



A RETROSPECTIVE STUDY TO DETERMINE THE TYPE OF COMPLICATIONS GENERATED AS A RESULT OF THYROIDECTOMY IN IRAQ.

1. Dr. EMAD KHALID MOHAMMED

M.B.Ch.B. \ C.A.B.M.S. \ (**General Surgeon**)

Specialist in general surgery

Iraqi Ministry of Health, Kirkuk Health Directorate, Azadi Teaching Hospital, Kirkuk, Iraq.

emadkhalid1971@gmail.com

2. Dr. IBRAHIM MUSTAFA SIDDIK

MB.Ch.B. \ C.A.B.M.S. \ (**General Surgeon**)

Iraqi Ministry of Health, Kirkuk Health Directorate, Azadi Teaching Hospital, Kirkuk, Iraq.

ibrahimmsw@gmail.com

3. Dr. Ali Ramzi Naji

MB.Ch.B. \ C.A.B.S. \ (**General Surgeon**)

Iraqi Ministry of Health, Kirkuk Health Directorate, Azadi Teaching Hospital, Kirkuk, Iraq

Article history:	Abstract:
<p>Received: September 20th 2022</p> <p>Accepted: October 24th 2022</p> <p>Published: November 30th 2022</p>	<p>Background</p> <p>Thyroidectomy aims to completely or partially remove the thyroid gland, which is located in the anterior neck area, in cases of several diseases of the thyroid gland.</p> <p>Objective</p> <p>This study aims to determine the type of complications generated as a result of thyroidectomy in Iraq.</p> <p>Material and method</p> <p>A retrospective study was conducted in Iraq on 70 patients who underwent thyroidectomy during the period from November 2020 to September 2021 at different hospitals in Iraq, and demographic data were analysed according to IBM SOFT SPSS 22.</p> <p>The clinical records of the patients were accessed, from which patient data were extracted in terms of gender, age, and development of the patients who underwent surgery in the mentioned period</p> <p>Results</p> <p>the complication which found in this study for 70 patient was (Hypocalcemia for nine patients with 12.6, Wound hematoma for six patients with 8.6%, External branch of superior laryngeal nerve palsy for four patients with 5.7%</p> <p>Conclusion</p> <p>A positive statistically significant relationship was found between the frequencies of type of thyroid surgery complications with a 0.056 p-value</p>

Keywords: Surgery, Complications, Hypocalcemia, Thyroidectomy, Hematoma, Laryngeal.

INTRODUCTION

Thyroidectomy is one of the most common surgical interventions in head and neck surgery. It can lead to temporary and permanent complications [1]. Among the temporary complications, these can be mild or worsen to the point of endangering the patient's life [2]. In general, complications occur in direct relation to the extent of surgery and are reflective of the experience of the medical-surgical team. [3,4] Among the most common, hypoparathyroidism, recurrent laryngeal

nerve injury, and cervical hematomas can be mentioned. [5,6]

Despite the significant risks of complications from thyroid and parathyroid surgery, these complications are rare when the surgeon is fully aware of all aspects of physiology and pathology. [7,8]

Oncology surgery for malignant diseases, or when there is previous surgery, are conditions that frequently lead to complications. [9]



In previous studies, the postoperative complications were minor, such as skin edema, while others, such as bleeding or respiratory obstruction, could endanger the patient's life. [10] Fortunately, they are currently rare due to better preoperative preparation, and most are preventable. The main complications after surgery are associated with bleeding, respiratory problems, recurrent nerve paralysis, hypothyroidism, and incision-related problems. [11]

One of the main consequences of total thyroidectomy is terminal hypothyroidism, which thus requires hormonal supplementation. Therefore, its diagnosis, treatment, and prevention are of constant importance to the surgeons who perform these interventions [12]. The inevitable existence of complications resulting from these surgical practices motivates the preparation of this work in order to identify them and link them to anatomical variables. [13]

Complications of thyroid surgery appear in less than 10% of cases, as represented in a study by Quinn Wright 2005, and the most frequent complications in this study were calcium deficiency after the removal of the thyroid gland for 15% of patients due to the occurrence of partial deficiency in the thyroid gland after the operation directly or after a period of time, which is much less than other surgeries of similar complexity." [14]

The aim of this study is to determine the type of complications generated as a result of thyroidectomy in Iraq.

