

Poster Presentation

P-01

ACCURACY OF FINE NEEDLE ASPIRATION CYTOLOGY IN LARGE THYROID NODULES

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Background : Fine needle aspiration cytology (FNAC) has been the common first line investigation for thyroid diseases. Positive predictive value reaches 95 to 100% but the sensitivity of the test reduces with the increasing size of the thyroid nodules. The aim of this study is to analyze the accuracy of FNAC in detecting malignancy in large thyroid nodules.

Material and methods: This is a retrospective study involving all patients with thyroid nodules that underwent surgery from January 2000 to December 2007, where both the FNAC and histology were available to be analysed.

Result: 235 patients were included in the study. The mean age was 42.1 year old (21 to 60). The size of the thyroid nodule ranges from 2.1 to 5.0 cm (mean = 3.9 cm). The overall accuracy of FNAC was 86.3%. The accuracy of FNAC according to the sizes as follows ; 2 cm (72.2% vs. 88.1% ; $p = 0.155$); 3 cm (88.0% vs. 87.4% ; $p < 0.001$) ; 4 cm (86.6% vs. 84.4% ; $p < 0.001$) ; 5 cm (87.3% vs. 78.8% ; $p < 0.01$)

Conclusion: The accuracy of FNAC varies for different sizes of the thyroid nodules. It is most accurate for nodules up to size of 3 cm. As the accuracy in nodules bigger than 3 cm is not accurate, surgery is recommended.

P-02

FNAS SUSPICIOUS FOR BUT NOT DIAGNOSTIC OF PTC

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<Background> Fine-needle aspiration (FNA) plays a major role in the diagnosis and treatment of nodular goiter, and its high diagnostic performance is common knowledge. In this study we focused on the cases in which surgery was performed on cases in one of these categories, “suspicion of malignancy”, in which the diagnosis was only “suspicion of papillary thyroid carcinoma (SpC)”.

<Subjects> The subjects were the 197 patients who underwent surgery at Ito Hospital in whom it was possible to confirm the pathological results among the 279 patients who underwent FNA cytology between January 2007 and June 2008 and in whom the diagnosis was only “SpC”.

<Methods> We investigated the surgical treatment rate, the rate of concordance between the cytodiagnosis and pathology results, the cytodiagnosis reexamination cases and their breakdown, in the cases of SpC based on cytodiagnosis.

<Results> Surgery was performed in 217 of the cases (77.8%). The pathology results based on the operations in 197 cases were papillary carcinoma (PTC) in 186 cases (94.4%), poorly differentiated carcinoma in 4 cases, follicular carcinoma in 2 cases, adenomatous goiter in 1 case, adenolipoma in 1 case, and hyalinizing trabecular adenoma in 1 case. FNA was repeated in 14 cases (5%). Surgery was performed in 6 of them, and the diagnosis was PTC in all 6 of them.

<Conclusion> In this study a high rate of concordance was found between the FNA findings and the pathology findings in the FNA “SpC” cases.

P-03

TRAUMATIC NEUROMA FOLLOWING LATERAL NECK LYMPH NODE DISSECTION IN THYROID CARCINOMA PATIENT

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Objective: To report our experiences with traumatic neuroma which developed in thyroid carcinoma patients who previously had undergone neck dissection.

Methods: The study enrolled three patients who had undergone total thyroidectomy and lateral neck dissection for thyroid carcinoma, two papillary thyroid carcinoma (PTC) patients, and one medullary thyroid carcinoma (MTC) patient.

Results: On the follow up ultrasound, all patients showed isoechoic mass with parallel echogenic striae in the lateral neck. FNAB was performed for two PTC patients, and cytologic results showed cellular paucity and reactive hyperplasia. The MTC patient had undergone selective neck dissection, and pathologic results were compatible with traumatic neuroma. During the ultrasound and FNAB procedure, the two PTC patients complained for sharp pain.

Conclusions: Traumatic neuroma which arises in previously dissected neck compartment can be misdiagnosed as recurrent lymph node of malignancy. Careful decision by an experienced clinician might be required to avoid unnecessary operation and to reduce perioperative morbidities.

Key words: Traumatic neuroma, thyroid carcinoma, neck dissection

P-04

THE ROLE OF FDG PET IN THYROID TUMOR

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(Purpose) The aim of this study was to investigate and estimate the role of positron emission tomography with fluorine-18 deoxyglucose (FDG-PET) in the differential diagnosis of thyroid nodules.

(Materials) Fifty three patients (16 men, 37 women) included in this study and a total of 58 thyroid nodules were evaluated.

All thyroid nodules were investigated by FDG-PET/CT (Discovery ST Elite, GE) before operation, and all patients received thyroidectomy.

(Methods) All tumor regions were resected surgically, and diagnosed pathologically. Imaging findings were compared with the results of surgical and pathological findings. Maximum Sugar Uptake Values (SUV max) in each tumor subtype were investigated and analyzed.

(Results) There was a statistical significant difference between the average of SUVmax of Papillary carcinoma and that of Follicular adenoma. All the cases that showed 15 and over of SUVmax were Papillary Carcinoma. In the cases of Follicular adenoma and Follicular variant of papillary carcinoma, the Value of SUVmax was low level in most cases. In Nodular hyperplasia, SUVmax were scattered, but that was low level. Undifferentiated carcinoma and Poorly differentiated carcinoma showed high FDG uptake.

(Conclusion) Thyroid nodule with high level of SUVmax, such as 15 and over, were very likely to be malignancy. But, thyroid nodule with low level FDG uptake, especially small size, cannot deny to be malignancy. An important role for 18F-FDG PET may be in the assessment of incidental finding of a thyroid nodule which, when showing high FDG uptake should be regarded as a possible malignancy that needs further assessment.

P-05

EXPRESSIONS OF LEPTIN AND LEPTIN RECEPTOR IN PAPILLARY THYROID CANCER

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Background. Epidemiologic studies have shown that obesity is associated with an increased risk of thyroid cancer. Leptin, an adipocyte-derived cytokine, can act as a growth factor on certain normal and transformed cells. Aberrant expression of leptin or leptin receptor has been detected in some types of cancer. The aim of this study is to determine immunohistochemical expression of leptin and leptin receptor in papillary thyroid cancer to investigate the relationship between their expression and clinicopathological features.

