



6-Year Experience of Outpatient Total and Completion Thyroidectomy

Ethan Frank, BS¹; Joshua Park, MD²; Alfred Simental, MD²; Christopher Vuong, MD²; Steve Lee, MD, PhD²; Pedro Andrade Filho, MD²; Daniel Kwon, MD²; Yuan Liu, MD²

¹Loma Linda University School of Medicine, ²Loma Linda University Medical Center

ABSTRACT

Outpatient thyroidectomy has become slowly accepted with various published reports predominantly examining partial or subtotal thyroidectomy. Concerns regarding the safety of outpatient total and completion thyroidectomy remain, especially in regards to vocal fold paralysis, hypocalcemia, and catastrophic hematoma. We aimed to evaluate the safety of outpatient thyroid surgery in a large cohort. We conducted a retrospective review comparing outcomes in those who underwent outpatient (n=251) versus inpatient (n= 291) completion or total thyroidectomy between February 2009 and February 2015. Outpatient completion and total thyroidectomy had lower rates of temporary hypocalcemia (6% vs. 24.4%; p< 0.001) and no significant difference in rates of return to emergency department (1.2% vs. 1.4%), hematoma formation (0.8% vs. 0.7%), temporary (2% vs. 4.1%) or permanent (0.4% vs. 0.7%) vocal fold paralysis, or permanent hypocalcemia (0.4% vs. 0%) compared to the inpatient group. Outpatients requiring calcium replacement had shorter duration of postoperative calcium supplementation (44.4±59.3 days vs. 63.3 ±94.4 days; p < 0.001). Our data demonstrates similar safety in outpatient and inpatient total and completion thyroidectomy.

CONTACT

Ethan Frank
Loma Linda University School of Medicine
Email: efrank@llu.edu
Phone: (909) 558-7884

INTRODUCTION

Outpatient surgery has become increasingly popular option for patients undergoing thyroidectomy¹ and has been shown to have outcomes similar to inpatient surgery in a variety of healthcare settings.^{2,3} However, published reports predominantly examine partial or subtotal thyroidectomy, therefore, concerns regarding the safety of outpatient total and completion thyroid surgery remain, especially in regards to vocal fold paralysis, hypocalcemia, and catastrophic hematoma.^{4,5} We evaluated the safety and effectiveness of outpatient total and completion thyroidectomy in a large cohort by over 6 years of experience.

MATERIALS AND METHODS

Following IRB approval, we retrospectively reviewed patients who had either total or completion thyroidectomy from a single senior surgeon (AS) between February 2009 and February 2015. The study population was divided into two groups based upon status as an inpatient or outpatient procedure. Surgical outcomes and post-operative complications were assessed and compared between the two groups.

Statistical analysis (Welch's t-test and the two-sample z-test) was performed with R statistics software.

RESULTS

Outpatient completion and total thyroidectomy had no significant difference in rates of readmission, hematoma formation, temporary or permanent vocal fold paralysis, or permanent hypocalcemia when compared to the inpatient group. The incidence of temporary hypocalcemia was significantly lower in all patients receiving outpatient thyroidectomy and those having total thyroidectomy (5.5% vs. 26%; p < 0.001), but there was no difference for patients undergoing completion thyroidectomy.

Outpatients had shorter duration of postoperative calcium supplementation (44.4±59.3 days vs. 63.3 ±94.4 days; p < 0.001) and higher postoperative PTH levels, both 1 hour after surgery (44.9±31.3 pg/ml vs. 21.4±22.8 pg/ml; p < 0.001) and at first clinic visit (29.9±16.8 pg/ml vs. 20.9±24.8 pg/ml; p < 0.001).

Table 1: Demographics

	Outpatient (n=251)	Inpatient (n=291)	p-value
Females	78.1%	80.1%	0.5713
Age	54.5±17.8	54.9±18.0	0.7904
Malignant Diagnosis	39.0%	42.6%	0.6502
Procedure			
Total Thyroidectomy	80.1%	87.3%	0.02268*
Completion Thyroidectomy	19.9%	12.7%	0.02268*
Paratracheal Dissection	3.0%	17.9%	<0.001*

Table 2: Postoperative Complications

	Outpatient (n=251)	Inpatient (n=291)	p-value
Readmission	1.2%	1.40%	0.8537
Hematoma	0.8%	0.7%	0.8819
Transient Hypocalcemia	6.0%	24.4%	<0.001*
Permanent Hypocalcemia	0.4%	0.0%	0.2812
Permanent Vocal Fold Paresis	0.4%	0.7%	0.6513
Temporary Vocal Fold Paresis	2.0%	4.1%	0.1557

DISCUSSION

Outpatient thyroidectomy is associated with benefits to both patients and hospitals.^{2,3} However, total and completion thyroidectomy are considered to have higher risks than less extensive procedures, and the safety of performing such procedures on an outpatient basis remains controversial. In our study, outcomes of outpatient total and completion thyroidectomy were similar or improved compared to those managed with admission. Temporary hypocalcemia was lower in outpatients, though this may be due to increased reporting of symptoms by inpatients and the bias of PTH >15 pg/ml in outpatient qualification.

The majority of our patients having concurrent paratracheal dissection were admitted following thyroidectomy. Paratracheal dissection has been reported to increase postoperative morbidity and to predict unplanned readmission.^{6,7} While we found no difference in the rate of complications following outpatient versus inpatient thyroid surgery with paratracheal dissection, the sample size for outpatient paratracheal dissections was only eight. Additionally, paratracheal dissection corresponded with an increased rate of transient RLN injury in inpatients and, among outpatients, were more common in patients returning to ED. Thus, we cannot conclude that patients requiring a paratracheal dissection will have equally safe outcomes if managed as outpatients.

CONCLUSIONS

Total and completion thyroidectomy can be performed safely with similar complications when managed as an outpatient operation. The incidence of post-thyroidectomy complications is similar to rates associated with inpatient thyroid surgery; however, the need for paratracheal dissection may still represent a relative contraindication to an outpatient operation.

REFERENCES

1. Sun GH, et al. *Thyroid*. 2013;23(6):727-733.
2. Hessman C, et al. *Am J Surg*. 2011;201(5):565-568.
3. Snyder SK, et al. *J Am Coll Surg*. 2010;210(5):575-582.
4. Sørensen KR, et al. *Dan Med J*. 2015;(February):2-7.
5. Doran HE, et al. *Ann R Coll Surg Engl*. 2012;94(8):543-547.
6. Giordano D, et al. *Thyroid*. 2012;22(9):911-917.
7. Iannuzzi JC, et al. *Surgery*. 2012;156(6):1432-1440.