PATIENT AND METHOD

Collection sample

A retrospective study was conducted in Iraq on 70 patients who underwent thyroidectomy during the period from November 2020 to September 2021 at different hospitals in Iraq.

The clinical records of the patients were accessed, from which patient data were extracted in terms of gender, age, and development of the patients who underwent surgery in the mentioned period. Data was processed

and tabulated in Excel spreadsheets, and results were presented in tables with all data and statistical graphs.

Study design

In the study, 70 patients who had thyroid operations performed from 2020 to 2021 were studied retrospectively.

The operations performed were: total thyroidectomy, near-total thyroidectomy, and thyroidectomy plus cervical (functional) lymphadenectomy.

All patients were evaluated preoperatively in a multidisciplinary group consisting of an imaging specialist, endocrinologist, pathologist, and surgeon, to determine the possible extension of the operation. Thyroid ultrasound and fine-needle biopsy and were used in all patients as primary methods to reach a diagnosis, as well as to characterize the lesions from an ultrasound point of view. Postoperative serum calcium has also been performed in patients with total thyroidectomy seeking to match reported blood levels with the possibility of surgical removal of the parathyroid gland.

As with every major surgery, thyroidectomy carries risks of an adverse reaction to general anaesthesia; other risks include severe bleeding and infection

Statistical analysis

Statistical data were generated according to IBM SOFT SPSS 22, Where the demographic data were analysed to the patients, and the frequency values were recorded with the percentages of the healthy variables.

The statistical differences between the two groups were also analysed, and a Pearson correlation was established to find out the type of relationship resulting between the group of patients and the complications generated in this study

Objective

This study aims to determine the type of complications generated as a result of thyroidectomy in Iraq.

RESULTS

Table 1- Baseline characteristics of a patient who underwent thyroidectomy in Iraq of this study, N=70

Variable	f	P%
AGE		
20-29	20	28.5
30-39	15	21.4
40-49	15	21.4



50-60	20	28.5
BMI		
28-31	44	62.8
33-34	36	37.1
comorbidities		
heart disease	8	11.4
type 1 diabetes	20	28.5
Obesity	15	21.4
Chronic renal failure	10	14.2
other diseases	17	24.2
Sex		
Male	36	51.4
Female	34	48.5
Reasons for thyroidectomy		
Thyroid tumors	10	14.2
Goiter	14	20
An increase in the level of thyroid hormone	22	31.4
Thyroid nodules.	24	34.2

Table 2- Type of complications generated as a result of thyroidectomy

complications

	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	External branch of superior laryngeal nerve palsy	4	5.7	5.7	5.7
	Hypocalcemia	9	12.9	12.9	18.6
	not exist	48	68.6	68.6	87.1
	Recurrent laryngeal nerve palsy	3	4.3	4.3	91.4



Wound hematoma	6	8.6	8.6	100.0
Total	70	100.0	100.0	

Table 3- Outcomes of a patient who underwent thyroidectomy in Iraq according to the type of thyroid surgery

type of thyroid surgery

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Total thyroidectomy	20	28.6	28.6	28.6
	Thyroid lobectomy	35	50.0	50.0	78.6
	Partial thyroidectomy	15	21.4	21.4	100.0
	Total	70	100.0	100.0	

Table 4- Distribution of patient according to complications * type of thyroid surgery

complications * type of thyroid surgery Cross tabulation

Count

		type of thyroid surgery			Total
		Total thyroidectomy	Thyroid lobectomy	Partial thyroidectomy	
complications	External branch of superior laryngeal nerve palsy	3	1	0	4
	Hypocalcemia	6	2	1	9
	not exist	4	30	14	48
	Recurrent laryngeal nerve palsy	2	1	0	3
	Wound hematoma	5	1	0	6
Total		20	35	15	70

Table 5- Distribution of complications according to sex

complications * sex Crosstabulation

Count

		sex		Total
		female	male	
complications	External branch of superior laryngeal nerve palsy	3	1	4



	Hypocalcemia	4	5	9
	not exist	21	27	48
	Recurrent laryngeal nerve palsy	2	1	3
	Wound hematoma	4	2	6
Total		34	36	70

Table 6- Person correlation between complication and type of thyroid surgery

Variable	Complication	Total thyroidectomy	Thyroid lobectomy	Partial thyroidectomy
R correlation	1.0	+0.976*	0.66	-0.44
s-sig	--	0.056	0.086	0.23
N	70			

DISCUSSION

In this study, 70 patients who underwent thyroidectomy were collected in Iraq, where demographic information and data were collected from different hospitals in Iraq,

and the average age of the patients in this study ranged between 20-60 years.

