

Oral Presentation V

The Prevalence, Clinicopathologic Features, and Surgical Outcomes according to the Extent of Thyroidectomy in Differentiated Thyroid Cancer > 1 and < 4 cm

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BACKGROUND AND AIMS

Some recent guidelines recommend unilateral thyroidectomy for low-risk differentiated thyroid cancer (DTC) sized > 1 and < 4 cm. The present study was designed to evaluate the proper extent of thyroidectomy for patients who have DTC sized > 1 and < 4 cm.

METHODS

From April 1967 to December 2011, a total of 16,065 DTC patients underwent thyroidectomy at Yonsei University Hospital. Among them, 5,427 (33.7%) patients were classified as having DTC > 1 and < 4 cm and were enrolled in this study. Clinicopathologic features and prognostic results (disease-free and disease-specific survival rates) were analyzed by retrospective medical chart review. The mean follow-up duration was 57.3 ± 58.1 months.

RESULTS

In the subtypes of tumors, papillary thyroid carcinoma (PTC) was the most common cancer (96.9%) and follicular and poorly differentiated carcinoma comprised 2.7 and 0.1% respectively. The mean tumor size was 1.84 ± 0.74 cm. Patients had extrathyroidal extension (69.3%), multiplicity (35.0%), bilaterality (26.3%), central lymph node metastasis (35.8%), and lateral neck node metastases (20.2%). Of a total of 5,427 patients, 4,353 (80.2%) underwent total thyroidectomy and 1,043 (19.2%) patients underwent less-than-total thyroidectomy. The recurrence rates in total thyroidectomized and less-than-total thyroidectomized groups were 3.9 and 10.0% respectively. The less-than-total thyroidectomized group showed lower disease-free survival (DFS) rate ($p=0.039$) and higher disease-specific survival (DSS) ($p=0.035$) rate compared with the total thyroidectomized group. In multivariate analysis for DFS, tumor size, N stage, and the extent of thyroidectomy were independent risk factors. In multivariate analysis for DSS, age, gender, tumor size, and N and M stage were independent risk factors.

CONCLUSION

In patients with tumor size > 1 and ≤ 4 cm, total thyroidectomy was beneficial in reducing recurrence. However, our study confirmed that risk factors for DSS were not the extent of thyroidectomy but traditional prognostic factors, such as older age, male sex, large tumor size, lymph node metastasis, and distant metastasis.

Surgical Outcome of Atypia of Undetermined Significance and Follicular Lesion of Undetermined Significance in Thyroid Nodule

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BACKGROUND AND AIMS

Thyroid nodule is a common surgical problem. The Bethesda System for Reporting Thyroid Cytopathology (BSRTC) has six diagnostic categories, one of which is Atypia of Undetermined Significance (AUS)/Follicular Lesion of Undetermined Significance (FLUS), which is a heterogeneous group and not easily classified as benign, suspicious, or malignant. The aim of this study is to correlate various clinical and ultrasonographic features with the final pathological diagnosis in patients with an FNA diagnosis of AUS/FLUS, and also whether any of these features would be helpful in guiding the type of surgical intervention.

METHODS

This is a retrospective study from a single institution (King Faisal Specialist Hospital and Research Center) (KFSH&RC). All cases diagnosed as AUS or FLUS by FNA between January 2011 and December 2014 were retrieved from the archives of the Department of Pathology and Laboratory Medicine. Cases that were followed by surgery are the subject of the study. Data were collected from the electronic medical records. Missing information was extracted from the patients' charts. The parameters include

patients' demographics (age, gender). When available, all sonograms were reviewed for the following features: size, content, shape, margins, echogenicity, calcifications, echotexture, vascularity, halo, and lymphadenopathy.

RESULTS

Our patients included 87 females and 28 males. We used the chi-square test for independence between categorical variables. There was no significant correlation between age or ultrasonographic variables and the final pathological diagnosis. However, the final diagnosis of malignancy was found in 64% of males and 41.5% of females ($p=0.032$). Also, there was a significant association between the result of repeated FNA and the final pathology ($p=0.003$).

CONCLUSION

Fine Needle Aspiration Biopsy (FNAB) remains an important step in the evaluation of thyroid nodules. Our data failed to predict the final pathological diagnosis in our subset of AUS/FLUS cases using ultrasonography. Male gender is associated with a higher risk of malignancy.

Prophylactic Central Lymph Node Dissection to reduce Recurrence of Papillary Thyroid Microcarcinoma and Papillary Thyroid Carcinoma

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BACKGROUND AND AIMS

To determine the effect of prophylactic central lymph node dissection (CLND) for recurrence of papillary thyroid microcarcinoma (PTMC) and papillary thyroid carcinoma (PTC).

