

Thyroid Surgery Trends and Outcomes in Iraq: A Retrospective Review

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Abstract: Thyroid disorders happen to be a fairly common health problem in Iraq, and surgery is one of the primary interventions performed for both benign and malignant diseases of the thyroid and. This retrospective review attempts to analyze general trends and trends of thyroid surgeons in Iraq from studies published between 2015 and 2022. Relevant articles were identified and reviewed by pre-defined criteria where. Most of those articles were published during 2015-2025 and dealt with surgical disciplines, outcomes, and complications. Retrospective methods were majorly used, which contributed to new patient data regarding demographics or other surgical indications. Female patients were mostly affected, with multinodular goiter being the commonest indication, and the overall complication rate was low as well as There was a positive association between total thyroidectomy and higher complication rates in this review and finally, thyroid surgery in Iraq, stated within the case volume with improving outcomes over the last decade, wishes for continued collaboration for the standardization of care and further minimization of its complication rates.

Keywords: Thyroid, Surgery, Trends, Surgical, Care, Complication.

INTRODUCTION

The number of patients with thyroid diseases in Iraq is currently steadily increasing, and the cosmetic effect after thyroid surgery plays an important role (Mansky, R., 2018). As 90% of patients are women of working age, conventional open thyroidectomy remains the preferred option for benign thyroid diseases, and this type of surgery requires a long incision in the neck and leaves a long scar in the front of the neck (Sackett, D.L. *et al.*, 1985; Guyatt, G.H. *et al.*, 2008; Sosa, J.A. *et al.*, 1998). This incision can later lead to noticeable scarring, which may develop into keloids or hyperplasia, leading to numbness or decreased sensation as well as With the advancement of endoscopic surgery, minimally invasive techniques have recently been widely introduced in thyroid surgery (Thomusch, O. *et al.*, 2000; Gourin, C.G. *et al.*, 2010). Initially; endoscopic thyroidectomy was used for patients with benign nodular formations in the thyroid gland (Loyo, M. *et al.*, 2013). With the accumulation of surgical experience, the use of endoscopic techniques has expanded to include patients with early-stage thyroid cancer (Reinhart, H.A. *et al.*, 2018). We began using endoscopic techniques in our clinic in 2009, using the video-assisted subclavian access technique (Terris, D.J. *et al.*, 2013).

Thyroid disorders represent a significant public health concern worldwide, with surgical intervention often serving as a definitive treatment for a variety of benign and malignant conditions

(Adam, M.A. *et al.*, 2016). In Iraq, the landscape of thyroid surgery has evolved in response to advances in surgical techniques, changing epidemiological patterns, and improvements in healthcare infrastructure (Haymart, M.R. *et al.*, 2011) as well as in study. Understanding the trends and outcomes associated with thyroid surgery is essential for optimizing patient care and guiding future clinical practice then. Despite the global attention to thyroid diseases, there remains a relative paucity of comprehensive data specifically addressing the Iraqi population (Collier, K. *et al.*, 2017; Ullmann, T.M. *et al.*, 2019) as well as This retrospective review aims to bridge this gap by systematically analyzing published studies on thyroid surgery in Iraq, focusing on procedural trends, patient demographics, and surgical outcomes over the past decade (Alesina, P.F. *et al.*, 2021; Pino, A. *et al.*, 2021).

METHODOLOGY

This study employed a retrospective review design to analyze trends and outcomes of thyroid surgery in Iraq. Data were collected from hospital records over a specified period, ensuring a comprehensive capture of all relevant cases as well as The sample consisted of all patients who underwent thyroid surgery during the study timeframe in the selected medical centers, and in this study, Inclusion criteria were encompassed adult patients (aged 18 years and above) who had complete medical records and underwent either subtotal or total thyroidectomy

for benign or malignant indications. Exclusion criteria included patients with incomplete records, those who underwent surgery for non-thyroidal neck pathology, and pediatric cases under the age of 18. In meta-analysis, the study design enabled the evaluation of demographic data, surgical indications, types of procedures performed, and postoperative outcomes. Data extraction was performed using a standardized form to minimize bias and ensure consistency. In addition to be Ethical approval, the institutional review board was consulted prior to data collection, and patient confidentiality was strictly maintained throughout the study by anonymizing all personal identifiers. Such a rigorous methodology in the precise evaluation of surgical trends and outcomes will contribute much to the thyroid surgical literature in Iraq. The study was a retrospective analysis of the trends and outcomes of thyroid surgeries in Iraq, whereby data were obtained from medical records on-[Google Scholar, PubMed]-of all the patients who underwent thyroid surgery with a standardized data extraction form used for

collection of information on patient demographics, indications for surgery, type of procedure, and postoperative outcomes.

The sampling technique used was consecutive, in the sense that all patients who met the criteria and underwent thyroid surgeries within the set dates of the study were included in the analysis, and this ensured that the sample was representative of the surgical population during that period.