The mean and standard regression to the ages of this study was 40.4000 ± 12.6 , as shown in Table 7.

Table 7- Mean and Std. Deviation to the age of study



Statistics		
AGE		
N	Valid	70
	Missing	0
Mean		40.4000
Median		40.5000
Mode		48.00 ^a
Std. Deviation		12.64155
Variance		159.809
Range		40.00
Minimum		20.00
Maximum		60.00
a. Multiple modes exist. The smallest value is shown		

The patients were distributed according to gender, and no statistical differences were found between the sexes, as 36 were male patients and 34 were female patients. In this study, the duration of the surgery was between 45 and 60 minutes, and through the results, the most important reasons for thyroidectomy were found, which were when thyroid cancer appeared. In these cases, surgery is the main treatment, and nodules suspected of cancer are present when the diagnosis cannot be. The most common complication of thyroid operations is damage to the recurrent laryngeal nerves, which is manifested by impaired speech and / or breathing [15,16]

Other authors believe that thyroidectomy, even by an experienced surgeon, is identified with serious complications and damage to the laryngeal nerves occurs in 5.2-15%, and, upon completion of the operation, the surgeon must carefully examine the wound and ensure that there is no bleeding, [17,18] otherwise, in the period immediately post-and hypocalcemia to 12% of the patients [19]

It was found that the incidence of hypocalcemia was for nine patients, with 12.9%. Because of the wide variability in the definitions of hypocalcemia and hypoparathyroidism used in the different published studies, direct comparisons of thyroid surgery outcomes are difficult. [20,21]

Most studies include a higher proportion of patients who underwent total thyroidectomy, among whom the incidence of hypocalcaemia was 50% in the 2009 UK Darwin Coon Study

established after imaging studies using ultrasound and a puncture biopsy. In these cases, the gland is removed to obtain a diagnosis and, at the same time, be the final treatment. The third reason is the presence of a benign nodule, but it gradually increases in size or is difficult to follow, and in some selected cases of hyperthyroidism in the absence of response to medical treatment or in which the use of drugs is prohibited, Anti-thyroid.

surgery, one may develop bleeding or hematoma formation. Clinically, this, in the absence of sufficient outflow (insufficient drainage), causes deformation of the anterior surface of the neck, as well as a deterioration in the patient's breathing, which requires urgent surgical intervention in the form of wound revision.

In other studies, rare complications have been found with more advanced surgeries, usually in patients with thyroid cancer. It was represented by damage to the large nerves and the main vessels of the neck

CONCLUSION

The results of the analysis show that the incidence of hypocalcemia in patients who underwent Total thyroidectomy

A positive statistically significant relationship was found between the frequency of the type of thyroid surgery complications with a 0.056 p-value