Methods. The expression of leptin and leptin receptor was assessed in 49 primary tumors and 15 lymph node metastases using a semiquantitative immunohistochemical staining method.

Results. Leptin and leptin receptor were expressed in 37% and 51% of papillary thyroid cancer, respectively. They were not expressed in normal follicles. In primary tumors and metastatic nodes, expression of leptin closely correlated with leptin receptor ($P < 0.001$ for primary tumors and $P = 0.017$ for nodal metastases). Expression of either protein was significantly associated with larger tumor size (leptin expression, 32.0 ± 10.7 vs. 20.5 ± 8.4 mm, $P = 0.001$; leptin receptor expression, 27.9 ± 11.5 vs. 21.4 ± 9.0 mm, $P = 0.032$). Coexpression of leptin and leptin receptor in primary tumors had higher incidence of lymph node metastasis ($P = 0.038$).

Conclusion. Expression of leptin and/or leptin receptor in papillary thyroid cancer is associated with tumor aggressiveness, including tumor size and lymph node metastasis.

P-06

GENE EXPRESSION OF MATRIX METALLOPROTEINASE(MMP), TISSUE INHIBITORS OF METALLOPROTEINASE(TIMP), AND MUCINS IN PAPILLARY THYROID CARCINOMAS AS PROGNOSTIC FACTORS

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(Backgrounds) Papillary thyroid carcinoma (PTC) is the most frequent malignancy among thyroid carcinomas. The aim of the present study is to investigate gene expression of MMP-13, TIMP-3, TIMP-4, and mucins (MUC1, 4, 14, 15, 16) in PTC tissues.

(Methods) Total RNA from PTC and normal tissues (each N=10) were isolated using TRIzol reagent and 3 μ g total RNA was used to synthesize cDNA. Real-time PCR amplification was performed in the presence of double-labeled fluorogenic probes for MUC1, MUC4, and MUC16 (TaqMan probes; Applied Biosystems). A SYBR-Green real time PCR method was used to detect amplification of MUC14, MUC15, MMP13, TIMP3, TIMP4 using 200Nm primer. The average threshold cycle (CT) values for GAPDH were used as an internal calibrator to correct for differences in the integrity and amount of total RNA added to each reaction. For relative quantification, we used the 2- δ CT method.

(Results) MUC1 gene expression was increased by 23 fold, MUC14 by 2.3 fold, and MUC15 by 4.5 fold in PTC tissues compared to normal tissues. However, MUC4 gene expression was not increased in PTC tissues. MMP13 gene expression was decreased by 0.4 fold and TIMP3 was increased by 2.4 fold in PTC tissues. MUC16 and TIMP4 gene was not detected in PTC and normal tissues.

(Conclusions) In conclusion, MUC1, MUC14, MUC15 and TIMP3 gene expression were increased, and MMP13 gene expression was decreased in PTC tissues. Further study is needed to investigate protein expression and functional role of these markers as prognostic factor of PTC.

P-07

CHEMO-HORMONAL DRUG THERAPY: NEW TREATMENT PARADIGMS FOR REFRACTORY THYROID CARCINOMAS

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Background: Few therapeutic options are currently available to treat patients with refractory thyroid carcinoma not amenable to surgery or radioactive iodine therapy, indicating the need for effective multi-modal treatment. We assessed new drugs for refractory thyroid carcinomas by investigating the effects of 20 chemo-hormonal drugs on thyroid carcinoma cell lines.

Methods: We assessed the effects of 12 known chemotherapeutic agents (5-fluorouracil, bleomycin, carboplatin, cisplatin, cyclophosphamide, doxorubicin, epirubicin, etoposide, methotrexate, oxaliplatin, paclitaxel and vincristine), each at 3 concentrations and 8 new drugs (quercetin, resveratrol, rosiglitazone, sunitinib, tamoxifen, trichostatin A, valproic acid and vandetanib), at 9 concentrations on 8 thyroid carcinoma cell lines: 1 papillary (TPC-1), 4 follicular (WRO, FTC133, FTC236, and FTC238), 1 hurthle cell (XTC-1), 1 medullary (TT) and 1 anaplastic (FRO). Chemosensitivity was measured using the adenosine-triphosphate-based chemotherapy response assay (ATP-CRA), and tumor inhibition rate (TIR; or percent cell death) was tested by measuring reduction in ATP luminescence, with active drugs defined as those resulting in $\geq 30\%$ TIR. We also determined the 50% inhibitory concentration (IC50) for each new drug.

Results: Of the 12 known drugs, vincristine, etoposide and methotrexate were the most active, whereas, of the 8 new drugs, trichostatin A and vandetanib were the most active, and valproic acid was the least active.

Conclusions: Each of the tested drugs had a uniform TIR in all cell lines, with vincristine, etoposide and methotrexate having the highest activity and trichostatin A and vandetanib showing promise. Combinations of these drugs should be tested for their efficacy in refractory thyroid carcinomas.

P-08

CLINICAL STUDY OF ANTICANCER DRUG SENSITIVITY TESTING FOR UNDIFFERENTIATED THYROID CANCER

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[Objective] To select chemotherapy drugs on the basis of anticancer drug sensitivity testing and determine the usefulness of that testing.

[Patients and Methods] Twenty-three patients with undifferentiated thyroid cancer were treated in the authors' department between January 2001 and April 2009. Anticancer drug sensitivity testing was evaluable for 12 patients (5 males, 7 females; mean age: 70 years). Anticancer drug sensitivity testing was performed, the ratio of the drug-added group to the control group (T/C%) was calculated, and the sensitivity was evaluated. Positive sensitivity was defined as T/C% $< 50\%$ for monotherapy. Patients showing sensitivity to at least half of the tested anticancer drugs were classified as high sensitivity, while patients showing sensitivity to less than half of the tested drugs were classified as low sensitivity.

[Results] The rates of sensitivity to each tested drug were 55% for CDDP, 56% for ADM, 22% for Etoposide. Sixteen patients were administered chemotherapy, 10 of those patients underwent drug sensitivity testing, and the response rate was 10%. There was no statistically significant difference in the duration of survival as a function of whether or not drug sensitivity testing was performed ($p=0.59$). The mean duration of survival for 6 high-sensitivity patients was 197.3 days, which was significantly longer than the 97 days recorded for the 6 low-sensitivity patients ($p=0.008$).

