Oral Presentation VI

Lymphovascular Invasion is the Most Important Factor for predicting clinically Important Lymph Node Metastases in Papillary Thyroid Carcinoma

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BACKGROUND AND AIMS

Papillary thyroid cancer (PTC) is the most frequent subtype among thyroid cancers. Lymph node (LN) metastases are frequent in PTC and the incidence is 60% on average. Recent studies have shown that there has been an increase in the mortality or recurrence with LN metastases and that more than 5 metastatic LNs are clinically important. Therefore, we investigated clinicopathologic factors associated with clinically important LN metastases.

METHODS

From January 2010 to October 2013, we retrospectively enrolled 2,628 PTC patients who underwent thyroidectomy at Ajou University Hospital. Among 1,425 patients with LN metastasis, 325 had ≥ 5 LN metastases.

RESULTS

In univariate analysis, young age (< 45 year), male gender, capsular invasion, multiplicity, tumor size, and lymphovascular invasion ($p < 0.001$) were statistically associated with both LN metastasis and ≥ 5 LN metastases. However, Braking Action Fair (BRAF) mutation was not important to predict LN metastasis ($p > 0.05$). In multivariate analysis, lymphovascular invasion was the most important factor (odds ratio: 4.7, 4.0) among other clinicopathologic factors (odds ratio: < 2.1).

CONCLUSION

Braking Action Fair (BRAF) mutation was not useful to predict the LN metastasis. However, lymphovascular invasion was the most important factor to predict more than five cervical LN metastasis which is very important clinically.

Lymph Node Ratio for Central Compartment predicts Tumor Recurrence in Papillary Thyroid Carcinoma

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BACKGROUND AND AIMS

Lymph node metastases may occur in up to 80% of papillary thyroid carcinoma (PTC) cases. It is a predictor for tumor recurrence. Central neck dissection in the form of either prophylactic or therapeutic surgery with or without lateral neck dissection is advocated for PTC. Lymph node ratio (LNR), which is the total number of metastatic lymph nodes divided by the total number of removed lymph nodes, has been introduced as a tool to predict survival and recurrence. The objective of this study is to determine the relation between LNR and the recurrence of PTC. We compared this relation in central compartment alone and in combination with lateral neck dissection.

METHODS

A retrospective study was conducted from 2000 to 2012 involving 50 PTC patients who underwent total thyroidectomy (TT) with neck dissection. All of them had conventional management for PTC as per protocol. The total LNR (oLNR) and central compartment LNR (cLNR) were calculated. Disease-free survival (DFS) and tumor recurrence were analyzed in relation to LNR.

RESULTS

Patients with cLNR > 0.78 ($p = 0.001$) had significantly worse DFS than patients with ratios below the threshold value. Furthermore, cLNR > 0.78 was significantly associated with recurrence ($p = 0.001$). The mean DFS in cLNR > 0.78 was significantly shorter at 6.54 years compared to cLNR < 0.78 at 12.27 years.

CONCLUSION

Instead of cLNR, oLNR is a significant predictor for recurrence in PTC. The cut-off value for cLNR is 0.78. The result is similar with other studies that show central compartment LNR is a strong predictor for tumor recurrence.

Dynamic Risk Stratification in Medullary Thyroid Cancer

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BACKGROUND AND AIMS

Recently dynamic risk stratification has been approved to be more valuable than static anatomic staging system in non-medullary thyroid cancer, and this notion has been also accepted in medullary thyroid cancer (MTC). The present study was designed to compare the clinical usefulness of response to initial therapy stratification with a traditional anatomic staging system.

METHODS

From August 1982 to December 2012, a total of 144 MTC patients underwent thyroidectomy at Yonsei University Hospital. Among them, 117 (82.2%) patients with complete clinical data and sustained follow-up were enrolled in this study. Clinicopathologic features and surgical outcomes were analyzed by a retrospective medical chart review. The mean follow-up duration was 85.78 ± 62.51 months.

