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Emergency Room Visits Following Thyroid Surgeries in Johns Hopkins Aramco Health Care

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Abstract: ***Background: One of the most frequent procedures today is thyroidectomy, which is typically done when a malignancy is suspected or when the thyroid gland is enlarged, causing local compressive symptoms or cosmetic disfigurement. Thyroidectomy has potential risks and complications, just like other surgical procedures. The most frequent surgery - related intraoperative complications of thyroidectomy, aside from anesthesia - related issues, are recurrent laryngeal nerve injury, parathyroid gland injury, and excessive bleeding as a result of significant vascular injury or poor hemostasis. Postoperative complications include hypocalcaemia, surgical wound infection, and airway compromise from paralyzed vocal folds or hematoma accumulation. Early detection of these complications can reduce further morbidity and avert mortality. To prevent terrible outcomes, careful surgical techniques must be used in conjunction with in - depth postoperative evaluation. Thyroidectomy is generally safe; however, it is associated with some complications, which may require an emergent hospital visit and hospital readmission. Aim: To examine the rate of emergency room visits within 30 days after thyroid surgery. Methods: This was a cross - sectional, retrospective study that looked at people who had surgery on their thyroid and then went to the emergency room within 30 days. The data were collected from the records of patients during the years 2018–2022. Results: Patients who underwent thyroid surgery were included; most of the patients were females (78.4%), and the largest proportion performed a total thyroidectomy (63.2%).51 (14.6%) patients out of 350 visits to the emergency room Almost all patients have a high BMI (98.2%). Only 5.1% of patients who underwent thyroid surgeries present to the emergency room for symptoms related to hematoma or hypocalcaemia. Surgical site pain and other nonspecific causes were the major causes of the visits. Conclusion: The findings of the current study showed that emergency room visits after thyroidectomy are not uncommon, but the number of visits related to serious clinical morbidities is low. Further study is needed to analyze and follow up on the causes and outcomes of the visits.***

Keywords: Thyroidectomy, Emergency room visits, readmissions, hematoma

1. Introduction

The thyroid gland is a small endocrine gland that secretes hormones that control numerous body metabolic activities [**1**]. The prevalence of thyroid diseases varies between different parts of the world due to socioeconomic and geographical differences. Thyroid diseases are also one of the most common endocrine disorders [**2**]. Recently, the prevalence of thyroid tumors and thyroid ailments has increased rapidly [**1**].

It was shown that nodules are highly common, and autopsy studies showed that nodules were found in 50% of all thyroids examined [**3**]. Thyroid nodules are diagnosed with substantial accuracy due to the improved diagnostic ability provided by technological advances [**2**]. The prevalence of thyroid nodules is 2 - 6% by physical examination, whereas the prevalence increases to 19 - 35% by using imaging diagnosis [**4**], and 13 - 67% of nodules are detected by ultrasound [**5**]. The incidence of a palpable thyroid nodule is approximately 4–8% among adults [**5**]. The most common thyroid nodules are benign, whereas malignancies represent 5% of cases [**6**]. Thyroid cancer represents 1%–1.5% of all adult cancers [**7**]. The etiology of the nodule is multifactorial, including radiation exposure, iodine deficiency, and dietary goitrogenic factors; all such factors have an important role in the pathogenesis of thyroid nodules [**8**].

Surgical management is used for many benign and malignant thyroid diseases [**2**]. Thyroidectomy is a fairly common surgery [**9**]; it is one of the most commonly performed surgeries in the world and can be partial or total [**10**].

During the 19th century, thyroidectomy carried a high morbidity and mortality rate; the mortality rate was up to 40%, mainly due to infection and bleeding. Later, the improved surgical techniques and developments in anesthesia as well as aseptic techniques led to reduced mortality rates due to thyroidectomies. However, until today, there have been significant complications of thyroidectomy, including hypocalcemia, hypothyroidism, thyroid storm, hemorrhage, wound infection, respiratory obstruction, and recurrent laryngeal nerve (RLN) [**9**]. The extent of surgery affects the rate of complications; the extent of thyroid resection should be determined by the reason for surgery [**11**].