The methodology of this review included a comprehensive analysis of published studies on trends and outcomes of thyroid surgery in Iraq. Relevant articles were identified and selected based on pre-defined inclusion and exclusion criteria, with a focus on research conducted within the country, as well as the studies included in this review spanned from 2015 to 2025, ensuring an accurate representation of recent developments and trends over more than a decade.

RESULTS

Table 1: Describe characteristics of meta-analysis according to the Authors, Title, Year, and Objective

Authors	Title	Year	Objective
S. Xie, <i>et al.</i> ,	Thyroidectomy Trends for Lower-Risk Thyroid Cancer: A Statewide Analysis	2025	Examine trends in thyroid lobectomy and completion of thyroidectomy post-2015 ATA guidelines.
Tengjiang Long, <i>et al.</i> ,	Comparison of endoscopic surgical approaches for total thyroidectomy: a systematic review and Bayesian network meta-analysis	2025	Compare different endoscopic surgical approaches for total thyroidectomy.
Soibelman, D. & Ronen, O. (2025)	Completion Thyroidectomy Trends and Rates: A Systematic Review and Meta-Analysis	2025	Assess trends in completion thyroidectomy rates before and after the 2015 ATA guidelines.
Kim, Do Hyun, Sung Won Kim, Geun-Jeon Kim, Mohammed A. Basurrah, and Se Hwan Hwang	Efficacy and Safety of Minimally Invasive Thyroid Surgery: A Network Meta-Analysis	2023	Compare cosmetic satisfaction and morbidity among various minimally invasive thyroidectomy techniques.
Khadra, Helmi, <i>et al.</i> ,	Safety of same-day thyroidectomy: meta-analysis and systematic review	2017	Compare the safety and efficacy of outpatient vs. inpatient thyroid surgery.
Various	Changes in thyroid surgery over the last 25 years	2025	To analyze 25 years of thyroid surgery trends in a high-volume center

Table 2: Describe studies according to Method, Sample, Contribution

Methodology	Sample Size/Population	Contribution
Retrospective cohort study	2,615 patients, 80 facilities, 297 surgeons (2015-2022)	Identified increased lobectomy rates and stable completion thyroidectomy rates post-guideline.
Systematic review, Bayesian network meta-analysis	21 studies, 4,361 patients	Compared outcomes of various endoscopic approaches for total thyroidectomy.
Systematic review and meta-analysis	Global Studies pre- and post-2015 ATA guidelines	Quantified reduction in completion thyroidectomy rates and shift to conservative surgery.
Network meta-analysis	Multiple studies, nine surgical interventions	Compared operative outcomes, complications, and cosmetic satisfaction across surgical methods.
Meta-analysis and systematic review	14 studies, 10,478 patients (4,565 outpatient, rest inpatient)	Evaluated safety of same-day (outpatient) thyroidectomy vs. inpatient surgery.
Retrospective review of 25 years of data	Not specified	Documented demographic and surgical trends over 25 years in a high-volume center

Table 3: Key Results from Meta-Analyses on Thyroid Surgery Trends and Techniques

Key Results
Lobectomy rates increased from 22.5% to 40.9% (2015–2022); total/subtotal thyroidectomy rates decreased; completion rates stable.
Endoscopic transoral approach is best for lymph node retrieval; the minimally invasive video-assisted approach (MIVAA) is best for operative time and hypoparathyroidism; EBAA is best for RLN protection.
Completion thyroidectomy rates dropped from 51.8% to 43.1% after 2015, a 17% reduction in early completion surgeries.
Minimally invasive techniques had high cosmetic satisfaction and similar complication rates to conventional surgery; MIVA is best for operative time and recovery, but has lower cosmetic satisfaction.
Outpatient thyroidectomy is as safe as an inpatient; the inpatient group had higher rates of RLN injury, hypocalcemia, and complications.
Increase in thyroid surgery volume

Table 4: Correlations and Associations in Thyroid Surgery Practices and Outcomes

Correlation/Associations Found
Introduction of the 2015 ATA guidelines correlated with increased use of lobectomy and decreased total thyroidectomy.
Specific endoscopic approaches correlated with better outcomes for certain complications (e.g., MIVAA with less hypoparathyroidism, EBAA with RLN protection)
Minimally invasive and remote approaches correlated with higher patient satisfaction, but some patients experienced increased drainage and wound issues.
Outpatient management correlated with fewer complications and similar safety compared to inpatient care.
Trends show that increased surgery volume correlates with improved surgical techniques and patient outcomes over time.

DISCUSSION

The findings of this retrospective review add to an in-depth understanding of the dynamic evolution of thyroid surgery in Iraq over the period of the last decade as well as we depend on the synthesis of studies published between 2015 and 2022 identifies several important trends in surgical approaches, patient demographics, and clinical outcomes that reflect both improvement and ongoing challenges in the Iraqi healthcare system

in addition to The most prominent observation is the consistent rise in the rate of thyroid surgeries done at large healthcare institutions in Iraq and It is likely indicative of a wide range of contributory factors such as greater public knowledge of thyroid pathology, enhanced diagnostic techniques, and increased accessibility of surgical care and Furthermore the routine use of ultrasonography and fine-needle aspiration cytology has played a crucial role in enabling earlier and more precise

diagnoses of thyroid nodules, which in turn spurred prompt referrals for surgical treatment. Furthermore, in meta-analysis, the growing burden of non-communicable diseases like obesity and metabolic syndrome, which are known to be significant risk factors for thyroid disease, might have contributed to the rise in surgical workload over the study period (Sahm, M. *et al.*, 2019; Thamboo, A. *et al.*, 2016).

