شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

HANAA ALY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

Safety and Effectiveness of Total versus Subtotal Thyroidectomy in Management of Simple Multinodular Goiter

Thesis

Submitted for Partial Fulfillment of Master Degree in General Surgery

Presented By

Mohamed Mohamed Taher Kamal Eid

M.B.B.Ch., Ain Shams University

Supervised By

Prof. Dr/ Osama Fouad Mohamed

Professor of General Surgery

Faculty of Medicine - Ain Shams University

Dr/ Abd El-Rahman Mohamed El-Ghandour

Lecturer of General Surgery

Faculty of Medicine - Ain Shams University

Faculty of Medicine

Ain Shams University

2021

سورة البقرة الآية: ٣٢

Acknowledgement

*First of all, all gratitude is due to **Allah** almighty for blessing this work, until it has reached its end, as a part of his generous help, throughout my life.*

*Really I can hardly find the words to express my gratitude to **Prof. Dr/ Osama Fouad Mohamed**, Professor of General surgery, Faculty of Medicine - Ain Shams University, for his supervision, continuous help, encouragement throughout this work and tremendous effort he has done in the meticulous revision of the whole work. It is a great honor to work under his guidance and supervision.*

*I would like also to express my sincere appreciation and gratitude to **Dr/ Abd El-Rahman Mohamed El-Ghandour**, lecturer of General surgery, Faculty of Medicine - Ain Shams University, for his continuous directions and support throughout the whole work.*

*Words fail to express my love, respect and appreciation to **My Wife** for her unlimited help and support.*

*Last but not least, I dedicate this work to **My Mother** may god bless her soul and **My Family** whom without their sincere emotional support, pushing me forward this work would not have ever been completed.*

Mohamed Taher

List of Contents

List of Abbreviations

Abb.	Full term
Anti-Tg	Anti-thyroglobulin
BST	Bilateral subtotal thyroidectomy
CT	Computed Tomography
FNA	Fine Needle Aspiration
FNAB	Fine Needle Aspiration Biopsy
ID	Iodine Deficiency
MNG	Multinodular Goitre
NG	Nodular Goitre
RLN	Recurrent Laryngeal nerve
RLNP	Recurrent Laryngeal Nerve Palsy
SLN	Superior Laryngeal nerve
TC	Technetium
TMNG	Toxic Multinodular Goitre
TSH	Thyroid Stimulating Hormone
TT	Total thyroidectomy
US	Ultrasonography

List of Tables

List of Figures

List of Figures Cont...

INTRODUCTION

The thyroid is a highly vascular, brownish-red gland located anteriorly in the lower neck, extending from the level of the fifth cervical vertebra down to the first thoracic. The gland varies from an H to a U shape and is formed by 2 elongated lateral lobes with superior and inferior poles connected by a median isthmus, with an average height of 12-15 mm, overlying the second to fourth tracheal ring ***(Dominique et al., 2017).***

Disorders of the thyroid gland constitute the second most common endocrine disease following diabetes mellitus. The prevalence of nodular goiter and thyroid autonomy is increased in regions with chronic Iodine Deficiency (ID). It has been documented that the thyroid gland adjusts to ID in the early stages by diffuse hyperplasia, while chronic exposure to ID results in nodular hyperplasia, increased colloid content and increased height of the follicular cells ***(Karamanakos et al., 2010).***

Multinodular goiter is a common clinical problem that usually develops during the late stage of goiter. Although it is usually benign and asymptomatic in nature, multinodular goiter may predispose the patient to compressive symptoms, develops autonomous functioning nodules, or form suspicious nodules. The clinical treatment of goiter depends on the extent of enlargement, signs and symptoms, and potential underlying causes ***(Yang et al., 2009).***

Thyroidectomy is one of the most frequent operations performed in iodine-deficient regions. In the early 20th century, thyroidectomy was associated with increased morbidity and even mortality. However, today the improvements in anesthesia and antisepsis as well as better surgical instruments and improvement in the surgical technique have rendered thyroidectomy an efficacious and safe treatment modality with acceptable morbidity and even unrecorded mortality ***(Sorensen, 2018).***

Thyroidectomy methods range from nodulectomy to total thyroidectomy (TT) in benign thyroid disorders. TT and bilateral subtotal thyroidectomy (BST) are the most commonly preferred methods by surgeons for MNG. The selected surgical method for thyroid disease should aim to eradicate the disease as well as to minimize postoperative complications ***(Ciftci et al., 2015).*** The main postoperative complications of thyroidectomy are Recurrent Laryngeal Nerve Palsy (RLNP) and hypoparathyroidism ***(Lifante et al., 2017).***

Many areas of surgery continually try to balance the benefits of extensive resection in terms of palliation and cure and the increased potential for complications associated with more radical procedures ***(Citgez et al., 2013).***

The incidence of thyroid carcinoma varies from 7.5 to 13% in multinodular goiter. The presence of multiple nodules decreases the diagnostic value of fine-needle aspiration biopsy, and thyroid carcinoma is frequently an incidental postoperative histologic finding in MNG ***(Tezelman et al., 2009).***

AIM OF THE WORK

To compare between total and subtotal thyroidectomy in management of Multinodular Goiter as regard safety and effectiveness and post-operative complications like:

- Hypocalcaemia.
- Recurrent laryngeal nerve injury.
- Hypoparathyroidism.

Chapter 1

ANATOMY OF THE THYROID GLAND

Anatomy of the thyroid gland (figure 1):

The thyroid gland is a butterfly-shaped organ located anteriorly to the trachea at the level of the second and third tracheal rings. It consists of two lobes connected by the isthmus in the midline. Anteriorly, its surface is convex; posteriorly, it is concave. The weight of the thyroid of the normal non-goitrous adult is 15–25 g depending on the body size and iodine supply. From upper pole to base, the thyroid lobes usually measure 4 cm. Their width is 15–20 mm, and their thickness is 20–39 mm. The isthmus is 12–15 mm high, lies across the trachea anteriorly just below the level of the cricoid cartilage, and connects the two lobes ***(Guidoccio et al., 2019)***.

A pyramidal lobe may extend superiorly from the isthmus or from the medial portions of the left or right lobes. The thyroid extends from the level of the fifth cervical vertebra to the first thoracic vertebra. The thyroid is surrounded by a sleeve of pretracheal fascia. Posteriorly, a thickening of this fascia attaches the gland to the cricoid cartilage. This fascia is the lateral ligament of the thyroid (ligament of Berry). The anterior surface of the thyroid is related to the deep surface of the sternothyroid, sternohyoid, and omohyoid muscles. Laterally, the gland is related to the carotid sheath. Medially, the superior part of the thyroid is related to the larynx and