Healthcare costs go up when people go to the emergency room or end up in the hospital after surgery without planning to. This is called hospital readmission (HR), and it has become a major factor in deciding how healthcare is run [11]. It is important to look at the results of a thyroidectomy, especially those related to visits to the emergency room (ER) and readmissions to the hospital [12]. Additionally, emergency room visits and hospital readmissions have become the cornerstones of outcomes and quality metrics that may be tied to physician compensation in the future [**13**]. In one study, it was reported that 11% of patients who underwent thyroidectomy or parathyroidectomy presented to the emergency room [**14**]. However, nationwide rates of hospital readmission and emergency visits after thyroidectomy aren't well established in published studies [**15**]. There was no previous Saudi study that reported the rate and causes of emergency room (ER) visits and hospital readmissions after thyroidectomy. Therefore, we conducted the current study.

Subjects and methods

This study was a cross - sectional retrospective study; it was conducted at Johns Hopkins Aramco Healthcare Dhahran. The study was conducted on patients who underwent thyroid surgery and visited the emergency room or reported hospital readmission within 30 days after the surgery. On the other hand, patients suffering from chronic diseases or showing a lack of data were excluded. The data were collected from the records of patients during the years 2018–2022.

Statistical analysis:

The SPSS program version 22 was used to analyze the collected data; frequency and proportions were used to describe the categorical variables.

2. Results

Currently, 51 (14.6%) of 350 patients visited the emergency room. The highest age group who visited the emergency room was 51–60 years old (27.5%) (figure 1). Females were more prevalent compared to males: 40 (78.4%) vs.11 (21.6%) for females and males, respectively (figure 2). Body mass index was normal among only one patient (1.8%), whereas the remaining patients were either overweight 23 (41.8%) or obese 31 (56.4%) (figure 3). Regarding the type of surgery, more than one - half of patients underwent TT in 36 (63.2%), followed by those who underwent hemithyroidectomy in 19 (33.3%), and finally, only two patients underwent completion (3.5%) (figure 4).

Table1: Demographics and clinical characteristics of patients

Variables	N	%
Age		
40 or less	12	23.5%
41 - 50	12	23.5%
51 - 60	14	27.5%
> 60	13	25.5%
Gender		
Male	11	21.6%
Female	40	78.4%
BMI		
Normal	1	1.8%
Overweight	23	41.8%
Obese	31	56.4%
Surgery		
TT	36	63.2%
Hemi	19	33.3%
Completion	2	3.5%