[Summary] Performing chemotherapy on the basis of drug sensitivity test results did not prolong survival. The poor outcome observed in the low-sensitivity patient group suggests that low drug sensitivity may be a useful prognostic factor.

P-09**THE LYMPH NODE METASTASIS OF THE INCIDENTAL PAPILLARY CARCINOMA AFTER SUBTOTAL THYROIDECTOMY FOR GRAVES' DISEASE ; A CASE REPORT**

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INTRODUCTION : The metastasis or recurrences of an incidental thyroid papillary carcinoma with Graves' disease are relatively rare. We report a case of a lymph node metastasis 9 years after undergoing operation for Graves' disease.

CASE : A 33-year-old woman diagnosed with Graves' disease on July 1999 had the disease controlled by MMI. However, the operation was performed because of the side effects caused by MMI (Itching) on October 2000. And after the operation it was diagnosed with an incidental thyroid papillary carcinoma measuring 7mm in diameter. The patient has been monitored for 9 years and she has had euthyroidism without medication. On July 2009, ultrasonography showed her neck lymph node swelling (AJCC;level IV, JSTS;VI) measuring 28.7mm × 20.9mm in diameter. US guided FNA was performed and the lymph node was diagnosed as metastasis of the thyroid papillary carcinoma. Completion thyroidectomy and modified neck dissection on the right lymph node were performed. No evidence of metastasis was found in the thyroid gland, however, it was found in the right lymph node VI.

CONCLUSION : This was only a single case found within other 48 cases diagnosed with incidental thyroid papillary carcinoma after undergoing operation for Graves' disease from 1994 to 2004 in our institute. The doctor team should have performed an ultrasonography even if the diagnosis showed only an incidental thyroid papillary carcinoma after the patient had undergone operation for Graves' disease.

P-10**INCIDENCE OF THYROID CANCER AROUND AN AUTONOMOUSLY FUNCTIONING THYROID NODULE**

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An autonomously functioning thyroid nodule (AFTN) is defined as a thyroid nodule that shows autonomous hormone production. There have been very few reports of thyroid cancer in an AFTN, however, some authors have reported thyroid cancer associated with thyroid-hormone imbalance caused by AFTNs. We report a case of AFTN associated with thyroid cancer.

A 69-year-old Japanese woman presented to our hospital with thyroid tumors; she had taken medication for sinus tachycardia 2 months earlier. The physical examination revealed palpable elastic hard tumors in both the isthmus and right lobe of the thyroid. Ultrasonography revealed a heterogeneous hypoechoic mass with calcification in the isthmus and a hypoechoic tumor with smooth margins in right lobe, and aspiration cytology revealed a malignant lesion and a benign lesion. The low thyroid stimulating hormone (TSH) level (0.01 μU/ml) and elevated free triiodothyronine (F-T3) (7.01 pg/ml) levels indicated hypersecretion of thyroid hormones without the presence of thyroid-stimulating antibodies (TSABs). 123I-scintigraphy revealed an AFTN suppressed hormone production. The patient underwent subtotal thyroidectomy and central neck lymph node dissection. After the operation, the FT-3 level rapidly normalized. Histopathological examination indicated a papillary carcinoma in the isthmus and an adenomatous nodule in the right lobe of thyroid.

Conclusion: The primary surgical approach for treating AFTNs is lobectomy which is used for the treatment of benign disease. However, AFTN can lead to thyroid cancer in the thyroid region showing suppressed hormone production. Strict examinations using by multiple modalities should be performed before operation and during the follow-up period.

P-11

A CASE REPORT OF VACCUM-ASSISTED MANAGEMENT FOR ESOPHAGEAL PERFORATION AFTER TOTAL THYROIDECTOMY

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In spite of its very low incidence, 0.2-0.9%, caution is always needed in the management of esophageal perforation after total thyroidectomy, because of severe complication. However, there has been a few report for the treatment of esophageal perforation after thyroidectomy. Recently, we experienced a case of the successful treatment for esophageal perforation using vaccum.

67 years-old female patient with both thyroid papillary carcinoma underwent a total thyroidectomy. Near the lower pole of left thyroid, about 2 cm sized, metastatic lymph node was found during thyroidectomy, which invaded esophagus directly. Esophageal wall was injured during the lymph node dissection & sutured with silk No.3 for injury. On the fifth day of operation, the drainage was turbid & fluid amyalse was 94,400IU/L. An emergency reoperation was performed, primary closure & irrigation was performed. 6x6 cm sized sponge inserted with a drain tube was placed on the wound and negative pressure suction was applied after blocking of air flow using Ioban drape. Vacuum change was done twice a week & the patient was continued NPO state. On the 18th day of reoperation, esophagogram revealed no leakage and soft diet was started. During vaccum dressing, a gradual formation of granulation tissue around the perforation was observed. Wound closure was done on the 22th day of reoperation. The management using vacuum reduced the risk for infection and increased the growth rate of granulation tissue. Then, it should be expected to be a useful modality.

P-12

ECTOPIC ACTH-INDUCED CUSHING SYNDROME: MULTI-MODALITY STUDY IN A PATIENT WITH MEDULLARY THYROID CANCER AND AN ADRENAL MASS

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INTRODUCTION: Diagnosis and treatment of Cushing Syndrome (CS) is often a challenge. Ectopic ACTH-induced Cushing Syndrome (EAS) is responsible for about 15% of cases of CS and covers a range of tumours from undetectable benign lesions to widespread metastases.

PATIENTS AND METHODS: We present the case of a 47-year old woman who was diagnosed with CS during routine preoperative assessment for surgery for uterine fibroids.

