



Review

Ambulatory thyroid surgery: Need for stricter patient selection criteria

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ABSTRACT

The number of outpatient surgical procedures performed in hospitals increases daily. In some countries, outpatient operations outnumber inpatient operations. The incidence of thyroid disorders and in particular, the cancer forms, has been increasing sharply for many years in several countries. Even if thyroid surgery is performed with low morbidity, no mortality, and short operation time, some potentially lethal complications are strong arguments against shortening of hospital stay. The purpose of this review is to examine the relevant updated published results on selection criteria measures that can be used to assess patients referred to short-stay surgery for thyroid disease.

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1. Introduction

In 1992 the Royal College of Surgeons of England stated that “day surgery is now considered the best option for 50% of all patients undergoing elective surgical procedures”.¹ In the USA, ambulatory surgery constituted 60% of all surgery in the 1990s.^{2,3} The National Health Service in the UK has established a target requiring that, by 2010, three quarters of all operations will be carried out as same-day or one-day surgery.⁴ Short-stay surgery treatment has well-documented advantages related to both the patient and hospital.^{5–10} From a patient perspective, this surgery offers better individual treatment, more attention to the single patient, implies a reduced risk of infections, as well as a shorter convalescence time with high patient satisfaction.^{11,12} At hospital level, the duration of hospitalization is an important determinant of hospital costs.^{13–16} With growing experience in high-volume hospitals, short-stay thyroid surgery has been initiated at different Departments of Surgery throughout the world.^{17–29} The purpose of this review is to summarize and examine the relevant updated published results on selection criteria measures that can be used to assess patients referred to short-stay surgery for thyroid procedures.

2. Selection criteria

Patients referred with thyroid disease by general practitioners are sent to an appointment for assessment by a multidisciplinary team including surgeon, anesthetist, endocrinologist and nurse. The kind of anesthesia and hospital admission are established after clinical, psycho-emotional, and socio-familial evaluation of patients by the team, including the criteria of the American Society of Anesthesiologists (ASA)^{30–32} such as physical status, class, age, BMI, blood exams, chest X-ray, ECG, lack of associated pathologies (cardiovascular disease, diabetes mellitus, COPD, nephropathy, hepatopathy, etc.) and general good health. Only patients of ASA grades I to II must be treated.^{18–32} With a meticulous and complete preoperative assessment based on ASA, general complications such as cardiac arrhythmias and pulmonary complications are extremely rare.¹⁸ Patients who were taking drugs that have an effect on coagulation (aspirin, warfarin and corticosteroids) were excluded as they could potentially give rise to bleeding problems both intra- and post-operatively.¹⁸

2.1. Medical and individual thyroid criteria

Complete preoperative assessment (thyroid hormone serum levels, ultrasonography to evaluate both nodule size and gland volume, fine-needle aspiration cytology) must be obtained from all patients.^{17–29} As no specific guidelines are available to advise surgeons in selecting patients suitable for one-day thyroid surgery treatment, recently some authors have suggested selection criteria

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on the basis of specific *medical status*.¹⁸ Specific medical criteria recently proposed are first neck surgery, euthyroidism, and ultrasound estimated volume <80 ml. Patients with locally advanced thyroid tumors, intrathoracic goitre, previous thyroid surgery, ultrasound-estimated thyroid volumes >80 ml, or patients undergoing lateral neck dissection were excluded from short-stay thyroid surgery.¹⁸

2.2. Social-logistic status

Specific social-logistic status proposed comprises¹⁸: established autonomy at admission, living near a hospital, has a telephone, suitable house and adequate home support at discharge, able to understand, read, and speak local language, consenting to being discharged the day after surgery (compliance).¹⁸ All patients and family members must receive extensive teaching with written and verbal clear discharge information and explanations.^{33–36} The patient is given explicit information about postoperative health consequences, such as risks and benefits of participating in the shortening of hospital stay, managing their postoperative pain, related interference of the analgesics use and the adverse events and side effects of pain-relieving medications (constipation, nausea or vomiting, and drowsiness),^{33–36} as well as information about signs and symptoms associated with complications. This includes wound healing problems such as dehiscence, wound infection and hematoma, and tetanus.^{33–36} If necessary, the patients with difficulties can contact their physicians or the day-case hospital team directly by phone (number open 24 h day).^{33–36}

