

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

***Sudan University of Science and Technology***  
***College of Graduate studies***



***Ultrasonography Screening of Prostate Gland  
Enlargement in patients of Merowe province***

***مسح تضخم غدة البروستات لمرضى محافظة مروى باستخدام  
التصوير بالموجات فوق الصوتية***

***A thesis submitted in Partial fulfillment for the requirements of the award of  
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال الله تعالى :

“وَقُلْ رَبِّ اَدْخِلْنِيْ مُدْخَلَ صِدْقٍ  
وَ اَخْرِجْنِيْ مَخْرَجَ صِدْقٍ وَاَجْعَلْ لِّيْ مِنْ  
لَّدُنْكَ سُلْطٰنًا نَّصِيْرًا”

"صدق الله العظيم"

سورة الإسراء

الايه 80

To Soul of my father

To my beloved mother

To my faithful brothers and  
sisters

To all people who helped me

Thanks and blessing to ALLAH, for his guidance towards conclusion of this thesis.

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## Contents

Subject	Page Number
Quran	
Dedication	
Acknowledgement	
Contents	
List of figures	
List of tables	
List of abbreviations	
Abstract (English)	
Abstract (Arabic)	
Chapter one:- Introduction	
1-1 General Introduction	1
1-2 Objectives	3
1-3 Hypothesis	3
1-4 Materials and Methods	3
1-5 Thesis scope	4
Chapter two:- Literature Review	
2-1 Anatomy	5
2-2 Histology	13
2-3 physiology	15

2-4 Pathology	17
2-5 Ultrasonographic scanning of the prostate gland	24
Chapter three: Materials and Methods	28
Chapter four: Results, Data analysis and Discussion	
4-1 Original study	30
4-2 Results and Data analysis	31
4-3 Discussion	38
Chapter five: Conclusion and Recommendations	
5-1 Conclusion	40
5-2 Recommendations	41
* References	42
*Appendix: Data collection sheet	45
*Appendix: Sonograms (ultrasonographic images)	46

## **List of tables:**

### **Table**

### **page**

4-2-1 Incidence of prostate gland enlargement in age distribution groups	31
4-2-2 Incidence of urine retention with prostatic enlargement	32
4-2-3 Incidence of prostatitis with prostatic enlargement	33
4-2-4 Incidence of cystitis with prostatic enlargement	34
4-2-5 Incidence of residual urine with prostatic enlargement	35
4-2-6 Incidence of hydronephrosis with prostatic enlargement	36

## **List of figures:**

<b>Fig</b>	<b>page</b>
1-1(a&b): Different prostate relations	6
1-2(a&b): Zonal anatomy of prostate gland	9
1-3: Blood supply of prostate gland	12
1-4 (a&b): Histology of prostate gland	14
1-5(a&b): Histopathology of prostate gland enlargement	21
1-6 a&b: Prostate gland enlargement architecture	22
1-7: Sonographic appearance of prostate gland enlargement	23
1-8: Normal sonographic appearance of prostate gland	27

4-2-1: Incidence of prostate gland enlargement in age distribution groups (chart)	31
4-2-2: Incidence of urine retention with prostatic enlargement (chart)	32
4-2-3: Incidence of prostatitis with prostatic enlargement (chart)	33
4-2-4: Incidence of cystitis with prostatic enlargement (chart)	34
4-2-5: Incidence of residual urine with prostatic enlargement (chart)	35
4-2-6: Incidence of hydronephrosis with prostatic enlargement (chart)	36

## Abbreviations

BEP	Benign Enlargement of Prostate
BPH	Benign Prostatic Hyperplasia
BOO	Bladder outlet obstruction
BUN	Blood Urea /Nitrogen
b-FGF	basic fibroblastic growth factor

c	Constant
Cc	Cubic centimeter
Cm	Centimeter
DHT	Dihydroxysterone
Fig	Figure
gm	Gram
HN	Hydronephrosis
IV	Intravenously
IVC	Inferior vena cava
IVU	Intravenous Urography
L	Length
LUTI	Lower urinary tract infection
LUTS	lower urinary tract symptoms
MHz	Megahertz
Ms	Microsoft
ml	mill liter
No.	Number
PSA	Prostatic specific antigen
Pts	Patients
PSA	Prostate specific antigen
P.H	Past history
RUV	Residual urine volume
STD	Sexual transmitted disease

TAUS	Trans abdominal ultrasound
TRUS	Trans rectal ultrasound
TUR	Trans urethral resection
UT	Urinary tract
UTIs	Urinary tract infections
U/S	Ultrasound
USA	United States of America
V	Volume
W	Width
Yrs	Years

## **Abstract**

This study finds out the incidence of prostate gland enlargement in elderly men in Merowi Province. It was done at Karima Hospital in the north of Sudan, during the period from August 2006 to March 2007.