RESULTS: The appearance of the patient suggested Cushinoid features. On examination she was found to have a hard thyroid mass and palpable right cervical lymph nodes. CT scan showed a right thyroid and mediastinal mass as well as a 3.5 cm right adrenal nodule. Biopsy of the thyroid and mediastinal mass revealed metastatic medullary carcinoma (MTC). Blood tests showed suppressed baseline ACTH and hypercortisolemia not responding to high dose dexamethasone. High precursor-to-ACTH ratio (53) excluded adrenal involvement, revealing EAS. Calcitonin level was 39559.0 ng/L. FDG-PET, Octreoscan, and I123 MIBG scan showed metastatic MTC as the only metabolically active detectable lesion. Patient underwent total thyroidectomy, central compartment and modified lateral neck dissection, trans-sternotomy resection of the mediastinal mass, followed by postoperative I131 MIBG. Cushing syndrome resolved, with complete normalisation of the cortisol levels; however calcitonin levels remained above normal.

DISCUSSION: MTC is cause of 2-7% cases of EAS. This case confirms ACTH precursor as a useful in the diagnostic workup of Ectopic ACTH-induced CS. FDG-PET can detect primary or metastatic malignant thyroid tumors and is an interesting diagnostic tool in localizing only metabolically active lesions.

P-13 | HETEROLOGOUS TISSUE IN THYROID PARENCHYME

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Branchial pouch-related structure can rarely exist in various forms, including solid cell nests, cystic ultimobranchial body remnant, parathyroid, thymic tissue, salivary gland-type tissue and heterotropic cartilage in the thyroid parenchyme. There have been some reported cases of intrathyroidal thymus, parathyroid gland and thyroglossal duct cyst, especially in children. However, ectopic intrathyroidal cartilage tissue in an adult papillary thyroid carcinoma is extremely rare. A 44-year-old male patient was presented with papillary thyroid carcinoma. A total thyroidectomy along with right lateral neck dissection was performed, and the final pathological examination confirmed that he had papillary thyroid carcinoma with lateral node metastases. Furthermore, a fragment of cartilage tissue was found in surgical specimen apart from the resection margins. When cartilaginous tissues are seen in the specimens of thyroid carcinoma patient, a possibility of ectopic intrathyroidal cartilage should be considered rather than tracheal invasion by thyroid cancer.

P-14 | A CASE OF NEUROENDOCRINE CARCINOMA OF THYROID (SMALL CELL TYPE)

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We had a very rare case of neuroendocrine carcinoma of thyroid (small cell type). A 52-year-old man had noticed cervical mass and hoarseness in early of 2008. Physical findings revealed 3.5-cm-diameter, hard and rough tumor in the left lobe of thyroid and 3.2-cm-diameter submandibular lymph node swelling. His thyroid function was euthyroid and the both serum CEA and calcitonin were within normal range. However, the serum thyroglobulin, ProGRP, and NSE was above the normal range. The core needle biopsy revealed a diagnosis as neuroendocrine carcinoma of thyroid with small cell type. Since the thyroid carcinoma was diagnosed as an advanced (T4aN1bM0), he was firstly treated with chemo-radiation therapy (irradiation+VP-16+CBDCA) followed by maintaining the chemotherapy (VP-16+CBDCA). The objective effect was partial response. After nine months from initial therapy, regrowth of thyroid tumor was recognized. Because PET/CT revealed no accumulation in other organs, the left hemithyroidectomy and dissection of cervical lymph nodes was performed. Immuno-histological finding revealed that the positive staining of CEA (The serum CEA was within normal range.), cytokeratin AE1/AE3, CD56 and chromogranin A and the negative staining of TTF-1 and calcitonin. At present, he is treated with adjuvant chemotherapy.

P-15 | INFLAMMATORY PSEUDOTUMOR OF THE THYROID

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A-84-year-old Japanese female was admitted to our hospital with a large painless anterior-neck mass without systematic symptoms. Physical examination revealed a firm nodule measuring 5 cm in the right lobe of the thyroid. Laboratory tests, including thyroid function tests, were within normal limits. The ultrasound image revealed well demarcated, irregularly shaped, hypoechoic mass in the right lobe of the thyroid with a size of 26x18x31mm and in the isthmus with the size of 22x31x32mm. Fine needle aspiration biopsy could not confirm malignancy. PET-CT showed a hot nodule in the right lobe of the thyroid. MRI and 201Tl-scintigraphy suggested malignant tumor. A subtotal thyroidectomy was performed. Macroscopically, the lesion was composed of 4 nodules. Each nodule was well demarcated and diffusely white on cut surface. Histologically, the lesion was consisted of areas of spindle cells and plasma cells. Spindle cells showed sarcoma-like proliferation and partially resembled to so called MFH. There were no lesions suggestive of plasma cell granuloma or malignant lymphoma. Immunohistochemically, the spindle cells stained positively with vimentine and α -smooth muscle actin, and partially positive with desmin and cytokeratin. No positive immunostaining was seen with S-100, ALK-1, CD34 or CD68. Histological diagnosis was inflammatory pseudotumor of the thyroid. Inflammatory pseudotumor (IPT) of the thyroid is a rare entity. It is usually found in the lung and upper respiratory tract. IPT was generally considered as benign lesion in earlier reports. But at present, the majority of IPT are recognized as neoplasm with intermediate biologic potential, and hence close follow up is recommended.

P-16 | NON-RECURRENT INFERIOR LARYNGEAL NERVE IN THYROID SURGERY: REPORT OF 4 CASES

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Introduction: The non-recurrent inferior laryngeal nerve (NRILN) is a rare anomaly that is associated with vascular variations during embryological development. We aimed to report 4 cases of this anomaly and highlight the importance in identifying the recurrent inferior laryngeal nerve as failure to recognize the NRILN will lead to a high risk of vocal cord paralysis.

Patients and Methods: Over a 9-year period, 1740 thyroid surgeries were performed at our institution. Four cases of NRILN found during thyroid dissection were reported with an overall incidence of 0.2%.

Results: All 4 NRILNs were observed on the right side and they ran together with the superior thyroid vessels (Type 1). There were no associated symptoms of dysphagia diagnosed preoperatively and no vascular abnormalities were observed intraoperatively.

Conclusion: The NRILN is so rare that failure to notice its possibility can lead to operative morbidity. A clear understanding of the surgical anatomy and course of this rare anomaly will greatly reduce the risk of nerve injury and improve the quality of life for the patient.

P-17

LARGE GOITER : EXPERIENCE FROM THE NORTH EAST OF MALAYSIA

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Introduction

Large goiter is a common disease in the North East of Malaysia and our institute is a referral centre for all endocrine surgical cases especially patients with large and longstanding goiters. We present our experience in managing patients with large goiters.