METHODS

Between 2002 and 2014, 3,042 patients underwent thyroid surgery at Yochon Chonnam Hospital for PTMC or PTC. Between 2002 and 2004, selective CLND was performed in 391 cases. Starting in 2005, all patients diagnosed with PTMC or PTC underwent surgery with prophylactic CLND. Data on recurrence and central lymph node metastasis were obtained from a computerized database.

RESULTS

The mean ages at diagnosis of PTMC and PTC were 48.6 and 48.7 years respectively. The male-to-female ratios for PTMC and PTC were 1:4.8 and 1:3.7 respectively. We found a significantly higher incidence of lymph node metastasis in prophylactic CLND than in selective CLND (PTMC 24.5 vs 9.2%, $p < 0.01$; PTC 55.4 vs 24.5%, $p < 0.01$). And the recurrence rate after surgery was much lower in prophylactic CLND patients compared to selective CLND patients (PTMC 2.4 vs 6.4%, $p < 0.01$; PTC 5.8 vs 22.9%, $p < 0.01$).

CONCLUSION

Prophylactic CLND can reduce recurrence of both PTMC and PTC. The results of this study support prophylactic CLND for all PTMC and PTC patients at initial surgery to reduce the risk of recurrence and the need for repeat surgery.

Extranodal Extension of Metastatic Lymph Nodes in Patients with Papillary Thyroid Carcinoma

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BACKGROUND AND AIMS

Papillary thyroid carcinoma (PTC) has a good prognosis. However, the presence of extranodal extension (ENE) might be associated with disease aggressiveness in PTCs. The aim of the present study is to elucidate the distribution of metastatic lymph nodes (LNs) with ENE and its clinical implication in patients with PTCs.

METHODS

From January 1, 2007 to May 30, 2015, medical records for patients who underwent thyroidectomy for PTCs were reviewed. The status of primary tumor and LN metastasis were reviewed. Statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) 19.0 KO for Windows with $p < 0.05$ as a significant difference.

RESULTS

Among 1,593 patients, LN metastases were manifested in 562 (35.3%) and ENEs in 57 (3.6). The average age at diagnosis was $48.4 \pm 12.1/49.4 \pm 14.2$ ($p=0.532$) and the female-to-male ratio was 4.1:1 and 1.7:1 ($p=0.001$) in the ENE(-)/(+) group respectively. The maximum diameter and number of tumors were $10.3 \pm 8.3/15.1 \pm 13.1$ mm ($p<0.001$) and $1.6 \pm 1.2/2.1 \pm 1.4$ ($p=0.010$) in each group respectively. However, ENE was manifested even in a young patient (27 years old) and in a small cancer (2 mm in diameter). Extra-thyroidal extension was observed more frequently in the ENE(+) group than in the ENE(-) group (91.2 vs 55.2%, $p<0.001$). The number and maximum size of metastatic LNs were $1.2 \pm 2.8/6.2 \pm 4.2$ mm ($p<0.001$) and $1.7 \pm 3.4/11.6 \pm 12.7$ ($p<0.001$) in the ENE(-)/(+) group respectively. Lateral LN metastasis was observed more frequently in the ENE(+) group than in the ENE(-) group (75.3 vs 24.7%, $p<0.001$). All data combined, ENE was correlated with advanced TNM stages. Patients in the ENE(+) group have a significantly lower disease-free survival (DFS; 71.5% vs 93.2%, $p<0.001$) than those without.

CONCLUSION

In patients with PTC, ENE in metastatic LNs develops infrequently, but it can be manifested even in a young patient and in a small cancer. Extranodal extension was associated with advanced TNM stages and decreased DFS significantly. Careful follow-up surveillance is required for patients who have PTCs with ENE of metastatic LN.

Recurrent Laryngeal Nerve Identification in Thyroidectomy by Intraoperative Staining with Methylene Blue

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BACKGROUND AND AIMS

Thyroid surgery remains the most common surgical procedure associated with iatrogenic recurrent laryngeal nerve (RLN) paralysis. Thus, the identification and preservation of RLN is a major concern during thyroid surgery. Methylene blue (MB) has been used in the identification of the vagus nerve and its branches in selective vagotomy, facial nerve and its branches in parotidectomy, nerve stumps after resection of post-traumatic neuroma to reach a healthy fascicular structure in secondary peripheral nerve repair, and autonomic nerve fibers that innervate the urinary bladder in animal models.