RESULTS

In this study, the mean tumor size was 1.94 ± 1.40 cm; 22 (18.9%) patients had hereditary MTC and 95 (81.1%) patients had sporadic MTC. Stage I patients had the highest probability of excellent response to initial therapy (92.1%). Stage IV patients had the highest probability of biochemical and structural incomplete response to initial therapy (57.5 and 30.3%) and lowest probability of excellent response to initial therapy (12.1%). Response to initial therapy stratification and TNM staging system were significantly different statistically ($p = 0.000$). The TNM staging system provided risk stratification regarding disease-free survival (DFS), disease-specific survival (DSS), and the probability of having no evidence of disease at final outcome, but did not provide risk stratification regarding the probability of having biochemical persistent/recurrence disease at final outcome. However, response to initial therapy stratification provided risk stratification regarding not only DFS, DSS, and the probability of having no evidence of disease at final outcome but also the probability of having biochemical persistent/recurrence disease at final outcome.

CONCLUSION

In this study, we demonstrated that dynamic risk stratification with adjusted response to initial therapy system can offer more useful prognostic information than anatomic staging system in MTC.

Thyroid Ultrasound: An Assessment of Surgeon-performed Ultrasound

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BACKGROUND AND AIMS

The majority of thyroid nodules are asymptomatic; however, 10 to 15% of them are malignant. Early detection of these nodules promised an excellent outcome. Thyroid ultrasonography (US) has been widely used to differentiate malignant from benign nodules. It is an excellent predictor for thyroid cancer as 97.2% of nodules diagnosed as malignant on US were also pathologically confirmed as thyroid carcinoma. There are various US features characteristically associated with thyroid carcinoma. Presently, there have been an increase in the number of endocrine surgeons who performed thyroid US. It is a question as to how accurate is surgeon-performed US (SUS) compared to the radiologist US (RUS). Thus, the objective of this study is to determine the accuracy of SUS in detecting malignant thyroid nodule compared to RUS by using final pathology report as the final diagnosis.

METHODS

A prospective study was conducted involving 54 patients who underwent either total thyroidectomy or hemi-thyroidectomy at our center from April 2013 to September 2014. A total of 75 thyroid nodules were analyzed. Each patient had thyroid US performed by an endocrine surgeon and a radiologist independently and their findings were blinded from each other.

RESULTS

Eleven thyroid nodules were malignant. The sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) for SUS were 90.9, 93.8, 71.4, and 98.4% respectively, while for RUS were 72.7, 75, 33.3, and 94.1% respectively. Oval shape, presence of microcalcification, hypoechogenicity, and presence of suspicious lymph nodes are associated with carcinoma for both SUS and RUS groups ($p < 0.05$).

CONCLUSION

Surgeon-performed US had comparable findings with RUS. Oval shape, presence of microcalcification, hypoechogenicity, and presence of suspicious lymph nodes are predictors of thyroid carcinoma based on thyroid US.

Clinical Application of the Recurrent Laryngeal Nerve Monitoring in Micolli Operation

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BACKGROUND AND AIMS

To discuss the clinical application of the recurrent laryngeal nerve monitoring in Micolli operation.

METHODS

The study summarized 109 cases of Micolli surgery from February 2013 to February 2014 treated in our hospital because of thyroid disease. Divided into conventional group and nerve-monitoring group, we revealed comparative analysis between the two groups of patients in the explored recurrent laryngeal time, total operation time, recurrent laryngeal nerve injury rate, incision-extending rate, blood loss, postoperative drainage, and hospitalization costs.

RESULTS

In the recurrent laryngeal nerve-monitoring group, the explored time, total operation time, temporary recurrent laryngeal nerve injury rate, incision-extending rate, permanent recurrent laryngeal nerve injury rate, average blood loss, postoperative drainage, and hospital charges were: 4.7 ± 1.4 minutes, 94.5 ± 7.5 minutes, 1.39%, 0%, 2.44%, 32.6 ± 2.5 ml, 49.5 ± 6.7 ml, and $20,834.3 \pm 189$ yuan, while in the conventional group were: 13.3 ± 3.1 minutes, 137.4 ± 9.3 minutes, 11.54%, 1.28%, 17.65%, 36.8 ± 5.7 ml, 52.1 ± 3.2 ml, and 16937 ± 79 yuan. Temporary recurrent laryngeal nerve injury rate and hospital costs had a relatively significant difference ($p < 0.05$) between the two groups. Explored recurrent laryngeal time, total operation time, temporary recurrent laryngeal nerve injury rate, incision-extending rate, and hospitalization costs had a relatively significant difference ($p < 0.05$) between the two groups.

CONCLUSION

In Micolli operation, laryngeal nerve monitoring is although expensive, but can reduce the explored recurrent laryngeal time, total operation time, temporary recurrent laryngeal nerve injury rate, and incision-extending rate; thus, in Micolli operation, recurrent laryngeal nerve monitoring should be promoted.