Methods

This is a retrospective review of patients with large goiters who underwent thyroid surgery between July 2007 and July 2009.

Results

There were 158 patients considered with large goiter of more than 100grams post total thyroidectomy and 50 grams weight after hemithyroidectomy done. Most patients presented with multinodular goiter (57%), followed by solitary nodule (31.6%) and diffuse goiter (11.4%). One-fourth of the patients (45/158, 28%) had compressive symptoms and the range duration of goiter was 1 to 25 years. Fine Needle Aspiration Cytology (FNAC) was performed in 107 cases with solitary nodule or clinically suspicious malignancy. The FNAC results were benign (82%), papillary cancer (5.6%), follicular neoplasm (6.5%), inadequate smear (4.7%), and lymphoma (1%). Total thyroidectomy was performed in 102 (64%) of patients and the remaining 56 (36%) had hemithyroidectomy. The average weight of the thyroid gland post total and hemithyroidectomy were 253 and 66 grams respectively. Majority of the histopathological reports, 107 (68%) showed multinodular goiter and most of those reported as malignancy were papillary carcinoma.

Conclusion

Large goiter is common in the North East of Malaysia and we strongly believe that thyroidectomies should be advocated in all cases of large goiters in view of a significant risk of compression and malignancy.

P-18

DOES THE SIZE OF GOITRE AFFECT THE OCCURRENCE OF POST OPERATIVE COMPLICATIONS?

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Introduction

Total thyroidectomy is an endocrine surgical procedure. Hypocalcaemia and change of voice are two common complications. Risk factors for hypocalcaemia after thyroidectomy include Graves's disease, malignancy, recurrent surgery and type of surgical procedure performed. This study was designed to assess the impact of goitre size on above complications.

Method

All patients who underwent total thyroidectomy by a single surgeon in the university surgical unit from June 2005 to May 2009 were divided into control and study groups. The control group consisted of patients who had not developed complications and the study group consisted of patients who developed hoarseness of voice or hypocalcaemia. Patients with malignancy and Graves disease and recurrent goiter were excluded from the study. Significance of differences in goitre size (weight) between those who had above complications and those who had not was assessed using Student's t test. The relevant data was obtained from the thyroid data base.

Results

102 patients were eligible for the study. 14 developed hypocalcaemia {12(11.7%) -temporary, 2(1.96%) permanent}. 8 developed hoarseness { temporary - 7(6.86%), permanent- 1}. The control group had a mean thyroid weight of 91.78 g. There were no significant differences in mean thyroid weight between the control group and patients with hypocalcaemia (mean 103.57g -p >0.05) and patients with hoarseness (Mean 103.88g -p>0.05). There was a significant difference in thyroid weight (195g p<0.05) in patients with permanent hoarseness of voice.

Conclusion

A weight of less than 195 gr does not appear to affect complications. Apart from post operative permanent hoarseness.

P-19

PRELIMINARY REPORT ON ASSESSMENT OF THYROID VOLUME IN AN ADULT SRI LANKANS

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Introduction

Different thyroid volumes have been reported from different parts of the world. This is influenced by factors such as deficiency of iodine, ethnicity etc. The ultrasound is the investigation of choice in the assessment of thyroid size (volume), as the clinical palpation has low sensitivity. This study envisages an accurate assessment of thyroid volume using an ultrasound scan and developing a reference value for thyroid volume.

Method

Inward patients of university surgical unit admitted for problems other than thyroid disorders and patients' bystanders were assessed initially with a proforma. Individuals without any clinical or ultrasound evidence of thyroid disease were included in the study. Pregnant women, lactating women, acute or chronically ill patients, children (age < 16 years) were also excluded. Subjects selected randomly. Thyroid ultrasound scan was done by consultant radiologist in the supine position with neck extension using 7.5 MHz linear probe. Thyroid volumes were assessed using ellipsoid formula. Statistically calculated target is 90 subjects (60 males & 30 females)

Results

60 subjects (39 males and 21 females) with mean age of 32 and 43 respectively were assessed. Mean thyroid volumes were 8.918(D=2.584, range4.81-16.35) and 6.62(SD=1.54, range2.96-9.32) for male and females respectively. There was significant difference in volume of between genders (p<0.001). There was no significant differences in volume of left and right thyroid lobes (p>0.05) There was no significant correlation with height, weight and BMI.

Conclusion

Reference values of thyroid volume are 8.918±5.168 and 6.62±3.09 for males and females respectively. Development of reference volume for thyroid for Sri Lankans with further island wide study of large sample is envisaged.

P-20

HYPOTHYROIDISM FOLLOWING HEMITHYROIDECTOMY FOR THYROID DISEASES

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Background: Hypothyroidism after hemithyroidectomy is not rare. The incidence range from 5 to 35%, depending on the definition of the hypothyroidism. We described the incidence of this condition in our patients following hemithyroidectomy.

Material and method: We retrospectively reviewed the patients who underwent hemithyroidectomy between 2002 to 2009. Only those patients with thyroid function tests done pre and post-operatively at our centre were included in the study.

Result: There were 81 patients included in this study. The mean age of the patients were 45.5 (95% CI = 42.1 to 48.9). 74/81(91.4%) of the patients had an increased in serum Thyroid Stimulating Hormone(TSH) following surgery. The mean post-operative TSH was significantly higher than pre-operatively [3.81 vs. 1.04 mU/ml (p = 0.03)]. The mean increased of TSH was 2.76 mU/ml (95% CI = 0.35 to 5.17). The mean post-operative serum thyroxine (T4) was not significantly lower than pre-operative [12.93 vs. 14.15 pmol/L (p = 0.08)], with the mean drop of 1.22 pmol/L (95% CI = -0.15 to 2.60). 8/81(9.9%) developed subclinical hypothyroidism and only 3/81(3.7%) were biochemically hypothyroid.

Conclusion: Following hemithyroidectomy, serum TSH is significantly increased but the serum T4 is not significantly affected. Only 3.7% of the patients required thyroid hormone treatment. Routine post-operative thyroid function following hemithyroidectomy is not justified unless in patients with symptoms suggestive of hypothyroidism.

