American Thyroid Association Statement on Outpatient Thyroidectomy

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Abstract

Background: The primary goals of this interdisciplinary consensus statement are to define the eligibility criteria for outpatient thyroidectomy, and to explore preoperative, intraoperative and postoperative factors that should be considered in order to optimize the safe and efficient performance of ambulatory surgery.

Summary: A series of criteria was developed that may represent relative contraindications to outpatient thyroidectomy, and these fell into the following broad categories: clinical, social and procedural issues. Intraoperative factors that bear consideration are enumerated, and include choice of anesthesia, use of nerve monitoring, hemostasis, management of the parathyroid glands, wound closure and extubation. Importantly, postoperative factors are described at length including suggested discharge criteria and recognition of complications, especially bleeding, airway distress, and hypocalcemia.

Conclusions: Outpatient thyroidectomy may be undertaken safely in a carefully selected patient population provided certain precautionary measures are taken to maximize communication and minimize the likelihood of complications.
Introduction

In recent years there has been an increasing emphasis on outpatient management of surgical procedures. Patient comfort, health, and safety remain the principal objectives. Outpatient surgery is defined for the purposes of this manuscript as same day discharge from a free-standing or hospital-based surgical unit, not requiring an overnight hospital or postoperative recovery unit stay. Over time, a transition has occurred in which an increasing number of operative procedures previously performed in an inpatient setting are now commonly accomplished as outpatient procedures.¹⁻⁵ In keeping with this trend, thyroidectomy is now frequently undertaken as an outpatient procedure, with several peer-reviewed reports of safe implementation.⁶⁻¹⁰ This change in management has occurred in the absence of consensus-driven parameters for defining the eligible population of patients or uniformly endorsed precautions for pursuing an outpatient approach. The primary objective of this manuscript is to seek agreement regarding parameters involving the patient, operation, day surgery setting, and social circumstances that make outpatient thyroidectomy feasible.

Potential Advantages of Outpatient Thyroidectomy

The potential advantages associated with outpatient thyroidectomy fall into the following broad categories: patient safety, patient comfort, and conservation of resources.

The patient’s health and safety remain paramount during recovery from any operation. The reality of the hospital environment necessarily exposes the patient to the risk of nosocomial infections with drug resistant organisms, such as methicillin-resistant staphylococcus aureus, vancomycin-resistant enterococcus or multi-drug resistant tuberculosis.¹¹ Furthermore, an imperfect system of patient care in the hospital environment also exposes the patient to a host of
potential iatrogenic complications that may be avoided with outpatient management. An Institute of Medicine report in 1999 (To Err is Human)\(^{12}\) estimated that approximately 98,000 deaths occur each year in American hospitals as a result of these iatrogenic complications. A stressed or overworked healthcare provider may not be able to fulfill the patient’s expectations of care as well as concerned family and/or friends. In addition, the wide use of rotating physician trainees or physician extenders to maintain compliance with the stringent workweek restrictions may add to this problem.

Many patients prefer outpatient surgery from a comfort and convenience perspective. Convalescence in a quiet, comfortable, and familiar setting with supportive family and friends may be preferable to a less quiet, interruptive, and unfamiliar hospital environment. Patients are generally receptive to the notion of outpatient thyroidectomy, particularly if proper patient education and counseling are pursued to mitigate fears and uncertainties in preparation for the outpatient process. A protocol of postoperative assessment in the day surgery unit ensures that the patient, family, and friends are adequately prepared for the outpatient experience prior to discharge.

The United States health care industry remains under increased scrutiny to maintain quality patient care at reduced cost. Each day a patient spends in the hospital incurs fixed and variable expenses that will differ over sections of the country and from urban to rural settings. Maximizing the efficiency of outpatient surgery serves to minimize utilization of critical hospital resources that may instead be reallocated to other important needs. Furthermore, a gradual transition of some thyroidectomies from an inpatient procedure to an outpatient setting may impart considerable health care savings nationwide. These savings accrue not only to medical facilities, insurance companies, and the government, but directly benefit the patient as well, since
few health insurance plans cover 100% of incurred expenses with most requiring the patient to pay a percentage of the expenses. Some health insurance plans charge the patient a fixed copay for each day spent in the hospital. Such incentives have naturally created an attitude change in some patients in favor of outpatient surgery.

The advantages of outpatient thyroidectomy may be realized once the patient’s safety and comfort in the outpatient setting are optimized. While not all thyroidectomy procedures can be managed on an outpatient basis, it is worth identifying those patients and procedures for which it is reasonable, and recommending precautions for pursuing it safely.

