TOTAL VERSUS SUBTOTAL THYROIDECTOMY IN NODULAR GOITER

Essay

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General Surgery

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الاستئصال الكامل والغير كامل للتضخم العقدي للغدة الدرقية

رسالة

توطئه للحصول على درجة الماجستير في

الجراحة العامة

مقدمة من

الطبيب/أحمد ممتاز عباس

بكالوريوس الطب والجراحة

كلية الطب-جامعة الإسكندرية

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جامعة عين شمس

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

{قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا

إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ

الْعَلِيمُ الْحَكِيمُ}

صدق الله العظيم

سورة البقرة آية(٣٢)

Aim of The work

This study aims to show the different modalities in the management of Nodular Goiter and highlight the advantages and disadvantages of Total and Subtotal thyroidectomy.

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List of abbreviations

AF:	Atrial Fibrillation
AIDS:	Acquired Immunodeficiency Syndrome
ANP:	Atrial Natriuretic Peptide
BMNG:	Benign Multi Nodular Goiter
BNP:	Brain Naturiuretic Peptide
CFDS:	Color Flow Doppler Ultrasonography
CG:	Chorionic Gonadotrophin
CHF:	Congestive Heart Failure
CT:	Conventional Thyroidectomy
DIT:	Diiodothyronine
DTC:	Differentiatedthyroid Cancer
EBSLN:	External Branch Of The Superior Laryngeal Nerve
EBVS:	Electrothermal Bipolar Vessel Sealer
ED:	Energized Dissection
EGF:	Epidermalgrowth Factor
EOM:	Extraocular Muscle Involvement
Fdg:	F-١٨ Fluorodeoxyglucose
FNA:	Fine-Needle Aspiration Biopsy
FNAC:	Fine-Needle Aspiration Cytology
GERD:	Gastroesophageal Reflux Disease

GO:	Graves' Orbitopathy
IGF:	Insulin-Like Growth Factors
ILP:	Interstitial Laser Photocoagulation
IOPTH:	Intraoperative Assessment Of Parathyroid
ITA:	Inferior Thyroid Artery
LH:	Lutenizing Hormone
MCHA:	Antimicrosomalhemagglutination Antibody
MEN:	Multiple Endocrine Neoplasia
MIT:	Mono Iodothyronine
MNG:	Multi Nodular Goiter
MTC:	Medullary Thyroid Carcinoma
NIS:	Sodium/Iodide Symporter
PA:	Parathyroid Tissue Autotransplantation
PDUS:	Powerdoppler Ultrasound
PEI:	Percutaneous Ethanol Injection
Pet:	Positron Emission Tomography
Pi:	Pulsatilityindex
PPV:	Positive Predictive Value
PTC:	Papillary Thyroid Carcinoma
PTH:	Parathyroid Hormone
PTU:	Propylthiouracil
RAI:	Radioactive Iodine
RI:	Resistance Index
RLN:	Recurrent Laryngeal Nerve

RSG:	Retrosternal Goiter
Rtsh:	Recombinant Thyroid-Stimulating Hormone
SHBG:	Sex Hormone-Binding Globulin
SPECT:	Tc-^{99}m Pertechnetate Single Photon Emission Computed Tomography
Sttx:	Subtotal Thyroidectomy
SUV:	Standardized Uptake Value
T_3:	L-Triiodothyronine
T_4:	Tetraiodothyronine,
Tbab:	Thyroid Blocking Antibodies
Tbii:	Thyrotrophin Binding-Inhibiting Immunoglobulins
TEG:	Tracheoesophageal Groove
Tg:	Thyroglobulin
TGI:	Thyroid Growth Immunoglobulins
TO:	Thyroid Ophathalmopathy
TRH:	Thyrotropin-Releasing Hormone
Tsab:	Thyroid-Stimulating Antibody
TSH:	Thyroid Stimulating Hormone
TSI:	Thyroid Stimulating Immunoglobulins
TTF:	Thyroid-Specific Transcription Factors
Ttx:	Total Thyroidectomy
TV:	Thyroid Volume
VAT:	Videoassisted Thyroidectomy

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Introduction

Goiters affect ٥-٧٪of the world's population and the second most common endocrinopathy worldwide. In some endemic areas, up to half of the population has enlarged thyroid gland ***(Muller et al ., 2001).***

Multinodular goiter generally occurs as a growth or an asymptomatic thyroid gland detected in a routine medical examination or noted by the patient, family , or friends ***(Antonio Rios et al., 2005).***

Toxic multinodular goiter (MNG) is thyroid gland enlargement that has at least two autonomously functioning thyroid nodules secreteing excessive amounts of the thyroid hormone, which produce the classic signs and symptoms of hyperthyroidism ***(Cooper, 2003).***

The incidence of thyroid cancer in multinodular goiter without any previous suspicion of malignancy was found to be ٨,٢٪. **(*Yasmin Giles et al., ٢٠٠٤).***

Surgical options for the management of MNG include bilateral subtotal thyroidectomy (BST), near total thyroidectomy (NTT–Total on the dominant side and subtotal lobectomy on the contralateral side) and total thyroidectomy (TT). ***(Serdar Ozbas et al ., 2005).***

Total thyroidectomy & Near total thyroidectomy are safe, effective approaches in the treatment of toxic MNG, preventing recurrence of thyrotoxicosis and reoperation for incidentally found thyroid cancers. ***(Orhan Alimohn et al ., 2005) .***

Total thyroidectomy was performed by extra capsular dissection to remove both thyroid and pyramidal lobes and to identify recurrent laryngeal nerve or monitoring its function and preserving the parathyroid glands. In the NTT , lobectomy was performed on the larger or more nodular thyroid lobe with contralateral subtotal resection leaving an average of ١-٢ g of the thyroid tissue .Approximately ٤-٦ g of the thyroid was left after BST. ***(Serdar Ozbas et al., 2005).***

The three main complications following thyroid surgery include RLN palsy, hypoparathyroidism and postoperative heamorrhage. Permanent injury to the RLN was defined as palsy of the vocal cords, diagnosed by an otolarygologist using either indirect laryngoscopy or videolarygostroboscopy, which lasted for more than six months. A temporary one recoveres within six months. Temporary hypoparathyroidism was defined as a fall in corrected serum calcium concentration below ٨ mg /dl. Permanent hypoparathyroidism was defined as need for oral vitamin D and / or calcium supplements six months following surgery to maintain normal calcium concentration. ***(Khadra M et al., 1992).***

Chapter One

Pathology of thyroid gland

Nearly all disorders of the thyroid result in some swellings of the gland itself and the non-specific term goiter embraces them all. In clinical practice a working classification based on whether the gland is toxic or not and the nature of the enlargement is helpful. This enables a diagnosis to be made and appropriate action taken in the majority of patients ***(Peterson et al., 2000).***

Non Toxic Goiter:

١- *Simple goiter:*

- ***Physiological goiter:***

Enlargement of the thyroid gland occurs during pregnancy, puberty, and menopause. This is due to increase the physiological demand for thyroid hormone or as a response to growth hormone and changes in estrogen level. Increased levels of TSH are believed to play a role in the process ***(Davis and Davis, 2001).***

- ***Endemic goiter (Primary iodine / deficiency): (Hollowell et al., 1998)***

The most common worldwide cause of endemic nontoxic goiter is iodine deficiency. However, in patients with