P-21

THE RISK OF OPERATION UNDER HYPOTHYROIDISM IN GRAVES DISEASE

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Introduction : In Graves disease patients, thyroid gland is hypervascular and have a high risk of rehemorrhage. It is said to be good for Graves disease operation to control preoperative thyroid function in euthyroidism. The purpose of this study was to evaluate the post operative incidence and a risk of operation under hypothyroidism.

Material and methods : 6463 patients underwent operation in our hospital from Jan-2005 to Aug-2009, including 1715 Graves disease patients. 126 cases of postoperative hemorrhage with marked neck swelling required reoperation. We retrospectively compared the association of hypothyroidism with reoperation due to postoperative hemorrhage.

Result : 430 patients with Graves disease under hypothyroidism underwent subtotal thyroidectomy. Among them, postoperative hemorrhage was occurred in 17 patients (4.0%), and these patients required reoperation. On the other hand, 1285 Graves patients were operated under euthyroid or hyperthyroid status. Among them, reoperation due to postoperative hemorrhage was performed in 26 patients (2.0%). Reoperation rate under hypothyroidism was significantly higher than that under euthyroidism or hyperthyroidism. Especially, FT4 value had a correlation to postoperative hemorrhage. In patients who underwent reoperation under hypothyroidism, the causative bleeding point tended not to be cleared.

Conclusions : These data suggest that hypothyroidism might be an important risk factor for post operative bleeding in Graves disease patients.

P-22

HORNER'S SYNDROME AFTER CONVENTIONAL THYROIDECTOMY USING HARMONIC SCALPEL

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Introduction: Horner's syndrome can be described as a series of symptoms including ipsilateral ptosis, miosis and anhidrosis produced by the interruption of the sympathetic pathway to the eyes and face. The syndrome is usually developed after radical neck dissection. A harmonic scalpel is an instrument that uses ultrasound technology to dissect tissues in a bipolar fashion with only minimal collateral tissue damage. Horner's syndrome occurred after thyroidectomy using the harmonic scalpel has been reported extremely rare.

Patients and Methods: Among 120 patients who underwent conventional thyroidectomy using the harmonic scalpel from January 2008 to March 2008, six patients developed Horner's syndrome. Their clinical characteristics were retrospectively reviewed.

Results: Among six patients, right hemithyroidectomy with central compartment neck dissection (CCND) was performed on three patients, total thyroidectomy with CCND in two, and completion total thyroidectomy in one. During surgery, the dissection of right upper pole was difficult due to its anomalously high location in all patients. Horner's syndrome was observed at the right side in all patients, and it spontaneously improved within an average of six months (ranges, 4-7 months).

Conclusion: When dissecting the upper pole of the right thyroid using the harmonic scalpel, a great attention should be given to avoid the postoperative Horner's syndrome.

P-23**THYROID RESECTION USING PRECISE ULTRASONIC DISSECTION FOR GRAVES' DISEASE**

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A 36-year-old woman was admitted for agranulocytosis caused by methimazole consumption for Graves' Disease. Laboratory examination before the treatment revealed that free T3: 20.0 pg/mL, free T4: 10.4 ng/dL, thyroid stimulation hormone: 0.002 μ IU/mL, and thyroid stimulating antibody: 6.01 IU/L. Following recovery from agranulocytosis and thyroid suppression using potassium iodide and iodine, sub-total thyroidectomy was performed. Perithyroid vessels including the superior thyroid arteries were sealed and dissected using Harmonic Focus(TM), a precisely designed device for ultrasonic dissection. The isthmus was divided, then the greater part of the either lobes was removed. Dissection of the thyroid parenchyma was also done using the precise ultrasonic device. Resected thyroid weighed 10.5 and 7.4 gram respectively for the right and the left lobe. The device seemed to be preferable compared with conventional ultrasonic devices in terms of control, since the dissection surface in current procedure was not planer as in thyroid lobectomy. In comparison with electric scalpel, it was predominant in hemostasis and in avoiding the risk of heat injury of the recurrent nerves. Ultrasonic dissection has been reported to be superior in hemostasis during thyroid dissection over electric coagulation devices including vessel sealing systems, and the new design enhances benefit in thyroid resection for Graves' Disease.

P-24**CRITICAL ISSUES IN THE MANAGEMENT OF ACUTE PYOGENIC THYROIDITIS IN INDIAN PATIENTS**

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Purpose :

To study aetiology, clinical features, biological behaviour and management of acute pyogenic thyroiditis (APT) in our people.

Material & Methods :

All patients with APT admitted to the Endocrine Surgical Unit from 1998 to 2009 were included in the present study. A detailed clinical history, physical examination and investigations like routine hematology, serology, FNAC, USG, and CT/MRI (Optional) were done.

Observation & Result :

All the patients were female ranging from 27-65 years of age. 6 patients had a pre-existing goitre. Fever, chill, rigor, pain and enlargement of thyroid was seen in all. Obstructive symptoms like dysphagia was present in one case and dysphonia in another. Four patients were diabetic. In 2 patients there was necrosis and rupture of the overlying skin with pus discharge. Two cases were managed with antibiotics and analgesics. Six cases required incision and drainage under local anaesthesia. Two cases lost to follow up and only 4 patients turned up with residual nodular goitre. These patients underwent surgery and histopathologically three were benign and one was follicular cancer.

Conclusion :

Acute thyroiditis is a rare entity as opposed to its chronic counterpart but of late has gathered surgical importance due to increasing incidence of Type-2 diabetes mellitus in India. It is exclusively a disease of adult females in our population with pre-existing goitrous pathology. Diabetes is the single most important pre-disposing cause followed by malignancy. Abscess formation and widespread suppuration was seen in diabetic patients. Definitive surgery preferably total thyroidectomy is the treatment of choice.

P-25 | **CASES OF CHRONIC THYROIDITIS WITH AUTOIMMUNE DISEASE**

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(Introduction) Hashimoto disease, though autoimmune disease, sometimes becomes an indication for operation. Indications are oppression at neck, dysphasia, the Struma, and acute worsening of thyroiditis. We will report 3 cases, acute worsening of thyroiditis and malignant lymphoma, tumor formation derived from Hashimoto disease.