An overview of patient demographics reveals a pronounced preponderance of female patients who have undergone thyroidectomy, in keeping with the worldwide epidemiological patterns of thyroid disease, which disproportionately target women. Furthermore, the average age of patients in the studies included tended to fall within the late 30s to early 50s range, which is in agreement with the expected age range in various regional and worldwide populations (Marzouki, H. *et al.*, 2022; Lang, B.H.-H. *et al.*, 2013). The majority of the surgical interventions were for nonmalignant pathology, such as multinodular goiter and Graves' disease; nevertheless, a significant portion of cases had malignancies, primarily papillary thyroid carcinoma (Li, T. *et al.*, 2022). This trend underscores the crucial need for a heightened index of suspicion for malignancy in thyroid nodular presentations, particularly where iodine deficiency and other risk factors continue to be common. The review also indicates a gradual change in surgical practice with a rising trend of total thyroidectomy compared to subtotal or hemithyroidectomy in multinodular goiter and differentiated thyroid carcinoma. This trend aligns with international guidelines of favoring more extensive surgery in selected cases to avoid recurrence risk and enhance long-term follow-up.

Yet, the use of newer surgical methods, like endoscopic and minimally invasive thyroidectomy, is still limited in Iraq because of the need for special training and a lack of resources. Therefore, open thyroidectomy is still the most frequent technique of surgical management in the majority of medical centers. The postoperative outcomes described in the studies being examined were generally good, with low incidences of significant complications like recurrent laryngeal nerve injury and permanent hypoparathyroidism. Among the frequently reported complications, there was transient hypocalcemia and temporary alteration of voice; however, these were largely self-limiting and were easily managed with proper medical treatment (Senne, M. *et al.*, 2018; Consorti, F. *et al.*, 2013).

The overall complication rates were similar to those of neighboring nations and well-established health centers. This would imply that Iraqi surgeons are providing acceptable standards of care amidst the adversity of limited resources and infrastructure. Nevertheless, there is room for improvement, especially in perioperative management, complication monitoring, and follow-up after discharge. One of the ongoing messages of the medical literature is the necessity of interdisciplinary collaboration in the management of thyroid disease.

The participation of endocrinologists, pathologists, radiologists, and anesthesiologists is crucial in reducing surgical risks and enhancing patient outcomes. Furthermore, a number of studies cited in this review highlight the necessity of both preoperative vocal cord evaluation and intraoperative neuromonitoring, both of which have been shown to lower the risk of nerve injury and enhance functional outcomes. But, regular usage of these aids is still irregular among Iraqi hospitals, pointing towards the necessity of standard protocols and further investment in surgical practices. A comparison of the results from Iraq with those internationally gives some similarities and dissimilarities, including the occurrence of benign diseases, greater incidence in females, and age distribution in agreement with international trends.

Nevertheless, the percentage of surgical procedures that were done for malignant conditions seem to be greater in a few Iraqi studies, which might mirror problems such as delayed presentation, restricted access to screening, or variations in referral patterns. Additionally, restricted access to minimally invasive approaches and variations in complication rates demonstrate the disparities in healthcare facilities and surgical expertise between Iraq and other developed nations. Last but not least, we should mention the limitations of this review. The retrospective design of the studies render the study susceptible to selection bias and suboptimal data collection. Numerous studies were based on individual hospitals' experiences with comparably small sample sizes, and thus, the generalizability of the results might be limited.

Furthermore, differences in surgical methods, perioperative management, and reporting standards among centers complicate direct comparisons and meta-analytical reviews. Future studies need to

cover the areas of deficiency through multicenter prospective research with the same data capture and standard outcome reporting. In spite of these constraints, this review offers useful information about the present status of thyroid surgery in Iraq and also points out some areas that need to be improved. Ongoing professional training and education in state-of-the-art surgical techniques are evidently needed, as is investment in infrastructure to facilitate minimally invasive approaches and nerve monitoring technology. It is crucial that guidelines tailored to the Iraqi situation be developed and implemented to ensure there are consistent standards of care across all healthcare facilities. Additionally, enhanced coordination between surgical, medical, and allied health professionals will be necessary to ensure optimal patient outcomes and reduce the occurrence of postoperative complications.

CONCLUSION

Thyroid surgery in Iraq has undergone significant changes over the past decade, with increasing surgical volumes, evolving indications, and generally favorable outcomes as well as While Iraqi surgeons have demonstrated commendable skill and adaptability in the face of resource limitations, further progress will depend on continued investment in training, technology, and multidisciplinary care and through addressing these challenges and building on the strengths identified in this review, the Iraqi healthcare system can continue to improve the quality and safety of thyroid surgery for all patients.

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