**Preoperative Considerations**

Thorough preoperative planning and careful patient selection are critical aspects of a successful outpatient thyroid surgery program. Taking the time and effort to set up a comprehensive and reliable clinical pathway will assure that patient safety is maintained as the first and foremost priority. Clinical pathways assure that all team members “are on the same page” which will help prevent a breakdown in the flow of information and assure a culture of clear communication. Though not always possible due to variability in any given institution’s culture, identifying a dedicated outpatient thyroid surgery team will facilitate clear communication between all involved parties. Critical team members include the operating surgeon, the treating anesthesiologist and the post-anesthesia care unit (PACU) nursing staff. Office personnel such as medical assistants and nurse practitioners also play an important role in patient education and preparation for same day discharge. Clear communication with the operating room scheduling staff will help minimize erroneous classification of the patient’s
discharge status, optimize hospital bed utilization, avoid PACU congestion, and enhance patient satisfaction.

Ambulatory thyroid surgery requires a partnership between the patient and the thyroid surgeon beyond the conventional patient-surgeon relationship. Accordingly, patient education is an essential component of a safe outpatient thyroid surgery program and ideally should begin at or even prior to the patient’s consultation with the surgeon. Educational materials can be made available to patients in a variety of forms such as a letter of introduction, a mailed brochure or a website that discusses the different aspects of thyroid surgery, including same day discharge. Written documents or Internet resources should include a clear and easy to locate contact number in case of an emergency or development of a postoperative complication. Encouraging patients to review these materials prior to the initial patient-surgeon consultation may make the consultation more informative for the patient, as their questions may be better directed and reinforce the educational material content. In addition to the standard informed consent for the particular surgery itself, patients must be educated in the signs and symptoms of complications to an extent greater than if they were to be admitted and monitored by healthcare professionals.

Careful patient selection and clinical judgment for same day discharge is essential (Table 1). A variety of comorbidities may be considered relative contraindications to outpatient thyroidectomy (Table 2), including noncompensated cardiac or respiratory disease, anticoagulant or antiplatelet therapy, seizure disorder, anxiety disorder, obstructive sleep apnea (OSA), hearing loss, visual impairment, mental impairment, pregnancy, unilateral vocal fold paralysis, thyrotoxicosis, chronic pain syndromes, and morbid obesity (especially BMI > 40, or at least 100 pounds over ideal body weight). Prior intolerance or prolonged recovery from general anesthesia may preclude same-day surgery, if general anesthesia is planned. A thorough
preoperative history and physical exam should identify critical comorbidities, and simultaneously reveal the level of motivation and comfort that a patient has with the prospect of outpatient surgery. Social factors such as communication and language barriers, long distance of travel between home and the surgical facility, challenges in transportation, time of day of expected completion of the surgery, lack of family/friend support, and emotional insecurity may favor inpatient care after thyroidectomy. The patient will need ready interaction with family or friends in the early postoperative recovery as well as timely access to transportation to an acute care facility if needed. For this reason a family member or committed friend is required for patient safety, not only to assure adequate postoperative care but also for immediate transportation to the surgical facility if a significant complication occurs. Many patients travel long distances for specialized care, and therefore may not be capable of quickly returning to the surgical facility in case of a complication such as bleeding. In major metropolitan areas, traffic patterns, including bridges and tunnels, may prove to be a significant deterrent to outpatient thyroidectomy. Coordinating postoperative care with the primary care provider, referring physician, or local medical care facility may be necessary to optimize an emergency care plan.

The type and extent of surgery may dictate the appropriateness of outpatient thyroidectomy. Unilateral thyroid lobectomy carries a lower probability of laryngeal dysfunction, considering the risk of unilateral versus bilateral vocal fold paralysis. Unilateral lobectomy is devoid of the risk of significant postoperative hypocalcemia compared to completion thyroidectomy or total thyroidectomy. Additionally, unilateral lobectomy has a smaller operative field than a total thyroidectomy, and therefore the potential risk per operation of a compromising postoperative hemorrhage is reduced. However, same-day discharge of patients undergoing total thyroidectomy has been shown to be safe.
Surgery for thyroid cancer may require an intraoperative decision to perform a central neck dissection that could further increase the risk of postoperative hypoparathyroidism and/or laryngeal nerve dysfunction as well as lymphatic leak, and may favor inpatient observation or at least the flexibility to convert from an outpatient to an inpatient stay as deemed necessary for patient safety. Thyroidectomy for substernal or massive goiter (greater than 100 grams) increases the risk of postoperative hemorrhage, which could influence the decision for overnight hospital admission.