The method of data collection designed to be performed in only one direction which basically a transabdominal ultrasonographic examinations tool.

Seventy five Sudanese patients, aged between (50-89 years) were examined by ultrasonography using an Aloka machine (SSD-500) real time scanner with one probe, convex of frequency 3.5 MHz.

The researcher found that 47 out of 75 patients (63 %) had an enlarged prostate gland enlargement (enlarged prostate size  $\geq 30$  ml), and 28 patients (37 %); had a normal prostate gland size (normal prostate size  $< 30$  ml).

The study shows that, the percentage of prostate gland enlargement in three age groups distribution was increased gradually; prostate gland enlargement represented 51% in age group which ranged between 60 to 69 years , also it represented 68% in older group (70-79 years), and represented 79% in oldest group (80-89 years).

According to these results, there was a clear proportional relation between the size of prostate gland, and the age of the patient.

The researcher found that measuring the prostate gland size through an empty urinary or through an empty urinary bladder was not reliable.

Also I found that urinary bladder and kidneys are the mainly affected organs by the enlargement of prostate gland.

The thesis was dividing into five chapters: chapter one contains introduction, chapter two: literature review; which consists of anatomy, histology, physiology, pathology, and ultrasonographic scanning of the prostate, chapter three deals with materials and method, chapter four was results, data analysis, and discussion, chapter five finds out conclusion and recommendations.

Finally, recent experience indicates that a more definitive role is possible for ultrasonography in evaluation of prostate gland enlargement.

## الخلاصة

هذه الدراسة توضح حدوث تضخم غدة البروستات عند الرجال كبار السن بمحافظة مروي . أجريت هذه الدراسة في مستشفى كريمه التعليمي بشمال السودان خلال الفتره مابين أغسطس 2006 إلي مارس 2007 . نظمت طريقة جمع المعلومات بحيث تؤخذ بطريقه واحده تعتمد أساسا علي فحوصات الموجات فوق الصوتيه.

تم فحص خمس و سبعين مريض سوداني تتراوح أعمارهم بين الستين والتاسعة وثمانين عاما بواسطة الموجات فوق الصوتيه باستخدام جهاز ألوکا مع محول طاقه واحد محدد ذو تردد 3.5ميقاهيرتز.

وجد الباحث أن هناك 47 مريض (63%) من جملة الخمسه وسبعين مريض كان لديهم تضخم في غدة البروستات(حجم غدة البروستات المتضخمه  $\leq 30$  مل)و 28 مريض (37%) لديهم غدة بروستات طبيعيه الحجم ( حجم غدة البروستات الطبيعيه  $> 30$  مل).

وضحت الدراسة أن نسبة تضخم غدة البروستات كان في زياده مضطرده بالنسبه لتوزيع المجموعات السنيه الثلاث; حيث مثل تضخم غدة البروستات 51% من للمجموعه السنيه والتي تتراوح أعمارها بين 60 إلي 69 عاما، أيضا مثل 68% من المجموعه السنيه الأكبر (79-70 عاما)، ومثل 79% من كبري المجموعات السنيه (80- 89 عاما).

علي حسب هذه النتائج وجد ان هنالك علاقه طرديه واضحه بين حجم غدة البروستات وعمر المريض. وجد الباحث أنه لا يمكن الإ اعتماد علي نتائج قياس حجم غدة البروستات عبر مثانه بوليه فارغه . كما وجد أن المثانه البوليه والكلي هما أكثر الأعضاء تأثرا بتضخم غدة البروستات.

تم تقسيم البحث لخمسة فصول: يحتوي الفصل الأول علي المقدمة، و الفصل الثاني مطالعه تعريفيه وتشمل : علم التشريح وعلم الأنسجه وعلم وظائف الأعضاء وعلم الأمراض وتصوير الموجات فوق الصوتيه لغدة البروستات، ويتعلق الفصل الثالث بشرح أدوات وطرق البحث، أما الفصل الرابع فقد تناول النتائج والتحليل والنقاش، واحتوي الفصل الخامس علي الخاتمه والتوصيات.

وجهت الدراسه الحاليه بأن للموجات فوق الصوتيه دورا أكثر تأكيدا يمكن أن تلعبه في تقييم تضخم غدة البروستات.









# **References and Appendices**