Introduction

Over the last few decades, there has been a trend toward shorter hospital stays following many surgical procedures. This trend is the result of improved surgical techniques and logistic advancements such as the development of outpatient centres. However, in Belgium the current practice for thyroidectomy is inpatient care because of potential life-threatening post-operative complications that include hypocalcemia, laryngeal nerve damage and haemorrhage. Thyroidectomy can only be performed on an outpatient basis if the complication rate is low. The purpose of this study was to determine the feasibility and safety of outpatient hemithyroidectomy.

Materials and methods

Between March 2008 and September 2010, 110 patients underwent elective hemithyroidectomy at the Ziekenhuis Oost-Limburg, in Genk, Belgium. Fifty-four patients were selected for an outpatient procedure. The procedure was carried out through a standard cervicotomy under general anaesthesia. No drains were used. We analysed patient outcome based on complications, unplanned admissions and readmissions.

Results: The mean age of the 54 patients was 46 years, and most of them were women (81%). The mean duration of surgery was 64 minutes, and there were no intra-operative complications. After an observation period of at least 3 hours, 44 patients (81.5%) were discharged as planned. Ten patients (18.5%) required admission for urine retention (n = 1), social circumstances (n = 1), persistence of nausea (n = 3), delayed anaesthesia recovery (n = 4) and patient preference (n = 1). All 10 were discharged the next day, and none were readmitted.

Conclusions: Our study shows that outpatient hemithyroidectomy performed by experienced surgeons in carefully selected patients can be safe and is associated with a low complication rate. However, this series is small and larger studies are needed to confirm the results.

Key-words. Outpatients; thyroidectomy, safety

Abstract. Outpatient hemithyroidectomy: safety and feasibility. Objective: In Belgium, thyroidectomy is currently an inpatient procedure because of potential life-threatening post-operative complications that include hypocalcemia, laryngeal nerve damage and haemorrhage. Thyroidectomy can only be performed on an outpatient basis if the complication rate is low. The purpose of this study was to determine the feasibility and safety of outpatient hemithyroidectomy.

Methodology: Between March 2008 and September 2010 we selected 54 patients who met our inclusion criteria for outpatient hemithyroidectomy. The procedure was carried out through a standard cervicotomy under general anaesthesia. No drains were used. We analysed patient outcome based on complications, unplanned admissions and readmissions.

Results: The mean age of the 54 patients was 46 years, and most of them were women (81%). The mean duration of surgery was 64 minutes, and there were no intra-operative complications. After an observation period of at least 3 hours, 44 patients (81.5%) were discharged as planned. Ten patients (18.5%) required admission for urine retention (n = 1), social circumstances (n = 1), persistence of nausea (n = 3), delayed anaesthesia recovery (n = 4) and patient preference (n = 1). All 10 were discharged the next day, and none were readmitted.

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to the volume of the lobe. The lobe was pulled downward to expose the superior pole vessels, which were ligated twice. The lateral side and the inferior pole of the thyroid gland were mobilized by blunt dissection, and the middle thyroid vessels were ligated. The recurrent nerve was identified and preserved without the use of nerve monitoring. The inferior and median thyroid veins were exposed and ligated. All vessels were hemostatically controlled with resorbable sutures. The lobe was separated from the trachea, and the isthmus was clamped and transected. The upper part of the strap muscles and platysma were approximated. The skin was closed with Kölner clips (KLS Martin, Lier, Belgium). No drains were used.

After surgery, all patients were monitored in the recovery room. In the outpatient centre, patients were encouraged to drink and eat a light meal as soon as allowed by the anaesthesiologists. Analgesics were administered as needed. Patients were discharged before 6:30 p.m. if they tolerated oral fluid, were mobile, had no dyspnea, had urinated and if there were no signs of haemorrhage. Each patient received a prescription for analgesics and anti-emetics. Red flags and reasons for readmission were discussed with every patient, and each was given a 24-hour emergency contact phone number. The first follow-up visit took place 3 days after surgery, and the clips were removed at this time. A second visit was planned 1 week post-operatively to discuss the pathology result. The blood calcium level was tested only if the patient complained of symptoms that could be due to hypocalcaemia. Six weeks after surgery, each patient visited the endocrinologist to assess thyroid hormone function.