**Intraoperative Considerations**

The pursuit of outpatient thyroidectomy relies heavily on the judicious performance of the procedure, for which a number of factors are worth noting.

1. **Technical**

   *Anesthesia type/technique*

   Both general and loco-regional anesthesia are used for thyroidectomy. An important aspect of anesthesia is minimizing postoperative nausea, which can predispose to vomiting and retching, potentially inducing bleeding in the surgical wound. It is particularly important that the patient’s nausea is under control prior to discharge from outpatient thyroidectomy. Recent randomized studies have shown that the use of dexamethasone or preemptive antiemetic agents such as droperidol reduces postoperative nausea and vomiting. Another important aspect of general anesthesia is smooth emergence to minimize excessive coughing, which also increases the risk of postoperative hemorrhage. Various techniques have been proposed as ways of reducing coughing during emergence including deep extubation, administration of dexmedetomidine, or intravenous or topical lidocaine.
A number of studies in recent years have validated the efficacy of local/regional anesthesia using superficial or combined deep/superficial cervical block with monitored anesthesia care (MAC) for performing thyroidectomy. Retrospective review case series\textsuperscript{22-24} as well as a randomized trial\textsuperscript{25} have shown that compared to general anesthesia, regional anesthesia with MAC reduces postoperative use of anti-emetics, time in the operating room and length of stay. Superficial cervical block has also been shown to be a helpful adjunct to general anesthesia in reducing postoperative use of narcotics for pain.\textsuperscript{26-28} This may have some advantage in those who are sensitive to narcotics and likely to develop nausea, where the use of narcotics can be minimized in the outpatient setting. However, a crucial pre-requisite for this is availability of an anesthesiologist or surgeon who is skilled in the administration of cervical blocks and proper levels of sedation. A major disadvantage of this approach is the inability to employ continuous nerve monitoring using a laryngeal EMG endotracheal tube, although trans-cricothyroid muscle needle electrodes can permit laryngeal EMG monitoring under local anesthesia.\textsuperscript{29}

\textit{Nerve monitoring}

The use of laryngeal nerve monitoring (LNM) with a dual channel electromyographic endotracheal tube is increasingly utilized during thyroid surgery, especially in the hands of higher-volume surgeons.\textsuperscript{30} Despite lack of definitive evidence that LNM prevents nerve injuries, it may be useful when contemplating outpatient thyroidectomy since the vagus nerve or the most proximal exposed portion of the RLN can be stimulated to confirm its functional integrity at the end of a thyroidectomy.\textsuperscript{31} Knowledge of the electrophysiologic integrity of the RLN may influence the decision on whether or not to discharge a patient who underwent total thyroidectomy the same day. If one nerve cannot be stimulated at the end of the case and same day discharge is planned, the patient’s respiratory status and swallowing function should be
assessed prior to discharge. If both nerves fail to stimulate by the end of the case, extreme caution must be exercised before extubating the patient. If nerve monitoring is not available or not routinely used, flexible laryngoscopy in the PACU may provide real-time assessment of the vocal cord status prior to discharge.

*Dressings and Drain use*

It has been shown that pressure dressings do not prevent postoperative hematoma, and may obscure visualization of a hematoma.\textsuperscript{32} Several randomized prospective studies have shown that use of a drain after uncomplicated total thyroidectomy, lobectomy, and subtotal thyroidectomy likewise does not reduce the rate of postoperative bleeding.\textsuperscript{33-36} For this reason, most patients undergoing ambulatory thyroidectomy do not have drains placed. Nursing and discharging staff should be educated on the importance of being certain that the incision is flat prior to discharge.

2. Hemostasis

*Ligatures v. clips v. energy*

Hemostasis in thyroid surgery has traditionally been achieved by a clamp and tie technique, electrocautery or hemostatic clips. The more recent application of newer energy devices such as ultrasonic dissection and electrothermal bipolar vessel sealing systems has proven to be feasible and safe, and provides significant reduction of operative time and intraoperative bleeding compared with conventional methods.\textsuperscript{19,37} They may be advantageous when contemplating outpatient thyroidectomy, although a meticulous surgical technique, irrespective of the method used for hemostasis, is the most important principle in achieving a safe and hemostatic thyroidectomy that facilitates ambulatory management.
Hemostatic agents

A number of biosurgical agents designed to promote hemostasis have been increasingly employed in thyroid surgery, including oxidized regenerated cellulose, gelatin compressed sponge, topical thrombin, and fibrin sealants. These may have a role in minimizing troublesome oozing in patients who are discharged without drains.