The aim is to assess RLN identification and preservation during thyroid lobe dissection by intraoperative RLN staining with MB and compare it with visual identification alone in the other lobe dissection in the same patient during total thyroidectomy as regard to the duration of total lobectomy, postoperative vocal cord mobility, and complication.

METHODS

During total thyroidectomy in 46 patients (92 lobes), RLN was recognized on one side by visual identification alone and on the other side combined with MB nerve staining. In the area in which RLN was suspected, about 1 ml of MB in a concentration of 2:8 (MB:saline solution) was locally applied for 2 minutes and then the entire area was irrigated with normal saline solution to rinse the MB out of the surrounding tissue.

RESULTS

The sheath of the RLN was stained blue helping to identify RLN within the suspected structures. The mean lobectomy duration and the incidence of postoperative vocal cord palsy were significantly lowered with MB staining without reported complications.

CONCLUSION

Intraoperative RLN identification by MB staining is a safe, cheap, and readily available method and could make thyroidectomy dissection less stressful and more rapid, especially when intraoperative neuromonitoring (IONM) is not on hand.

Management of Chyle Leakage after Thyroidectomy

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BACKGROUND AND AIMS

Chyle leakage (CL) is an uncommon but potential complication after thyroidectomy. This study aims to evaluate the incidence and pattern of CL after thyroidectomy and to identify appropriate management.

METHODS

Patients who underwent total thyroidectomy for thyroid cancer between January 2003 and December 2014 were analyzed retrospectively. Chyle leakage was defined as a postoperative increase in fluid output or milky drainage after having a meal. The management of CL is of two types: (1) conservative management including nutritional modifications, such as no enteral feeding and low- or no-fat diet and (2) surgical intervention (thoracic duct ligation).

RESULTS

A total of 131 patients with CL were identified and the overall incidence was 1.0%. The incidence of CL in patients who underwent central neck dissection with thyroidectomy was 0.7%, and the incidence of CL in patients who underwent lateral neck dissection was 6.2%. A total of 105 patients received conservative treatment and 26 patients received surgical intervention. There was no case of CL without cervical lymph node dissection. Most of the patients were diagnosed within postoperative 3 days. The length of hospital stay was longer in the surgical management group than in the conservative management group (10.8 vs 7.6 days, $p=0.004$). Surgical intervention caused a dramatic decline in chyle drainage. Patients in whom chyle drainage reduced by more than half after diet modification had a significantly shorter length of hospital stay, and CL could be controlled without surgical management (6.1 vs 11.7 days, $p<0.001$).

CONCLUSION

The effectiveness of surgical management in controlling CL after thyroidectomy was clearly observed. When a surgeon detects chyle drainage, diet modification should be started immediately and the response to diet modification should be observed. Patients with reduced amount of chyle drainage may await spontaneous fistula closure. Early surgical intervention could be considered in patients who show no response to diet modification.

Mini-incision Thyroidectomy: An Alternative Approach to Cosmetic Thyroidectomy

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BACKGROUND AND AIMS

The thyroidectomy technique has evolved from the conventional open technique to minimally access techniques over the past few years. Regardless of the technique, the outcome depends on the meticulous surgical technique used.

Mini-incision is defined as a surgical incision 3 cm or lesser in length. Once the small incision is made, retraction is used and thyroidectomy done in the conventional manner. The main advantage is the superior cosmetic outcome compared to the conventional method. The size of the gland is a main factor before deciding on a mini-incision thyroidectomy (MIT). Careful patient selection must be done as large glands cannot be retrieved with the mini-incision.

METHODS

A prospective cohort study was carried out on all patients undergoing MIT between 2008 and 2015 in the Professorial Surgical Unit, University of Kelaniya, Sri Lanka. Patients with small-sized glands, nodules less than 2 cm were included. Skin incision was marked by measuring 3 cm with a sterile measuring tape and methylene blue dye. The thyroid gland was delivered into the incision and both pedicles were ligated. Capsular dissection with nerve-encountering technique was adhered to. Recurrent laryngeal nerves, external branch of the superior laryngeal nerves, and parathyroid glands were demonstrated and preserved. Drains were not used and routine closure was done after absolute hemostasis.

RESULTS

Twenty-nine MITs were performed (male – 3, female – 26, median age – 34.26 years, 22 to 42 years, total thyroidectomy – 18, hemithyroidectomy – 11). The commonest indication for total thyroidectomy was small MNG. None had recurrent laryngeal nerve injuries or significant hematoma formation. Transient hypocalcemia was seen in 3% cases. The cosmetic outcome was satisfactory. The longest follow-up was 7 years.