(Case 1) 69 years old female, taking a thyroid hormone preparation since 4 years before, had repeated the worsening of Hashimoto thyroiditis and been treated by steroid pulse. The surgery was indicated because there was no symptom of improvements, diagnosis of Aspiration Biopsy Cytology showed Class 3 and the finding by ultrasonography. Total thyroidectomy was performed, weight of specimen 102g. Pathology revealed MALT lymphoma that showed small monocytoid B cell with lymph epithelial lesion (LEL). Genetic examination revealed IgH rearrangement.

(Case 2) 53 year old female with thyroid hormone supplementation for Hashimoto disease, had steroid pulse treatment for worsening thyroiditis. Operation was indicated because of no improvement of the symptom. There were no particular events about her past history and a family history. Thyroid tissues were 8cmx6cm large and firm. Total thyroidectomy was performed and specimen was 80g weigh. Pathology revealed Hashimoto disease.

(Case 3) 67 years old female with Hashimoto disease was admitted for thyroid tumor at right lobe with the diameter 1.2x1.0cm large, ABC revealed class3. Right thyroidectomy was performed and pathology revealed Hashimoto disease with tumor formation.

(Summary) We reported the cases of MALT lymphoma, worsening thyroiditis, Hashimoto disease with tumor formation. Hashimoto disease, though autoimmune disease, can be an indication for operation.

P-26 | **RARE HISTOLOGICAL TYPE OF PRIMARY MALIGNANT LYMPHOMA**

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Surgeons have few cases of malignant lymphoma in thyroid tumor. Primary thyroid lymphoma is clinically important. Commonly, most of histological types of primary thyroid lymphoma are MALT lymphoma and diffuse large B cell lymphoma. However hardly we have rare histological type of malignant lymphoma, and they are difficult for diagnosis and treatment.

For past three years, we experienced 3 cases of primary thyroid lymphoma. Two cases were Diffuse Large B-cell Lymphoma, and one was rare histological type, prolymphocytic T-cell lymphoma. We would like to introduce clinical procedure, diagnose and treatment of prolymphocytic T-cell lymphoma and reviews of this disease.

The case is 87-year-old woman. She noticed a bulky tumor in her neck. Then she had dysphagia and dyspnea. She was diagnosed with biopsy from lymph node. CHOP chemotherapy is not so effective but also we treated her with Leustatin and mitoxantrone. After that, the significant reduction in tumor volume was observed. She had a local recurrence in 6 months after treatment. Then she underwent radiotherapy. Radiotherapy was so effective that her neck reduced.

Prolymphocytic lymphoma was rarely reported. Prognosis of most of this disease was in 6 months. This case have survived more than 1 years.

We introduce the diagnosis, histologic subtypes, pathology, and treatment of primary thyroid lymphoma.

P-27**PRIMARY THYROID MUCOSA-ASSOCIATED LYMPHOID TISSUE (MALT) LYMPHOMA: A CLINICOPATHOLOGIC STUDY OF 7 CASES**

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Introduction: Primary thyroid mucosa-associated lymphoid tissue (MALT) lymphoma is a very rare subgroup of thyroid lymphoma, accounting for about 6-28% of all primary thyroid lymphomas.

Patients and Methods: We identified seven patients with thyroid MALT lymphoma who were treated between January 1997 and December 2007 and reviewed their clinicopathological features and follow-up outcomes.

Results: There were five female and two male patients, and their mean age was 73 years (range, 57-85 years). All patients presented with palpable neck mass. Two patients had hoarseness and dyspnea. All patients had a history of Hashimoto's thyroiditis with the mean of 175 months (range, 60-360 months). Malignant lymphoma was suspected in only three patients by using core needle biopsy. Four patients underwent thyroidectomy in the absence of preoperative pathologic confirmation, and histologic diagnosis was obtained after surgery (stage IE in five, stage IIE in two). As initial treatment, complete surgical resection was performed in five patients, radiotherapy in one, and a combination of chemotherapy and radiotherapy in one. Six patients were alive with the mean follow-up period of 66 months (ranges, 10-148) and one patient died of unrelated cause. There were neither recurrences nor disease-specific mortalities.

Conclusions: When primary thyroid MALT lymphoma occurs in the thyroid or is confined to the neck, it responds well with local treatment such as surgical resection and external beam radiation therapy.

P-28**THE IMPACT OF WELL DIFFERENTIATED THYROID CARCINOMA SURGERY ON POSTOPERATIVE QUALITY OF LIFE; PATIENT-REPORTED OUTCOMES**

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Background. Quality of life (QOL) alterations can occur after surgery for malignant diseases. Previous reports of QOL in well differentiated thyroid carcinoma (WDTC) usually focused on hypothyroidism or hormone level changes. Even though WDTC shows favorable prognosis, the impact of surgery itself on QOL is not well evaluated. **Patients and methods.** We collected 357 self-administered questionnaires from patients who had surgical treatment for WDTC. The questionnaires explored patient demographics, disease entity, self assessment of achievement in everyday activity, psychological aspects and fear of disease progression variables. The study was aimed to evaluate the impact of surgery on QOL changes of WDTC patients analyzed by patient-reported outcomes. Furthermore, QOL changes were compared according to age difference.

Results. In analysis of demographics, disease entity, self assessment of achievement in everyday activity, there was no significant differences between two age groups ($p < 0.05$). The results of psychological aspects and fear of disease progression variables were not significant to state any change on postoperative quality of life under the impact of well differentiated thyroid carcinoma surgery.

Conclusion. In this study, the patients showed stable scores in psychological aspects and fear of disease progression variables. Even though thyroid carcinoma requires surgery, patients seem to fear the disease less than other malignancies. Furthermore, patients seem to manage the disease well, with relatively no changes in QOL.

P-29**ANALYSIS OF CLINICAL OUTCOME OF PATIENTS WITH POORLY DIFFERENTIATED THYROID CARCINOMA**

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We retrospectively analyzed the outcome of patients with poorly differentiated thyroid carcinoma.

Methods: The subjects were 27 patients with poorly differentiated thyroid carcinoma who were treated in our hospital between April 1996 and March 2006. We compared with well differentiated papillary carcinoma patients (n=229) who underwent an operation in the same duration to evaluate the characteristics of the subjects.