Deep extubation

Tracheal extubation while deeply anesthetized, also known as deep extubation, is a useful technique following thyroidectomy, particularly when outpatient management is anticipated. Extubation under deep anesthesia minimizes cardiovascular stimulation and reduces the incidence of coughing and straining on the tube. Patients for whom deep extubation may not be appropriate include those with airway pathology, morbid obesity, obstructive sleep apnea, gastro-oesophageal reflux, and those for whom intubation was challenging.

Strap muscle closure

An advocated method of postoperative hematoma risk-reduction involves the closure of the strap muscles. While historically these have been reapproximated from top to bottom with 3-0 absorbable sutures, recognition that airway obstruction associated with postoperative bleeding is related to venous and lymphatic outflow has led many surgeons to instead pursue single point repair of the strap muscle diastasis to mitigate against this risk. The purpose of closing the strap muscles is to prevent adhesion of the subcutaneous tissues to the trachea and to avoid the cobra deformity (a central neck depression created by the unsutured medial edges of the strap or platysma muscles); each of these is accomplished by placing a figure-of-eight absorbable suture at the midpoint of the strap muscles to potentially ameliorate the risk of catastrophic airway obstruction (Figure 1).
3. Parathyroid management

Particular care must be taken with the parathyroid glands if outpatient thyroidectomy is anticipated. The glands may be subcapsular or intrathyroidal in location and be inadvertently removed during thyroidectomy. Therefore, inspection of the resected thyroid specimen for parathyroid gland(s) prior to passing off the field may be helpful, and any parathyroid gland found should be reimplanted. Autotransplantation of a parathyroid gland does not preclude outpatient management.
Postoperative Management

Patients should be vigilant for early warning signs of hematoma such as neck swelling and pressure, hypocalcemia, airway obstruction, and aspiration (Table 3). Furthermore, they should be aware of how to obtain advice or help if these complications do arise in the home environment. Even nonspecific side effects such as prolonged nausea or failure to take in adequate hydration, nutrition, oral medications, and supplements should be addressed with a pre-formulated plan for management, should these issues arise.

Calcium management

Significant temporary hypocalcemia may occur in up to 25% of patients following total thyroidectomy. For this reason, routine oral calcium administration (e.g. calcium carbonate 1000 mg PO q6-8hr starting in the recovery room) carries several advantages and relatively little downside. This is particularly true in the outpatient setting, where there is limited time available to correct hypocalcemia in a reactive fashion once it is discovered. Several groups have utilized post-operative parathyroid hormone (PTH) levels as an early indicator of hypocalcemia after total thyroidectomy to facilitate prompt (same day or 23 hour) discharge. Although the optimal timing of PTH measurement following total thyroidectomy has been debated, a measurement taken in the recovery room 1-2 hours after surgery has been proven informative by several independent groups. Oral calcitriol (0.25 mcg PO BID or TID) can be added to augment oral calcium absorption in patients with low post-operative PTH levels (<15 pg/mL). Routine calcium monitoring may be helpful in the setting of outpatient thyroidectomy even if post-operative PTH levels are measured as a fail-safe mechanism should the PTH level be spuriously normal.
With appropriate nursing and patient education, symptomatic hypocalcemia can generally be managed using oral calcium and calcitriol supplementation. Given the delayed action of these oral agents (1-2 hours), dosing should begin immediately upon the discovery of mild symptoms (circumoral and acral paresthesias) to avoid progression to more pronounced symptoms such as muscle twitching and cramping. For example, calcium carbonate 2000 mg and calcitrol 0.25 mcg may be administered together upon symptom onset and repeated after two hours if relief is not experienced. Intravenous calcium gluconate should be stocked in the outpatient clinic for immediate administration to promptly relieve severe symptomatic hypocalcemia, not initially treated in a hospital Emergency Room.

