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

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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.


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.
A study conducted in Brazil reported that over 900,000 elective surgeries were either canceled or postponed within the public healthcare system. 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 coronavirus. 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 imperative.

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.

![Figure 1. Distribution of thyroidectomy cases from April 28, 2020, to May 28, 2021.](image)

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.
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
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