tumor grading

Table 2: ……..34

.Age group and PSA

Table 3:……..35

..Association between PSA and different histological grading

Table 4:……..36

.Association between Collagen fiber and different histological grading

List of photos

Photo (1):…….……37

Control negative for PSA antigen, yellow arrow show malignant cell, X40.

Photo (2):…….……37

Control positive for PSA antigen, yellow arrow show PSA stain, X40

Photo (3):…….……38

Poorly differentiated adenocarcinoma, yellow arrow show malignant cell, H&E stain, X40

Photo (4):……..38

The appearances of collagenic fibers in poorly differentiated adenocarcinoma, yellow arrow show collagenic fibers (blue), Masson Trichrome stain X40.

Photo (5):……...……..39

PSA immunohistochemistry stain, in poorly differentiated adenocarcinoma, x40.

Photo (6): ……39

Moderately differentiated adenocarcinoma, H&E stain, X40.

Photo (7):……..40

PSA immunohistochemistry stain, in moderately differentiated adenocarcinoma, yellow arrow show PSA stain, X40.

Photo (8): ……..40
The appearances of collagen fibers in moderately differentiated adenocarcinoma (negative), yellow arrow show muscles and RBCs, Masson Trichrome stain, X40.
Photo(9):……41
PSA immunohistochemistry stain, in well differentiated adenocarcinoma, X40.

Photo (10):……41
PSA immunohistochemistry stain in benign prostatic hyperplasia, yellow arrow show PSA stain, X40.
Photo (11):……42
The appearances of collagenic fibers in benign prostatic hyperplasia, yellow arrow show collagenic fibers (blue), Masson Trichrome stain, X40.

Photo (12):……42
PSA immunohistochemistry stain, in moderately differentiated adenocarcinoma, show negative result, x40.

Photo (13): ……..43
PSA immunohistochemistry stain, show negative result in benign prostatic hyperplasia, yellow arrow show benign cell, x40.