*Vocal fold function*

A careful evaluation of the proposed outpatient thyroid surgery patient for dysphonia, dyspnea, or dysphagia with aspiration in the pre-operative and immediate post-operative period should be part of the surgeon’s checklist. Early identification of unilateral VFP (vocal fold paralysis) permits a thorough evaluation to provide the best functional outcome for the patient. Recognition may be either by inability to stimulate the nerve at the completion of the thyroidectomy or by postoperative laryngoscopy prior to discharge. If the nerve is anatomically intact, eventual recovery of vocal function may be anticipated, and the patient and family/friend can be counseled on drinking maneuvers to avoid aspiration, such as taking liquids in small amounts through a straw while the chin is tilted down and to the side of the injury. Patients experiencing any dyspnea at rest after thyroidectomy should not be discharged until undergoing fiberoptic laryngoscopy to evaluate for bilateral VFP, and documenting full recovery from the dyspnea.
Bleeding

The possibility of post-operative hematoma is a significant concern following thyroidectomy. The frequency of post-operative hematoma is approximately 1%.\(^4^6\) Most of these events occur within 6 hours of surgery. However, in a large, retrospective, single-institution study by Leyre et al, 37% of hematomas presented 7-24 hours post-operatively and 10% presented after 24 hours.\(^4^7\) An Austrian group reported similar findings,\(^4^8\) and the authors of these studies therefore raised concerns regarding the safety of outpatient thyroidectomy. The high rate of delayed hematoma described in these two papers has generally not been observed by the authors of the present guidelines.

Coughing, nausea, retching, and vomiting transiently raise venous pressures and may predispose to post-operative bleeding, though no formal studies have found these factors to present a significant risk.\(^4^9\) Collaboration with anesthesia and nursing staff are recommended to minimize patient coughing during extubation/emergence from anesthesia and to provide prophylaxis against, as well as treat post-operative nausea and vomiting pharmacologically. Administration of antiemetics (such as intravenous ondansetron or dexamethasone) at the time of anesthetic induction may be considered for prophylaxis, and other antiemetics, including phenergan, prescribed postoperatively. Significant arterial hypertension (SBP>180) should also be avoided as it may predispose to post-operative arterial bleeding.

A certain degree of post-operative swelling can be expected after thyroidectomy; cold compresses may be applied for patient comfort. Signs and symptoms suggestive of hematoma include pronounced or focal (anterior) swelling, a sensation of tightness, and purple discoloration of the skin. Minimizing the wound dressing facilitates visual inspection of the incision for early postoperative changes. Late signs include respiratory distress and stridor. In the outpatient
setting, early detection of neck hematoma prior to discharge is essential and likely rests on thorough nurse education or physician observation. If a patient does develop a compressive hematoma in the outpatient setting, standard operative evacuation and hemostasis should be performed, after which transfer to inpatient status may be most appropriate for expectant management of airway edema. Patients who develop significant neck swelling and/or symptoms suggestive of hematoma after same day discharge should be instructed to call the physician on call and proceed to the nearest emergency department for care. It is for that reason that every patient should be given a real-time communication method for guidance (cell phone number, on call number, etc.), and an emergency care plan to deal with postoperative bleeding, recognizing the potential lethal consequences of this complication when severe.

Outpatient discharge criteria

Discharge criteria following outpatient thyroidectomy are enumerated in Table 4. Should any of these criteria not be met, consideration should be given for further evaluation and transfer to 23-hour stay or inpatient status.

Followup

Follow up after outpatient thyroidectomy generally takes place in person within 1-4 weeks after surgery. For patients who have traveled significant distances for surgery, phone or telemedicine assessment may be appropriate, provided that adequate local medical support is available.

Potential Disadvantages

There are several possible disadvantages to an outpatient approach to thyroid disease that may limit the utilization of same day discharge. The major postoperative considerations in same
day thyroidectomy are the risks of bleeding, hypocalcemia, nausea and vomiting leading to dehydration and an inability to take essential oral medications and pain control. It is therefore imperative that the patient and their care provider be able to understand, identify and manage these problems should they arise outside of the hospital setting. One of the key criteria for successful and safe same day discharge following thyroidectomy is the need for careful patient selection. Poor patient selection can lead to unacceptable risks, which are potentially preventable with a 23-hour admission.

One of the critical factors in the decision to offer outpatient thyroidectomy is to assess the patients’ social condition and intellectual ability to understand and follow postoperative instructions. Understanding of this critical information can be impaired following a short postoperative recovery period especially after general anesthesia, and even well-educated patients may not always follow given instructions.

Significant hypocalcemia may be an important disadvantage for centers where prophylactic calcium therapy is not used following total thyroidectomy. In addition, some surgeons recommend acquisition of calcium levels on the first postoperative day, which might be perceived as inconvenient for patients who live at a distance from the surgical facility.

