



ORIGINAL ARTICLE

Complications of elective total thyroidectomies impacted by the COVID-19 pandemic: a retrospective cohort study

Ana Luiza Gomes Sgarbi¹, Bárbara Klyslie Kato², Giovana Irikura Cardoso¹, Yasmin Abrahão³, Lara Hossepian Hojaij⁴, Flávio Carneiro Hojaij³

¹Faculdade de Medicina de Marília (FAMEMA), Marília, SP, Brasil

²Universidade Municipal de São Caetano do Sul (USCS), São Caetano do Sul, SP, Brasil

³Universidade de São Paulo (USP), Faculdade de Medicina de São Paulo, São Paulo, SP, Brasil

⁴Faculdade de Ciências Médicas da Santa Casa (FCMSC), São Paulo, SP, Brasil

Financial support: None.

Conflicts of interest: No conflicts of interest declared concerning the publication of this article.

Submitted: July 03, 2023.

Accepted: August 27, 2023.

The study was carried out at Real Benemerita Associação Portuguesa de Beneficência, São Paulo, SP, Brasil.

This study was presented at the Latin American Thyroid Congress (LATS 2023).

Abstract

Introduction: As the SARS-CoV-2 infection spread, over 28 million elective surgeries were either canceled or postponed globally because of the pandemic, impacting the healthcare system significantly. **Objective:** This retrospective cohort study aims to elucidate the relationship between the pandemic and elective surgical head and neck procedures. **Methods:** It analyzed 80 patients who underwent elective thyroidectomies performed by the same specialized surgeon between 2020 and 2021. Data collected in this study include the Covid-19 status of patients pre- and post-operatively and the outcomes of those infected during their surgical hospitalization. **Results:** Notably, the findings emphasize the safety of thyroidectomy as a surgical procedure during the COVID-19 pandemic, as none of the patients presented complications during their hospital stay. **Conclusion:** The results are expected to shed light on the effects of coronavirus infection on surgical patients and provide strategies for optimizing patient care. These strategies include implementing testing protocols and emphasizing the proper use of personal protective equipment (PPE).


Keywords: thyroidectomy; COVID-19; elective surgical procedure.

How to cite: Sgarbi ALG, Kato BK, Cardoso GI, Abrahão Y, Hojaij LH, Hojaij FC. Complications of elective total thyroidectomies impacted by the COVID-19 pandemic: a retrospective cohort study. Arch Head Neck Surg. 2023;52:e20230013. <https://doi.org/10.4322/ahns.2023.0013>

Introduction

As the cases of SARS-CoV-2 infection surged during the 2020 coronavirus pandemic¹, healthcare systems in Brazil and worldwide found themselves grappling with an unprecedented demand². This led to an urgent need to reallocate and concentrate resources to cater to the rising numbers of those infected with SARS-CoV-2, aiming to mitigate the severe impacts of the pandemic³.

The relocation of resources during the pandemic significantly impacted elective surgeries, with scarcities noted in personal protective equipment (PPE), anesthetics, beds, and even oxygen, which was prioritized for emergencies⁴.

 Copyright Sgarbi et al. This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

A study conducted in Brazil reported that over 900,000 elective surgeries were either canceled or postpone within the public healthcare system⁵. This was not only a strategy to conserve resources but also an effort to prevent morbidity and mortality. Evidently, there was a heightened surgical risk for patients infected with the coronavirus⁶. The potential for pre, intra, and postoperative infections, coupled with the complications these infections might bring—especially in light of the reduced availability of resources—made such decisions imperative⁴.

Considering this scenario, this study systematically reviewed 150 medical records of patients who underwent head and neck surgery by a single surgeon between April 2020 and May 2021. The study also evaluated the institutions where these surgeries were performed, focusing on the availability of PPE in the operating rooms and adherence to COVID-19 safety protocols.

Materials and methods

This study was designed as a descriptive retrospective cohort, based on the systematic analysis of electronic charts. All patients were treated by the same head and neck surgeon between April 2020 and May 2021. The research was steered by two primary considerations:

1. The pre, intra, and postoperative prevalence of SARS-COV-2 in patients submitted to elective thyroidectomies during the selected period;
2. The management and prognosis of patients who tested positive for SARS-COV-2 using the RT-PCR (Reverse Transcription Polymerase Chain Reaction) test postoperatively.

The sample comprises 150 individuals who have undergone elective head and neck surgery during the specified period of the COVID-19 pandemic, i.e., between April 2020 and May 2021. This study focused exclusively on total thyroidectomy procedures, with no gender bias and encompassing a broad age range. From this, 80 patients were closely evaluated regarding their pre, intra, and postoperative outcomes.

Inclusion criteria were centered on patients submitted to elective thyroidectomy during the mentioned period. No specific exclusion criteria were applied.

This project was approved by an Institutional Ethical Committee. Patient privacy was protected, ensuring adherence to all ethical guidelines throughout the analysis.