3. Complications and discharge criteria

3.1. Airway obstruction and recurrent laryngeal nerve injury

In order to avoid the injury to recurrent laryngeal nerve one must employ meticulous techniques to identify this nerve, because there is considerable anatomic variation in its location. A strategy that can reduce the risk of recurrent laryngeal nerve injury is intraoperative electrical nerve stimulation of the surgical field in addition to visual control.³⁷

3.2. Hypoparathyroidism

There has been much interest about the use of intact parathyroid hormone (iPTH) to better predict hypocalcemia after thyroidectomy.³⁸ Recent studies revealed that normal postoperative PTH levels accurately predict normocalcemia after total or complete thyroidectomy. In particular, PTH levels should ideally be drawn postoperatively and patients with PTH in the normal range can be safely discharged on the first postoperative day.³⁸

3.3. Postoperative hematoma and bleeding

Most of the postoperative bleeding occurs in the first 6 h, but 25% can occur between 6 and 24 h postoperatively.³⁹ Therefore, an ambulatory procedure cannot be generally recommended. To test for possible bleeding at the conclusion of the thyroidectomy the head can be tilted down and lungs hyperinflated by the anesthetist to increase intrathoracic pressure as well as blood pressure in the neck veins. Drains do not reduce the risk from this complication, but they can prevent acute airway compression, thus allowing prompt surgical intervention.⁴⁰ Extensive dressing may hide the complication and prevent inspection of the contour of the neck, and is therefore not advised. New devices for hemostasis and dissection proved to be safe and secure, reducing intraoperative and postoperative bleeding.⁴¹

3.4. Wound morbidity

The reported incidence of wound infection (WI) is from 0.1% to 2%.⁴² There is no specific perioperative risk factor foreshadowed the development of WI; the definition of a high-risk population for this life-threatening complication remains obscure.⁴² Thyroid surgery is considered a “clean” procedure, and antibiotic prophylaxis (AP) is not indicated. The use of AP has not been shown to affect the incidence of WI. Infection occurs as a result of a breakdown in the sterile technique, and the most likely organisms are *Staphylococcus aureus* and other skin contaminants.⁴² The threat of a WI may have implications on the current trend toward outpatient endocrine surgical procedures and its inherent risk should be strongly considered before establishing outpatient practice guidelines. In fact, no WI usually presents within 3 days of initial operation.⁴²

3.5. Postoperative pain

Along with postoperative nausea and vomiting, postoperative pain is the main cause of delayed discharge, contact with the hospital after discharge, unanticipated hospital admission and increased costs. Adequate postoperative analgesia is a prerequisite for successful ambulatory surgery. Estimates of the number of patients who suffer pain following day surgery are as high as 30–50%.⁴³ Severe postoperative pain also causes extreme discomfort and can prevent sleep, thus contributing to postoperative fatigue, limits mobility at home, and delays the return to normal activities. Pain following thyroidectomy results from wound cervicotomy, intraoperative cervical hyperextension that causes postoperative muscular cervicalgia, and laryngeal discomfort caused by frequent tracheal stimulation and movements of the endotracheal tube during surgical manipulation. At present there is no randomized trial that has studied postoperative pain in detail after ambulatory thyroid surgery to understand the individual patient experience of pain, effective pain management, and the types and modes of action of various analgesics available to the ambulatory population as local, general, or regional anesthesia.^{44,45} Optimal postoperative pain control for ambulatory surgery should be effective and safe, produce minimal side effects, facilitate recovery and be easily managed by patients at home. The role of opioids in day-case surgery is controversial because of their well-known side effects, especially nausea and vomiting, which can be deleterious after neck surgery. Paracetamol is the most commonly used analgesic worldwide because it is effective, cheap and safe.^{43–45}

4. Discussion

At present, there have been no generally accepted guidelines for preoperative patient selection for thyroid procedures in same-day or one-day surgery. International Associations of Thyroid Surgery should issue an informative directive tailored to these needs. Short-stay thyroid surgery requires in fact clear and rigorous preoperative selection, release criteria and a multidisciplinary team with adequate professional outpatient structures and meticulous organization. An efficient structural organization is necessary to control the complication and conversion rates of the traditional hospitalization.

Individual surgeon experience is significantly associated with mortality, complication rates and length of stay for different surgical procedures.⁴⁶ Some authors have determined that individual surgeon experience is significantly associated with complication rates and length of stay for thyroidectomy for thyroid disease treated with a short stay hospitalization.⁴⁶

Conflict of interest

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