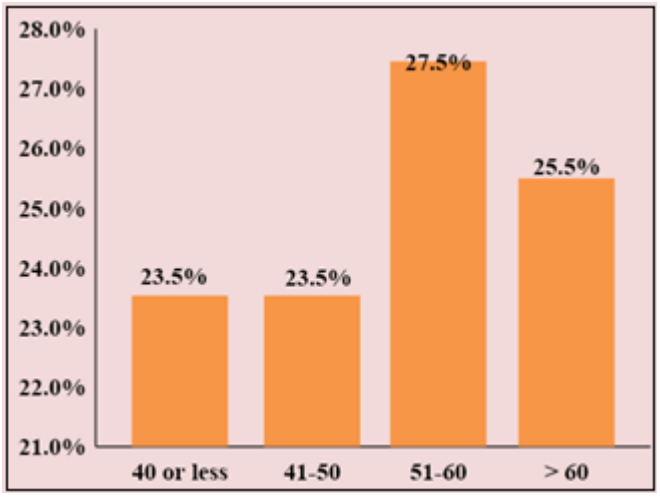

Figure 1: Age groups of patients

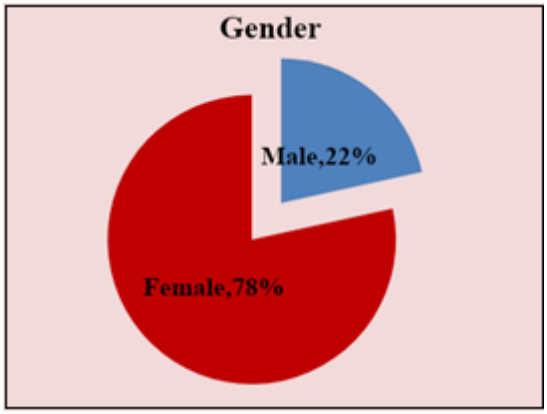

Figure 2: Gender of patients

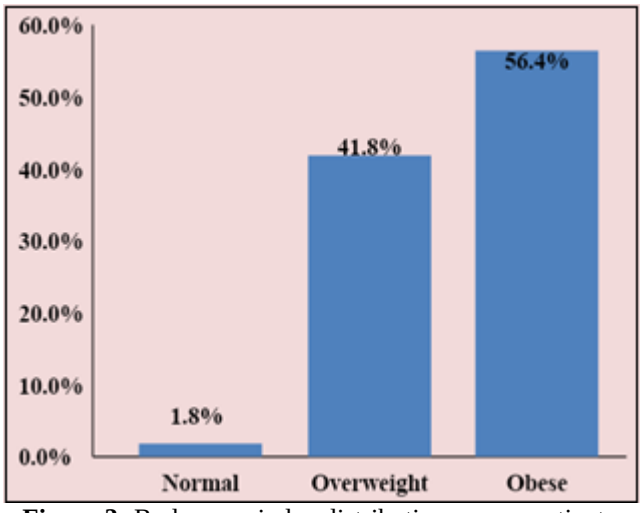

Figure 3: Body mass index distribution among patients

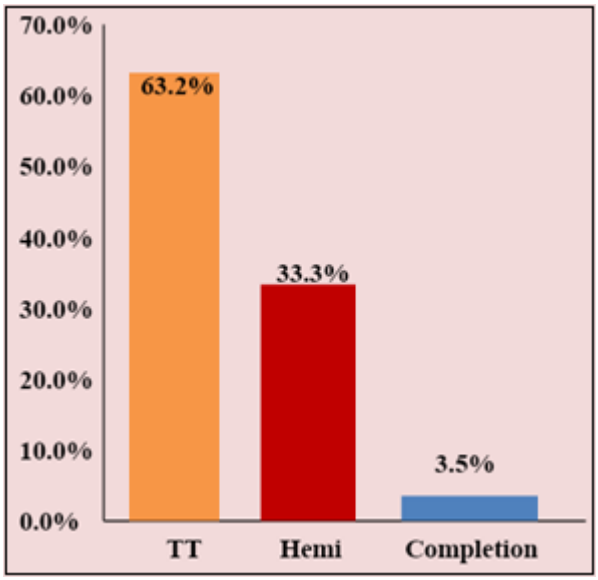

Figure 4: The types of thyroid surgery performed for the patients

The causes of emergency room visits were determined according to years, and they are shown in Figures 5a and b. the major causes of emergency room visits were hematoma 11, symptoms related to hypocalcaemia 7 and the others were nonspecific complains like sore throat, and surgical site.

