

الآيات

قال تعالى:

الرحمن (1) علم القرآن (2) خلق الانسان (3)
علمه البيان (4) سورة الرحمن

Dedication

I dedicate this work to my mother, my father, my brother & my teachers,

Always you are sitting in mine & courage me to do the best in my life.

Best regards for all.

Acknowledgment

I thank God for enabling me to complete this thesis. I sincerely thank Dr. Alsafi Ahmed, the supervisor of my thesis for his continuous help, supervision and guidance.

I greatly thank all those who supported and helped me to complete this thesis. I am very grateful to all my teachers in all educational levels, especially thanks for my teacher Dr. Mohammed Alfadil.

Very much thanks to the staff of Soba Hospital, especially the staff of X-Ray and Ultrasound Department for their help and co-operation to achieve my work.

Abstract

This is retrospective study deals with the ultrasound finding of thyroid nodules.

The objective of this study was to characterize the thyroid nodules and to compare between ultrasound findings and lab investigation results. It was carried out on 50 patients complaining of thyroid lumps in Khartoum state comes to Hospital and Clinics. The study was conducted from October 2009 up to November 2011. The machines used in the study were Toshiba with 7-10 MHz, probe was linear. All patients scanned with supine position technique.

After the detailed literary work the study comes to conclusion that ultrasound only does not determines accurately whether nodule is benign or malignant; but it can give a picture about the nodule and by comparing the sonographic findings with the result of FNA we obtain the most real diagnosis; that most of thyroid nodules are benign (90%).

The study reveals that the incidence of thyroid nodules is more common in female (84%) than male (16%).

The study shows that 69 % of thyroid nodules were detected in the ages between 28 - 57 years and the incidence is less common in young and most elder patients. Most cases of thyroid nodules are associated with normal thyroid function test (68%)

ملخص البحث

هذا البحث اهتم بدراسة نتائج الموجات الصوتية لحالات اورام الغدة الدرقية داخل ولاية الخرطوم.

ان الهدف من هذه الدراسة هو الكشف عن خصائص هذه الاورام والمقارنة بين نتائج الموجات

الصوتية وفحوصات المعمل، عدد المرضى الذين اجريت عليهم هذه الدراسة مئة مريض يعانون من اورام في الغدة الدرقية في مستشفى سوبا الجامعي وبعض العيادات الخاصة. هذه الدراسة اجريت في الفترة من اكتوبر 2009 وحتى نوفمبر 2011. الجهاز الذي اجريت عليه هذه الحالات هو جهاز توشيبا مزود بمسبار ذي سطح مستوي وتردد عالي يتراوح بين 7-10 ميغا هيرتز تم اجاء المسح بتقنية وضع الاستلقاء.

خلصت الدراسة الى ان الموجات الصوتية لا تكفي لوحدها لتحديد ما اذا كان الورم حميد ام غير ذلك ولكن بالمقارنة مع نتيجة فحص الابرء الرفيعة يمكن الحصول على التشخيص الاكثر دقة و ان معظم الاورام كانت من النوع الحميد (90%) وان معظم المرضى اناث (84%) مقارنة بالذكور (16%).

اظهرت الدراسة ان معظم الاورام وجدت عند من تتراوح اعمارهم بين 28 و 57 سنة، بنسبة وصلت الى 69%، وان النسبة منخفضة بين الفئات العمرية الصغيرة والكبيرة جدا، كما ان اكثر الفئات العمرية تعرضا للاورام هم من تتراوح اعمارهم بين 28 و 37 سنة (36%).

كما اظرت الدراسة ان كثير من الاورام (68%) تكون مصحوبة بنتائج طبيعية لفحص وظائف الغدة الدرقية.

Table of Contents

Topics	page number
Quran	I
Dedication	II
Acknowledgement	III
Abstract	IV
Arabic Abstract	VI
Table of Contents	VIII
List of abbreviations	IX
List of figures	X
List of tables	
Chapter One : Introduction	
Introduction	1
Objectives	2
Over view of the study	3
Chapter two : Literature review	
Previous study	4
Thyroid	5
Anatomy	6
Disorders	11
Physiology	17
Chapter Three: Methodology	
Methodology	24
Chapter Four: Results	

Results and Analysis	26
Chapter Five: Discussion, Conclusion and Recommendations	
Discussion & conclusions	41
Recommendation.	43
References.	44
Appendix	45

List of abbreviations

T3: [triiodothyronine](#).

T4: tetraiodothyronine.

TSH: [thyroid-stimulating hormone](#).

TRH: [thyrotropin-releasing hormone](#).

MNG: multi – nodular goiter.

RAIU: Radioactive [iodine-123](#) uptake.

TGB: thyroglobulin

TPO: [thyroid peroxidase](#).

BBB: blood brain barrier.

PTH: parathyroid hormone.

FT4: free thyroxin.

FT4F: free thyroxin fraction.

THBR: thyroid hormone bending ratio.

FT4I: free thyroxin index.

FT3: free triiodothyronine.

TBG: thyroxin bending globulin.

TMAB: Thyroid microsomal antibody titer.

TAGB: Thyroglobulin antibody titer.

μU/ml = mU/l: microunit per milliliter.

ng/dl: nanograms per deciliter.

μg: micrograms.

pg/d: picograms per day.

μIU/ml = mIU/l: micro-international unit per milliliter.

PTU: [propylthiouracil](#).

List of figures

Figures	Title	page
2-1Figure 1	Thyroid gland relationships	6
2-5Figure 2	Thyroid embryological development	9
2-8-1Figure3	The system of thyroid gland	18
4-1 figure 1	Shows distribution of nodules according to the age	27
4-1figure2	Distribution of thyroid nodules according to the gender	28
“ figure 3	Distribution of thyroid nodules according to the size	29
“ figure 4	Distribution of thyroid nodules according to the multiplicity	30
“ figure 5	Distribution of thyroid nodules according to their texture	31
“ figure 6	Ultrasound diagnosis of thyroid nodules	32
“ figure 7	Frequency distribution of thyroid nodules according to the histology	33
“ figure 8	Distribution of thyroid nodules according to the result of thyroid hormones	34
“ figure 9	Distribution of thyroid nodules according to the malignancy	35
“ figures 10	Distribution of thyroid nodules with retrosternal extension	36
“ figure 11	Distribution of thyroid nodules according to the resulting shiftiness of trachea and vessels	37
“ figure 12	Distribution of thyroid nodules with many different findings	39

List of tables

table	Title	page
-------	-------	------

2-6 table 1	Feature of thyroid at microscopic level	10
2-8-3table 2	Thyroid function test	21
4-1table 1	Frequency distribution of thyroid nodules with age	26
4-1table2	Frequency distribution of thyroid nodules with gender	27
4-1table3	Frequency distribution of thyroid nodules with their sizes	28
4-1table4	Frequency distribution of thyroid nodules with multiplicity	29
4-1table5	Frequency distribution of thyroid nodules with texture	30
4-1table6	Ultrasound diagnosis of thyroid nodules	31
4-1table7	Frequency distribution of thyroid nodules with histology	32
4-1table8	Frequency distribution of thyroid nodules with thyroid hormones	33
4-1table9	Frequency distribution of thyroid nodules with malignancy	35
4-1table10	Frequency distribution of thyroid nodules with retrosternal extension	35
4-1table11	Frequency distribution of thyroid nodules with resulting shiftiness of trachea and vessels	36
4-1table12	Frequency distribution of thyroid nodules with many different findings	38
4-1table13	Histology versus ultrasound diagnosis cross tabulation	39
4-1 table 14	Malignancy VS US diagnosis Cross tabulation	40