Data compilation utilized Google Sheets (Google INC.), which was securely deleted post-use.

Collected patient-related data includes gender, age, operation date, RT-PCR COVID-19 status during the pre, intra, and postoperative periods, and the date of most recent medical consultation.

Demographic data were statistically described through percentage, mean, standard deviation, median, and range. Clinical data are also presented descriptively, highlighting the key features of the dataset to discern the incidence of SARS-COV-2 during the various surgical periods and to evaluate

the individual outcomes. Given an ample sample size, hypothesis testing may be conducted to assess the correlation between exposure variables and outcome variables, including the pre, intra, and postoperative impacts.

Overall, the use of rigorous statistical methods will ensure data accuracy and reliability, facilitating insightful conclusions and providing a foundation for evidence-driven recommendations in future research and clinical practice.

Results

Between April 28, 2020, and May 28, 2021, a total of 80 thyroidectomies were performed. Of these patients, 35 (43.75%) were diagnosed with papillary carcinoma, 6 (7.5%) had a combination of goiter and papillary carcinoma, and 1 (1.25%) had medullary carcinoma. The remaining 38 (47.5%) cases were diagnosed as goiter (Bethesda III and IV) (Figure 1).

All patients agreed to take a COVID-19 PCR test prior to the surgery to reduce the risk of contamination, in line with the hospital protocols. Out of the 80 thyroidectomy procedures, only 2 (2.5%) were delayed due to a positive COVID-19 test result before hospital admission (Figure 2).

The surgeries for these patients were later carried out without any issues. One patient tested positive for COVID-19 via a PCR test 8 days post-surgery. None of the patients experienced any complications during their hospital stay.

Conditions Presented Prior to Thyroidectomy

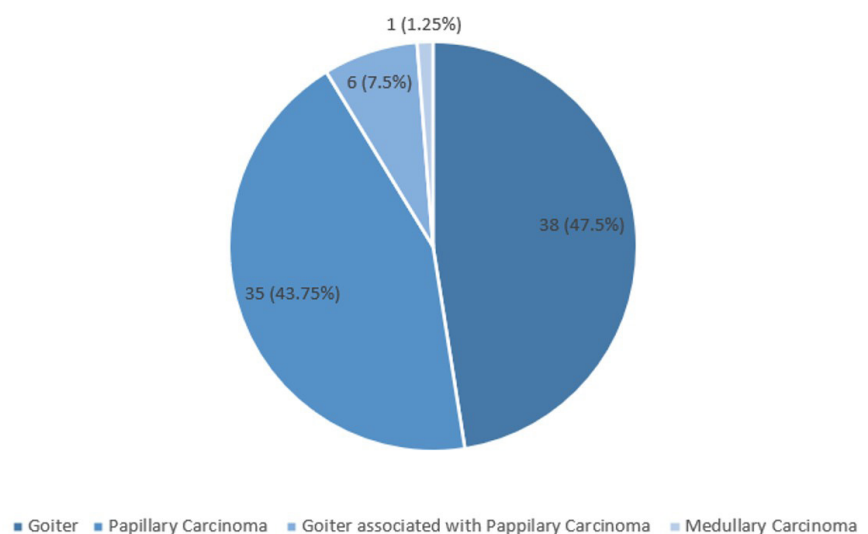


Figure 1. Distribution of thyroidectomy cases from April 28, 2020, to May 28, 2021. The majority of cases (47.5%) were diagnosed as goiter (Bethesda III and IV), while papillary carcinoma was the most prevalent among the malignant conditions, accounted for 43.75%. Goiter coexisting with papillary carcinoma was found in 7.5% of the cases, while medullary carcinoma was observed in just 1.25% of the patients.