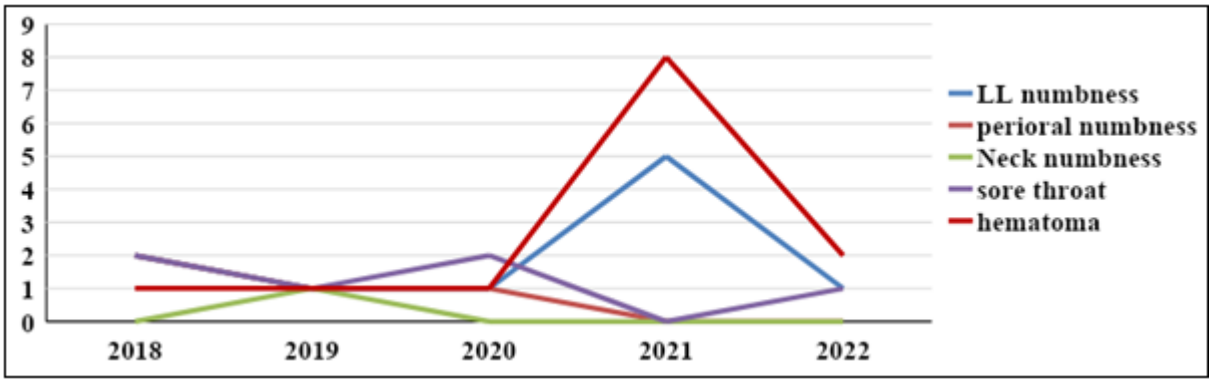

Figure 5 (a): The causes of emergency room visits after thyroidectomy

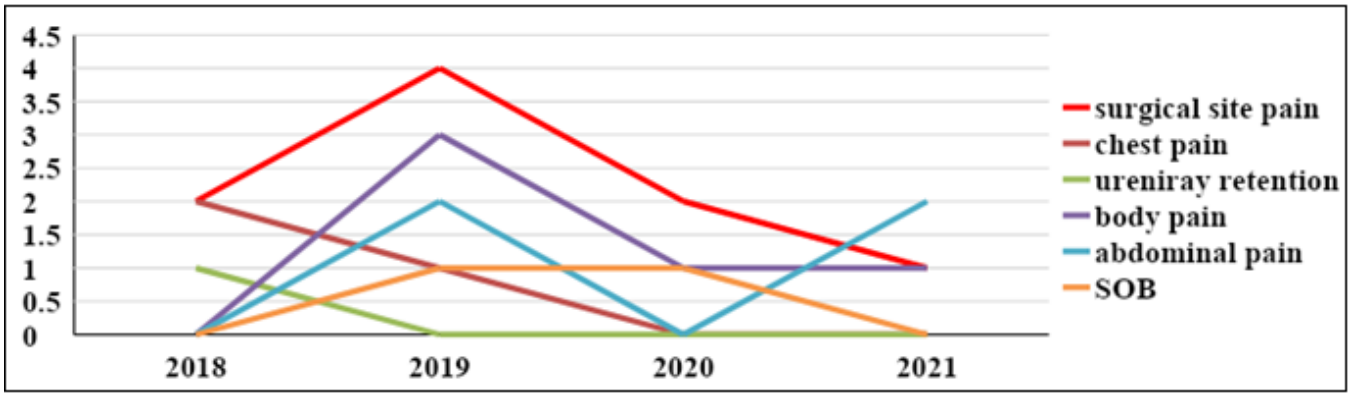

Figure 5 (b): The causes of emergency room visits after thyroidectomy

The rate and the type of thyroid surgery distributed through the study period are shown in figure6. In 2018, hemithyroidectomy was the most performed surgery in all years except in 2019.