Results
Fifty-four patients were selected for outpatient hemithyroidectomy between March 2008 and September 2010. The mean age of the patients was 46 years (range: 27–67 years), and most of them were women (44 patients; 81.5%). Indications for hemithyroidectomy were unilateral enlargement of the thyroid (46.3%), enlargement of the thyroid with pressure symptoms (18.5%), solitary nodule (29.6%) and toxic symptoms (5.6%). Suspicion of malignancy was an exclusion criterion for hemithyroidectomy.

The mean duration of surgery was 64 minutes (range: 40-130 minutes). The time of incision ranged from 9:25 a.m.-2:05 p.m., and the time of closure ranged from 10:40 a.m.-3:35 p.m. The mean weight of the specimen was 42.9 grams (range: 11-155 grams). There were no operative or post-operative complications.

Discussion
Potential complications must be taken into account when considering whether outpatient surgery is safe. In this study, we only included patients who underwent a hemithyroidectomy because the risk of post-operative hypocalcaemia is low and unilateral recurrent laryngeal nerve injury is well tolerated by patients without comorbidity. Nevertheless, other potentially lethal complications can occur, such as haemorrhage and consequent respiratory distress.

We found that outpatient hemithyroidectomy with an observation period of at least 3 hours was safe. There was no post-operative bleeding, and no patient needed readmission. As recommended by Schwartz et al., we only closed the upper part of the strap muscles. This approach allows earlier detection of post-operative bleeding. It also reduces the risk of airway...
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obstruction because the blood can decompress into the subcutaneous space.

Consistent with other reports on outpatient thyroidectomy, we did not use drains. This decision was based on a retrospective analysis of 799 parathyroid and thyroid procedures performed at our hospital before March 2009. No drains were used in 202 of these cases. In the group with drain usage, three patients developed post-operative bleeding that needed reexploration, but the cause of bleeding was identified in just one of these three patients. In the other group (no drains), there were no hematomas. The use of drains in thyroid surgery remains controversial. Post-operative drains allow withdrawal of an expanding hematoma and can prevent potential airway obstruction. A recent Cochrane Database review found no significant improvement of patient outcome after drain usage in patients undergoing thyroid surgery. Drains may even be associated with a prolonged hospital stay.

The overall incidence of cervical hematomas requiring reexploration after thyroid surgery varies between 0 and 1.6%. The incidence of re-operation after outpatient hemithyroidectomy varies between 0 and 1%. There is a risk of post-operative hematoma formation, and the most important factor for outpatient surgery is the time frame of the formation. Notably, most post-operative bleeding occurs within 6 hours of thyroid surgery, and almost all hematomas occur within 24 hours of surgery.

Those who oppose outpatient hemithyroidectomy point out that there are reports of so-called delayed hematomas that occurred more than 24 hours after thyroid surgery that were possibly life-threatening. In a large review of 13,817 patients undergoing thyroid or parathyroid surgery, 57% of the hematomas occurred after 6 hours of observation, but no peri-operative risk factors were identified that predicted this complication. The authors declared that post-operative bleeding is an inherent risk of this type of operation and that since it is difficult to identify patients that have a high risk of haemorrhage, determining which patients are candidates for ambulatory surgery is difficult. However, some studies with carefully selected patients who underwent outpatient thyroidectomy recommend a post-operative observation time of 6-8 hours as being both sufficient and safe. Other studies declare that even 4 hours of observation is sufficient.

Different techniques can be used to perform haemostasis. In our study, all vessels were hemostatically controlled using re-sorbable sutures. None of the patients developed post-operative bleeding.

During the study period, 1803 ENT procedures in adults (including hemithyroidectomy) were planned for outpatient surgery in our hospital. Sixty-seven of these patients (3.7%) required unplanned admission versus 18.5% of the patients in our hospital who had planned to have outpatient hemithyroidectomy. In other studies, the rate of unplanned admission after thyroid surgery varies between 0.4% and 7%. Three of our ten admitted patients needed hospitalisation due to post-operative nausea and vomiting (PONV). Other studies also report PONV as an important reason for unplanned admission after thyroid surgery.