Firm Parathyroid Gland Adhesions to Recurrent Laryngeal Nerves and Efficacy of Intraoperative Neural Monitoring during Total Parathyroidectomy and Transcervical Thymectomy for Secondary Hyperparathyroidism

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BACKGROUND AND AIMS

This study aimed to investigate the parathyroid glands firmly adhering to recurrent laryngeal nerves (RLNs) and the efficacy of intraoperative neural monitoring (IONM) during initial total parathyroidectomy and transcervical thymectomy for secondary hyperparathyroidism as no reports investigating these exist.

METHODS

Study Design
Characteristics of patients with parathyroid glands firmly adhering to RLNs and those of parathyroid glands firmly adhering to RLNs were investigated. After evaluating the diagnostic validity of IONM, operative outcomes after the removal of adhering parathyroid glands including the frequency of RLN injury and vocal cord paralysis with using IONM were evaluated.

Setting and Participants

This was a single-center retrospective review of 197 consecutive patients who underwent initial total parathyroidectomy and transcervical thymectomy using IONM for secondary hyperparathyroidism between September 2010 and December 2014.

RESULTS

In total, 197 patients, 394 RLNs, and 733 resected parathyroid glands were investigated. Parathyroid glands firmly adhering to RLNs were not related to patient characteristics (gender, age, hemodialysis period, calcium levels, phosphate levels, intact PTH levels, and calcimimetic agents administration) but were significantly related to maximum diameter (≥ 15 mm; $p = 0.001$), weight (≥ 500 mg; $p < 0.001$), location (upper glands; $p = 0.049$), and pathological change (nodular hyperplasia; $p = 0.041$). Sensitivity, specificity, and accuracy of IONM were 97.8, 43.5, and 94.7% respectively. In 17 RLNs with firm adhesion and 377 RLNs without adhesion, 3 (17.6%) and 20 (5.3%) vocal cord paralyses respectively were identified ($p = 0.069$). One RLN injury (5.9%) was identified in 17 RLNs with adhesion compared with no RLN injury in 377 RLNs without adhesion ($p = 0.043$).

CONCLUSION

The maximum diameter of ≥ 15 mm, weight of ≥ 500 mg, upper glands, and nodular hyperplasia were risk factors for firm parathyroid glands adhesion. Firm parathyroid gland adhesions were a risk for RLN injury and vocal cord paralysis even with the use of IONM.

Do You prefer minimally Invasive Approach for Thyroidectomy? A Cross-sectional Survey in Hong Kong

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BACKGROUND AND AIMS

In recent decades, minimally invasive thyroidectomy (MIT) has been developed on a revolutionary scale for the pursuit of cosmetic superiority despite the need for longer operation time and steeper learning curve. While some endocrine surgeons are losing their enthusiasm toward MIT, expectations from patients on MIT are contrarily growing. This study aims to investigate the attitude and understanding of patients and health care professionals toward MIT in Hong Kong.

METHODS

This was a cross-sectional anonymous survey on surgical outpatients, inpatients, their accompanying persons, and health care professionals in a tertiary hospital. Using a six-point Likert scale, respondents were asked to rate their awareness about, understanding of, and acceptance toward MIT.

RESULTS

A total of 128 completed questionnaires (39.8% males and 60.2% females) were received (response rate 96.2%). A majority of respondents were aged > 35 years (64.8%) and majority were non-health care professionals (75.7%). About 6.3 and 1.6% of respondents had respective history of thyroid disease and thyroid surgery. Among all respondents, 45.3% had never heard of MIT and 38.4% regarded MIT as immature experimental procedures. A total of 43.8% claimed to have some understanding of MIT, but only 30.5% overall respondents and 38.8% health care professionals acknowledged having adequate understanding of the surgery. Specifically, a limited proportion of respondents realized that MIT had longer operating time (67.9%), less pain (66.0%), higher demand on surgeon's technique (66.6%), and potentially higher risks (30.3%). Regarding their acceptance toward MIT, up to 83.3% opted for MIT over open thyroidectomy (OT) when they need the operation. Stratified by respondent subtypes, a significantly higher proportion of patients opted for MIT over OT than clinicians (85.2 *vs* 50%, $p < 0.001$) and surgeons (85.2 *vs* 25%, $p < 0.001$).