REFERENCES

1. Thyroid gland surgery José Luis Pardo-Refoyo Sacyl. Zamora Healthcare Complex. Otolaryngology Service. Zamora, Spain.



2. Sosa MG, Ernand RS (2016) Thyroidectomy at "Calixto García" general hospital. Cuban Journal of Surgery.
3. Pizarro FI (2013) Thyroid and goiter: Historical evolution and its great characters default. Rev Medica Condes. 4. (2017) Sociodemographic and epidemiological characterization of the most frequent neoplasms attended at Hospital Escuela Universitario, Honduras. Champion Federico Mendoza Talavera 13 (1): 1. 5. Vasquez SP, Mendoza RZ (2003) Fine needle aspiration biopsy of the thyroid in the teaching hospital: Evaluation of its diagnostic accuracy as a screening test. Rev Med Post Unah 8 (25).
4. Reeve T, Thompson NW. Complications of Thyroid Surgery: How to Avoid Them, How to Manage Them, and Observations on Their Possible Effect on the Whole Patient. World J Surg. 2000;24 (8):971-5.
5. Menegaux F, Turpin G, Dahman M, Leenhardt L, Chadarevian R, Aurengo A, m.fl. Secondary thyroidectomy in patients with prior thyroid surgery for benign disease: A study of 203 cases. Surgery. 1999;126 (3):479-83.
6. Elfenbein DM, Schneider DF, Chen H, Sippel RS. Surgical site infection after thyroidectomy: a rare but significant complication. J Surg Res. 2014;190 (1):170-6.
7. Dionigi G, Rovera F, Boni L, Castano P, Dionigi R. Surgical Site Infections after Thyroidectomy. Surg Infect. 2006;7 (supplement 2): s-117.
8. Dionigi G, Rovera F, Boni L, Dionigi R. Surveillance of surgical site infections after thyroidectomy in a one-day surgery setting. Int J Surg Lond Engl. 2008;6 Suppl 1:S13- 15.
9. Asari R, Passler C, Kaczirek K, Scheuba C, Niederle B. Hypoparathyroidism after total thyroidectomy: A prospective study. Arch Surg. 2008;143 (2):132-7
10. Benhidjeb T, Wilhelm T, Harlaar J, Kleinrensink GJ, Schneider TAJ, et al. (2009) Natural orifice surgery on thyroid gland: Totally transoral videoassisted thyroidectomy (Tovat): Report of first experimental results of a new surgical method. Surg Endosc 23 (5): 1119-1120.
11. Refoyo JLP (2012) Utility of neuromonitoring in thyroid surgery. Acta Otorrinolaringol Esp 63 (5): 355-363.
12. Nuño P, Montañez JB, Carrasco CR, Negrín AP (2002) Immediate postoperative period in patients undergoing total thyroidectomy in ICU. Enferm Intensiva 13 (2): 78-84
13. Edafe O, Antakia R, Laskar N, Uttley L, Balasubramanian SP (2014) Systematic review and meta-analysis of predictors of post-thyroidectomy hypocalcemia. Br J Surg 101 (4): 307-320.
14. Espino CP, Já RB, Caselles AM, González SJ, Pavía GA, et al. (2018) Use of the value of intact parathyroid hormone on the first postoperative day after total thyroidectomy as a predictor of permanent hypoparathyroidism. Endocrinol Diabetes Nutr.
15. Henry BM, Sanna B, Vikse J, Graves MJ, Spulber A, et al. (2017) Zuckerkandl's tubercle and its relationship to the recurrent laryngeal nerve: A cadaveric dissection and meta-analysis. Auris Nasus Larynx 44 (6): 639-647.
16. Rojas M, Quijano Y, Miguel R, Bernal L (2016) Anatomical variations of the recurrent laryngeal nerve in a Colombian population sample recurrent laryngeal nerve in a sample of the Colombian population. Rev Fac Med 64 (2): 207-213.
17. Toda FILL, Salas MMV (2017) Thyroid pathology update. In: Aepap (Edr.), Pediatrics Update Course pp. 161-174.
18. Fernandez M (2015) Official presentation of the Spanish society of otorhinolaryngology and cervico-facial pathology 2015. Pathology and Surgery of the Thyroid and Parathyroid Glands. 16. Garcia G (2016) Thyroid physiology. Med Int Mex 32 (5): 569-575.
19. Ortega PR, Urra AB, Compan AJ (2011) Clinical experience in total thyroidectomy. Rev Otorrinolaringol Cir Head Neck 71: 53-56.
20. Joliat GR, Guarnero V, Demartines AN, Schweizer V, Matter M (2017) Recurrent laryngeal nerve injury after thyroid and parathyroid surgery incidence and postoperative evolution assessment. Medicine 96 (17): e6674.
21. Jiang Y, Gao B, Zhang X, Zhao J, Chen J, et al. (2014) Prevention and treatment of recurrent laryngeal nerve injury in thyroid surgery. Int J Clin Exp Med 7 (1): 101-107.