CONCLUSION

Mini-incision thyroidectomy is a safe alternative to conventional approach in carefully selected patients, and it also gives a superior cosmetic outcome.

Health-related Quality of Life and Symptom Relief after Surgery in Patients with Thyroiditis using the ThyPRO Questionnaire (Tamil Version)

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BACKGROUND AND AIMS

Thyroiditis includes a heterogeneous group of disorders causing inflammation of the thyroid gland. Most of the cases are treated medically but large goiters, goiters with compressive symptoms, and goiters suspicious of malignancy are few indications for surgery. In this study, we discuss the improvement in health-related quality of life (HRQoL) and symptom relief after surgery in patients with autoimmune thyroiditis using ThyPROtml. The ThyPRO is a disease-specific questionnaire used for evaluating HRQoL of benign nontoxic goiters. The ThyPROtml is the Tamil version of the questionnaire.

METHODS

A total of 473 patients were admitted to the Department of Endocrine Surgery, Rajiv Gandhi Government Hospital, between March 2013 and November 2013. TFT, serum calcium, AMA/ATG, USG neck, FNAC thyroid, and VDL scopy were done on all patients. Patients aged below 18 and above 65 years were excluded. Postpartum cases, recurrent goiters, and toxic and malignant cases were also excluded. Out of the 473 patients, 78 were diagnosed as cases of autoimmune thyroiditis, and ThyPROtml was recorded preoperatively for all these patients. Out of the 78 patients who were operated, 62 were confirmed cases of autoimmune thyroiditis on HPE report. Out of 62 patients, only patients turned up for 1-year postoperative follow-up. ThyPROtml was recorded again at 1-year follow-up for these 50 patients. Postoperative AMA/ATG, serum calcium, and VDL scopy were also recorded at follow-up. Statistical analysis was done using Statistical Package for the Social Sciences (SPSS) version 15.0.

RESULTS

There was definite improvement in preoperative symptoms and overall HRQoL of patients who have undergone thyroidectomy. There was significant postoperative decrease in AMA/ATG levels 1 year post surgery. There was significant correlation between fatigue and preoperative AMA, vitality, and preoperative ATG levels.

CONCLUSION

Thyroidectomy is recommended for all patients with autoimmune thyroiditis with large goiters, goiters with pain not responding to conservative management, and goiters with compressive symptoms.

How does Thyroidectomy for Benign Thyroid Disease impact upon the Quality of Life? A Prospective Study

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BACKGROUND AND AIMS

Thyroidectomy for benign thyroid disease is commonly performed. Some surgical indications, such as compressive symptoms, are difficult to quantify, and it is often difficult to predict whether symptoms will improve or worsen postoperatively. The aim of this prospective study was to analyze changes in the quality of life (QoL) following thyroidectomy using a validated disease-specific assessment tool, the Thyroid Patient Reported Outcome (ThyPRO) questionnaire.

METHODS

We recruited patients undergoing thyroid surgery (hemi- or total thyroidectomy) for benign conditions from July 2014 to November 2015. Patient demographics and clinical data were collected. ThyPRO consists of 85 questions grouped into 13 physical, mental, and social symptom domains. Patients completed a ThyPRO questionnaire preoperatively and at 6 weeks and 6 months postoperatively. Each domain had a score calculated ranging from 0 to 100 (least to most symptoms), and the pre- and postoperative scores were compared using the Friedman exact test for related samples.

RESULTS

Twenty-three patients completed ThyPRO at three time points. Indications for surgery were goiter symptoms (12), dominant nodule (5), Graves' disease (4), and toxic nodule (2). Sixteen (70%) patients underwent total thyroidectomy and 7 underwent hemi-thyroidectomy. There were no complications.

Scores were highest for tiredness (50), depression (39.29), and goiter (36.36) symptoms and lowest for sex life (0), social (12.5) and hyperthyroidism (15.63) symptoms.

Median postoperative scores improved in all symptom domains when compared with preoperative scores, except sex life, which worsened. Goiter symptoms continued to improve for 6 months (36.6 vs 22.7 vs 11.4; $p=0.0048$). Hypothyroid (31.3 vs 18.8 vs 25; $p=0.0228$) and anxiety (29.2 vs 12.5 vs 12.5; $p=0.0310$) symptoms improved at 6 weeks postoperatively but did not improve further at 6 months.

CONCLUSION

In this prospective study, goiter, hypothyroid, and anxiety symptoms improved following surgery. Further recruitment of patients is ongoing to identify potential preoperative predictive factors for a postoperative improvement in QoL.