CONCLUSION

Despite limited awareness and poor understanding of MIT, the acceptance of and preference toward MIT among the general public of Hong Kong were exceedingly high. Endocrine surgeons are encouraged to continue their pursuit on the technical advances of MIT.

Comparison of Postoperative Surgical Stress following Robotic Thyroidectomy and Open Thyroidectomy: A Prospective Pilot Study

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BACKGROUND AND AIMS

Robotic thyroid surgery using the da Vinci surgical system has certain cosmetic advantages; however, the invasiveness of robotic thyroid surgery is still a concern to many surgeons. Previous research has not directly compared the surgical stress of

robotic thyroidectomy with that of conventional open surgery. The aim of the present study was to evaluate surgical stress using postsurgical measurements of several clinical markers.

METHODS

A pilot study was performed to evaluate surgical stress following robotic and open thyroid surgery. A total of 29 papillary thyroid cancer patients from July to November 2014 were enrolled. Fourteen patients underwent conventional open surgery and 15 underwent robotic thyroidectomy. IL-6 levels, serum WBC counts, CRP levels, surgical plethysmographic index (SPI), and visual analogue scale (VAS) were measured to compare surgical stress between the robotic and the open surgery group.

RESULTS

No significant differences were seen between the two groups in IL-6 level, WBC count, or CRP level (p = 0.380, 0.374, and 0.360 respectively). The mean SPI level during the surgery was 41.9 ± 4.7 in the open group compared to 39.5 ± 2.2 in the robotic group, though this finding showed borderline significance (p = 0.095). The VAS score after open surgery was significantly higher than after robotic operation (p = 0.048).

CONCLUSION

The results of this study suggest that robotic thyroidectomy can result in a less-than-equivocal systemic stress response than seen in open thyroidectomy. However, further investigation including large-scale, prospective, multicenter studies is warranted for non-inferiority trials.

Endoscopic Thyroidectomy by EZ-VANS Procedure

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BACKGROUND AND AIMS

Several techniques of video-assisted surgery and robotic surgery have been reported for the resection of thyroid glands. We have begun endoscopic thyroidectomy by using the Lap-protector and E·Z-access system, called E·Z-access using video-assisted neck surgery (EZ-VANS). In this report, we mentioned the technique and result of this method.

METHODS

From January 2007 to September 2014, 110 patients underwent resection of a primary thyroid tumor, including 73 who were operated using a cervical collar incision (open group) and 37 using EZ-VANS.

RESULTS

The average operating time in the open group and the EZ-VANS group was 159 and 172 minutes, blood loss was 46.5 and 54.7 ml, and the length of hospital stay after surgery was 4.3 and 5.2 days respectively, with no significant difference between the two groups. The learning period for the EZ-VANS technique was shorter than for open surgery.

CONCLUSION

It was confirmed that the EZ-VANS technique is a safe and useful method for the resection of benign and early malignant thyroid tumors.

Incidental Thyroid Carcinoma in Benign Thyroid Disease: A Cohort Study

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BACKGROUND AND AIMS

Incidental thyroid carcinoma (ITC) is a thyroid malignancy, i.e., not clinically or cytologically detected preoperatively. The incidence of ITC is between 10 and 20% in the literature. A study was undertaken to assess the incidence of ITC in patients presenting with benign disease of the thyroid to the University Surgical Unit, North Colombo Teaching Hospital, Sri Lanka.

METHODS

A prospective cohort study was conducted spanning from November 2002 to October 2015 on all patients who underwent total thyroidectomy with cytologically Thy 2 benign thyroid disease. An FNAC was performed on all palpable lesions to detect the

presence of malignancy. The presence of autoimmune thyroiditis was taken as an exclusion criterion due to its known association with malignancy of the thyroid. Post-thyroidectomy histopathological diagnoses were provided by the Department of Pathology, University of Kelaniya, Sri Lanka, and were collected prospectively. Statistical analysis was done using Fisher's exact test using Statistical Package for the Social Sciences (SPSS) software, version 20.

RESULTS

One hundred and sixty-seven patients (n = 167) underwent total thyroidectomy (male – 2, female – 17, median age = 40.25 years, range 28–62 years). Incidental thyroid carcinoma was found in 11.38% (19) with a female preponderance (13). A majority (89.4%) were euthyroid.

CONCLUSION

The incidence of ITC in benign thyroid disease was 11.38%, which may have implications for the management in benign thyroid disease.