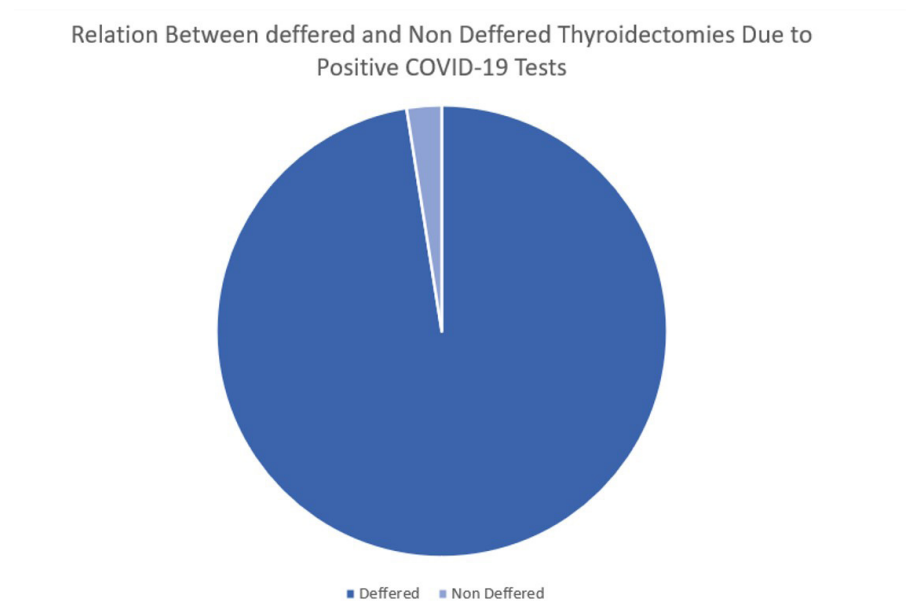


Figure 2. Comparison between deferred and non-deferred thyroidectomies due to positive COVID-19 tests. Out of 80 thyroidectomy procedures, only 2 (2.5%) were deferred because of positive COVID-19 results, while the vast majority of surgeries (97.5%) proceeded as planned.

Discussion

Patients who tested positive for SARS-CoV-2 RT PCR had their surgeries postponed until had fully recovered from COVID 19. Once they showed no contraindications, they proceeded to surgery. No additional complications arose during any of the surgical procedures, leaving the overall outcome unaltered. Analysis of both intraoperative and postoperative periods revealed a complete absence of complications among all patients. These favorable outcomes can be attributed to the meticulous use of PPE and steadfast adherence to comprehensive safety measures throughout their hospital stay.

Conclusion

The results of this study underscore the safety of thyroidectomies as a surgical procedure during the COVID-19 pandemic, given that none of the patients presented any complications.

References

1. World Health Organization Regional Office for the Americas/PAHO/WHO Representation in Brazil. Naming the coronavirus disease (COVID-19) and the virus that causes it [Internet]. 2019 [cited 2023 Jul 03]. Available from: [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it)

***Correspondence**

Flávio Carneiro Hojaij
Universidade de São Paulo
(USP), Faculdade de Medicina,
Departamento de Cirurgia,
Laboratório de Investigação Médica
(LIM 02)
Rua Padre João Manuel, 450,
Cerqueira César
CEP 01411-001, São Paulo (SP), Brasil
Tel.: +55 (11) 97207-1025
E-mail: fchojaij@uol.com.br

Authors information

ALGS, GIC - Acadêmicas do 5º ano de Medicina, Faculdade de Medicina de Marília (FAMEMA). BKK - Acadêmica do 5º ano de Medicina, Universidade Municipal de São Caetano do Sul (USCS). YA: Acadêmica do 3º ano de Medicina, Faculdade de Medicina da USP (FMUSP). LHH: Acadêmica do 3º ano de Medicina, Faculdade de Ciências Médicas da Santa Casa de São Paulo (FCMSCSP). FCH - Cirurgião de Cabeça e Pescoço, Livre Docente pelo Departamento de Cirurgia da Faculdade de Medicina da Universidade de São Paulo (FMUSP).

2. Motta GR Fo, Leal AC, Amaral MVG, Maia PAV, Duarte MEL, Bähr GL. Impact of the strategies adopted to face the COVID-19 pandemic in a Brazilian Reference Institute for high complexity surgery in orthopedics and traumatology. *Rev Bras Ortop.* 2021;56(2):161-7. <http://dx.doi.org/10.1055/s-0041-1728703>. PMID:33935311.
3. Diaz A, Sarac BA, Schoenbrunner AR, Janis JE, Pawlik TM. Elective surgery in the time of COVID-19. *Am J Surg.* 2020;219(6):900-2. <http://dx.doi.org/10.1016/j.amjsurg.2020.04.014>. PMID:32312477.
4. Truche P, Campos LN, Marrazzo EB, Rangel AG, Bernardino R, Bowder AN, Buda AM, Faria I, Pompermaier L, Rice HE, Watters D, Dantas FLL, Mooney DP, Botelho F, Ferreira RV, Alonso N. Association between government policy and delays in emergent and elective surgical care during the COVID-19 pandemic in Brazil: a modeling study. *Lancet Reg Health Am.* 2021;3:100056. <http://dx.doi.org/10.1016/j.lana.2021.100056>. PMID:34725652.
5. Doglietto F, Vezzoli M, Gheza F, Lussardi GL, Domenicucci M, Vecchiarelli L, Zanin L, Saraceno G, Signorini L, Panciani PP, Castelli F, Maroldi R, Rasulo FA, Benvenuti MR, Portolani N, Bonardelli S, Milano G, Casiraghi A, Calza S, Fontanella MM. Factors Associated With Surgical Mortality and Complications Among Patients With and Without Coronavirus Disease 2019 (COVID-19) in Italy. *JAMA Surg.* 2020;155(8):691-702. <http://dx.doi.org/10.1001/jamasurg.2020.2713>. PMID:32530453.
6. COVIDSurg Collaborative. Elective surgery cancellations due to the COVID-19 pandemic: global predictive modeling to inform surgical recovery plans. *Br J Surg.* 2020;107(11):1440-9. <http://dx.doi.org/10.1002/bjs.11746>. PMID:32395848.