The overall incidence of PONV after thyroid surgery is 54%. The exact mechanism underlying thyroid-related PONV is not well understood. Possible explanations include vagal stimulation during surgical manipulations and the fact that most patients are female. Specifically, women have a significantly higher incidence of post-surgical vomiting than men.

PONV is not only uncomfortable for the patient: Some surgeons believe it can increase the risk of post-operative haemorrhage, although it has not been proven to be a significant risk factor. A single dose of dexamethasone administered 45 minutes before the start of the anaesthesia can significantly reduce the incidence of post-operative vomiting and pain. A general anaesthetic based on propofol leads to a significant decrease in PONV during the early recovery period. To prevent post-operative nausea after thyroid surgery, good communication between the surgeon and the anaesthesiologist is needed.

Four of our ten admitted patients were admitted for delayed anaesthesia recovery. The end time of the surgeries ranged from 00:00-2:35 p.m. Thus, the post-operative observation time ranged from 4 to 6.5 hours, which should be sufficient for recovering from anaesthesia. The duration of the surgery ranged from 50 to 130 minutes. Neither factor, i.e. surgery duration or recovery observation time, could explain the delayed anaesthesia recovery.

Post-operative pain and discomfort is another frequent complaint after thyroid surgery. This is caused by the cervicotomy, as the intra-operative cervical hyper-extension causes post-operative
muscular cervicalgia and laryngeal discomfort due to frequent tracheal stimulation and movement of the endotracheal tube during surgical manipulation. A single dose of dexamethasone pre-operatively can significantly reduce the pain post-operatively. Each outpatient must be informed that he or she may experience pain at home, and instructions for optimal pain management at home should be given at discharge.

Importantly, the surgeon’s experience with the procedure correlates with patient outcome. Sosa et al. found that the individual surgeon’s experience is significantly associated with complication rates and length of stay for thyroidectomy. To minimise the risk of post-operative complications, use of patient selection criteria is important. However, at present there are no generally accepted guidelines for pre-operative patient selection for outpatient thyroid surgery. Most exclusion criteria in previous reports include ASA score III or IV, social circumstances and anticoagulation therapy. In other countries, another exclusion criterion is the distance (or the travel time) between the hospital and the patient’s home. In Belgium, most patients live within 20 minutes of a hospital.

Both the patient and the person who will take care of the patient at home need to be informed about the possible discomfort the patient may experience, such as dizziness, (neck) pain, and slight swallowing problems; in addition, the signs and symptoms of possible complications should be explained. They must receive a 24-hour contact phone number in case they experience a problem or have questions. This improves the safety of the patient and diminishes the anxiety of going home. Notably, 93% of our patients were pleased with the outpatient treatment. Only three patients would have preferred to stay overnight due to anxiety, nausea or weakness at home.

There are currently few published studies regarding patient satisfaction with outpatient thyroid surgery. One study shows that 35% of patients who underwent outpatient thyroid or parathyroid surgery would have preferred to stay overnight. Outpatient surgery requires the coordinated efforts of a multidisciplinary team. The hospital must have a day care centre and be able to admit patients at the end of the day when necessary. The surgeon must be able to perform the surgery with a very low complication rate and must organize the operation list in order to perform an early surgery followed by discharge later the same day. The anaesthesiologist must develop a protocol to prevent post-operative nausea as much as possible so that the patient can be discharged the same day. Lastly, the patient must be informed about and be motivated to have outpatient surgery.

The differences in hospital costs between outpatient and inpatient thyroid surgery were not studied. However, the financial benefit of this type of thyroid surgery was first demonstrated in 1995 and confirmed in 2007. However, the advantages of outpatient surgery are not only that it is less expensive. In addition, patients can convalesce comfortably in their home environment, minimising their exposure to nosocomial organisms in the hospital and the risk of iatrogenic events.

**Conclusion**

This study showed that outpatient hemithyroidectomy performed by an experienced surgeon in carefully selected patients can be safe and is associated with a low complication rate. However, our series is small, and larger studies are needed to confirm these results.

**References**