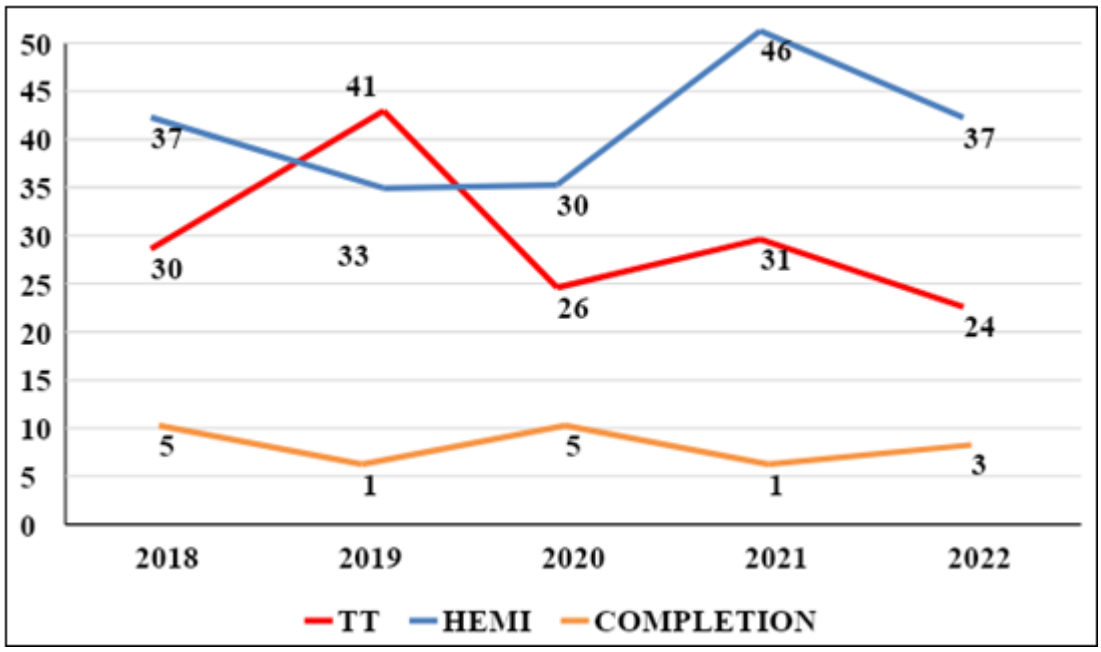

Figure 6: The types of thyroid surgery performed according to the years of the study period

3. Discussion

Hospital re - admission (HR) and emergency room (ER) visits became the cornerstone for quality metrics and outcomes [**13**]. Therefore, we aimed to report the rates of ER visits within 30 days among thyroidectomy patients.

The collaborative endocrine surgery quality improvement program (CESQIP) was started in 2013 to meet the need for an organ - specific database for endocrine surgery, such as thyroidectomy [16]. Thyroidectomy is one of the most common surgeries done around the world to treat thyroid diseases. It can be either partial or total.

An assessment from the CESQIP included 8381 thyroidectomy patients who reported post - thyroidectomy emergency room visits and readmissions. It was found that within 30 days of surgery, the rate of ER visits was 3.4% and all HR was 2.3% [**12**]. Crispo et al. conducted a study on 22654 patients who underwent inpatient thyroid surgery. There were 4.4% readmitted within 30 days [**19**]. A study that reported 30 - day hospital readmission after thyroidectomy showed that the rate of hospital readmission was 4%–4.1% after thyroidectomy [**15**].

An assessment from CESQIP showed that hypocalcemia was the major reason for ER visits (21.9%) and HR visits (36.4%) [**12**]. Another study by Crispo et al. showed that hypocalcemia was responsible for 26.6% of readmissions [**20**].

A study by Pandey et al. showed that hemithyroidectomy was the most commonly performed procedure (45%), whereas total thyroidectomy was in the second rank (25%).

In a study that looked back at 673 people who had a thyroidectomy and 191 people who had a parathyroidectomy, 11.1% had to go to the emergency room within 30 days of their surgery [11]. Young et al. revealed that among 570 patients who underwent either thyroidectomy or parathyroidectomy, 11.22% required ER visits [**20**]. In one study, it was estimated that 11% of patients were presented to the emergency department after thyroidectomy or parathyroidectomy for evaluation [**14**].

In the current study, 14.6% of people went to the emergency room, which is comparable to the literature. The overall findings showed that hematoma and surgical site pain were the major complications that caused ER visits.5.1% of the patients who underwent surgery visited the emergency room for symptoms related to hematoma or hypocalcaemia, which is considered low for the reported literature percentage. The most common risk factor was a high BMI, which was present in nearly all of the patients.

4. Conclusion

The findings of the current study showed that emergency room visits after thyroidectomy are not uncommon, but the number of visits related to serious clinical morbidities is low. Further study is needed to analyze and follow up on the causes and outcomes of the visits.

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