The most significant disadvantage of outpatient thyroidectomy is the potential for postoperative bleeding that results in a central neck hematoma, which can compromise the airway and become lethal when severe or prolonged. Since about half of postoperative bleeding occurs later than 6 hours following thyroidectomy, this rare but potentially deadly complication can happen while patients are either in transit or at their own homes. The surgeon is responsible for providing a plan to the patient and their accompanying family/friends for emergency management of this complication.
The time and effort required to produce written instructions, to educate patients preoperatively, and to provide postoperative support may require additional manpower in order to achieve safe outcomes and may be unavailable in some centers. Another potential disadvantage is that some insurance carriers may not cover same day discharge thyroidectomy, instead requiring either hospital admission or at least an overnight observation stay.

The safety of a patient in the postoperative period is an important responsibility for the surgeon. In many respects, there is a greater burden placed upon the surgeon (and the patient and the patient’s family and care givers) when the decision is made to discharge the patient on an ambulatory basis. Proper assessment of the patient should be performed in order to enhance patient safety and improve the likelihood of a favorable outcome.

Summary

Outpatient thyroid surgery continues to evolve, and has grown more popular as mechanisms have been put into place to help ensure its safety. While it will not always be possible, there are clearly circumstances where outpatient thyroidectomy is not only possible, but considered an appropriate and desirable alternative. The current document provides guidelines and suggestions regarding the proper steps to be taken when considering the performance of ambulatory thyroid surgery.
**References:**


12. To err is human: Building a safer health system. Institute of Medicine, 1999.


Figure Legend

Figure 1: Instead of closing the strap muscles from the thyroid notch down to the sternal notch, it may be safer to reapproximate the strap muscles midway between (A) with a single figure-of-eight suture of 3-O Vicryl (B). (Reprinted with permission from Terris DJ. Novel surgical maneuvers in modern thyroid surgery. Op Techn Otolaryngol Head Neck Surg. 2009; 20(1):23-28)
Table 1

<table>
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<tr>
<th>Eligibility Criteria for Outpatient Thyroidectomy</th>
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<tr>
<td>- No major co-morbidities or ASA 4</td>
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<td>- Provision and understanding of preoperative education</td>
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<td>- Team approach to education and clinical care</td>
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<td>- Primary care giver willing and available</td>
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<td>- Social setting conducive to safe postoperative management</td>
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<td>- Proximity to skilled facility</td>
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Table 2

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<th>Relative Contraindications to Outpatient Thyroidectomy</th>
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<td><strong>Clinical</strong></td>
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<tr>
<td>- Uncompensated cardiac or respiratory disease</td>
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<td>- Anti-coagulant or anti-platelet therapy</td>
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<td>- Seizure disorder</td>
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<td>- Anxiety disorder</td>
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<td>- Obstructive sleep apnea</td>
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<td>- Hearing loss</td>
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<td>- Visual impairment</td>
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<td>- Mental impairment</td>
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<td>- Pregnancy</td>
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<td><strong>Social</strong></td>
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<tr>
<td>- Excessive distance from skilled facility</td>
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<td>- Lack of person to accompany</td>
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<td>- Lack of transportation</td>
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<td>- Patient preference</td>
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<td>- Communication barriers</td>
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<td><strong>Procedure</strong></td>
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<td>- Massive goiter</td>
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<td>- Extensive substernal goiter</td>
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<td>- Locally advanced cancer</td>
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<td>- Challenging hemostasis</td>
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<td>- Difficult thyroidectomy with Hashimoto’s thyroiditis or Graves’ disease</td>
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Table 3

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<th>Signs and Symptoms of Postoperative Complications</th>
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<td><strong>Bleeding</strong></td>
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<td>- Neck swelling</td>
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<tr>
<td>- Bleeding</td>
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<tr>
<td>- Drainage</td>
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<td>- Dysphagia</td>
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<td>- Pressure</td>
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Table 4

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<th>Requirements for Discharge Following Ambulatory Thyroidectomy</th>
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<tr>
<td>- Ability to take liquids and post-operative medications</td>
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<td>- Adequate pain control on oral medications</td>
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<td>- Ability to void satisfactorily</td>
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<td>- Ability to ambulate as preoperatively and perform essential activities of daily living</td>
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<tr>
<td>- Satisfactory post-operative assessment with attention to the surgical wound, neck swelling/hematoma, dysphonia, dyspnea, dysphagia</td>
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<tr>
<td>- Adequate social support and understanding of instructions</td>
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<tr>
<td>- Adequate oxygenation, vital signs, blood pressure control</td>
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