Results: Of 27 patients, the men were eight and the women were 19. The median age was 57 and mean of primary tumor size was 3.0±1.7 cm. The primary tumor size in patients with poorly differentiated was significantly larger than that with well differentiated (p=0.0002). The histological lymph node involvement and extrathyroidal infiltration (EX) were positive in 20 (74.1%) and 15 (55.6%) patients, respectively. The presence of EX in poorly differentiated was significantly higher than that in well differentiated (p<0.05). The median follow-up time was 80 months. The recurrent rate was 34.6% in poorly differentiated (7.1% in well differentiated, p<0.05). Using Kaplan-Meier method, the recurrence-free and distant recurrence-free survival rates were significantly lower in poorly differentiated (p<0.005 and p<0.0001). At present, there was no difference of disease related death between each group. **Conclusions:** Poorly differentiated carcinoma showed poorer outcome. The distant relapse was significantly common in poorly differentiated carcinoma patients, they might be treated systematically at initial.

P-30**INTRAOPERATIVE ULTRASOUND-GUIDED LOCALIZATION OF RECURRENT PAPILLARY THYROID CARCINOMA**

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Purpose: Cervical lymph nodes are the most common site for locoregional recurrences of papillary thyroid carcinoma. When performing reoperation to resect an impalpable, recurrent cervical lymph node, accurate localization of the lesions is important. We evaluated benefits of intraoperative ultrasound-guided localization by operating surgeon.

Methods: From March 2007 to April 2009, selective lymph node dissection was performed on 31 papillary thyroid carcinoma patients who had impalpable, recurrent cervical lymph nodes. All patients were classified into two groups. Patients in group 1 were explored based on preoperative imaging. Patients in group 2 underwent additional intraoperative ultrasound-guided localization by operating surgeon. Perioperative parameters were compared in two groups.

Results: Operation time was significantly shorter for group 2 patients (p=0.048). The mean number of resected lymph nodes was higher in group 1 (n=4.30) than group 2 (n=2.75), but the rate of positive lymph nodes was higher in group 2. (p=0.042) There were no differences in the size of the largest lymph node, successful resection rate, complication rate, postoperative hospital stay between groups 1 and 2. Out of 29 patients with evaluable serum thyroglobulin, 27 patients showed less than 2 ng/ml during the postoperative period, which was 50% reduction from the preoperative level.

Conclusion: Intraoperative ultrasound-guided localization by operating surgeon is a useful technique for focused resection of impalpable, recurrent lesions in papillary thyroid carcinoma patients.

Key words: Papillary thyroid carcinoma, recurrent cervical lymph node, ultrasound-guided localization, operating surgeon

P-31

OUR MANAGEMENT OF DIFFERENTIATED THYROID CARCINOMA WITH DISTANT METASTASIS AT DIAGNOSIS

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(Purpose)

Differentiated thyroid carcinoma presenting with distant metastasis at diagnosis is rare. Total thyroidectomy, radioiodine therapy, surgical extirpation of distant metastasis are performed in these patients, but their prognosis is worse compared to that of group without distant metastasis at diagnosis.

We experienced differentiated thyroid carcinoma with distant metastasis at diagnosis, so we will report our clinical management of them.

(Method)

We have treated three patients who have suffered from differentiated thyroid cancer with distant metastasis at presentation from 2005 to 2009. One of three patients had lung and bone metastasis, the others only had bone metastasis. Total thyroidectomy, radioiodine therapy, surgical treatment of metastasis sites were performed in all three patients, and we measured serum thyroglobulin value to evaluate the efficacy of treatment.

(Result)

Serum thyroglobulin value decreased in all three patients.

(Conclusion)

Multimodality therapy including surgery and radioiodine therapy has effect on differentiated thyroid carcinoma with distant metastasis at diagnosis.

P-32

LYMPH NODE METASTASIS OF PAPILLARY THYROID MICROCARCINOMA: PREDICTIVE FACTORS

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Purpose: Despite the overall excellent prognosis for patients with papillary thyroid microcarcinoma (PTMC), these tumors are also associated with a 5% relatively high lymph node (LN) recurrence rate and the optimal surgical extent of papillary thyroid microcarcinoma has been controversial. Cervical LN metastases (LNMs) occur in about 40-65% of PTMC patients who done routinely central LN dissection (CLND). The aim of this study is to identify the factors affecting LNM in patients with PTMC.

Methods: We performed a retrospective study of 335 (294 females, 41 males) patients with PTMC who underwent total thyroidectomy or lobectomy with elective CLND at Kangnam St. Mary's Hospital between Jan. 2006 and Dec. 2008. We investigated the association of LNMs and clinicopathologic features such as sex, age, multiplicity, extrathyroidal extension, tumor size, vascular and perineural invasion.

Results: LNMs were present in 88 patients (26.3%) of them. Univariate analysis showed that the age under 45, male, multiplicity, a tumor size of greater than 5mm, thyroid capsular invasion, extrathyroidal extension and perineural invasion were predictive factors for LNMs ($P < 0.05$). Of these, the age, male, tumor size and extrathyroidal extension were independent predictive factors for LNMs on multivariate analysis.

Conclusions: A tumor size ($>5\text{mm}$), male, the age (<45), and extrathyroidal extension were determined as the predictive factors for LNMs, which occurred in about one fourth of the patients with PTMC. Therefore, elective CLND should be considered in patients with PTMC who have these factors through a thorough investigation before surgery.

P-33**INITIAL CERVICAL LYMPHNODE METASTASIS IN THE LATERAL COMPARTMENT OCCURS AS FREQUENT AS THAT OCCURS IN CENTRAL COMPARTMENT IN PAPILLARY THYROID CARCINOMA**

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There remain controversies concerning the meaning of lateral lymphnode dissection (LND) in the surgical management of papillary thyroid carcinoma (PTC). In the present study, we analyzed the pattern of initial cervical lymphnode metastasis in an aim to determine the significance of lateral LND.

Patients and Method

Cases demonstrated pathological lymphnode metastasis in only one to three nodes were analyzed from 217 PTC cases surgically treated in our institute, with routine cervical LND including central (CC) and lateral (LC) component, during the period from 2002 to 06.

Results

Thirty-six cases were corrected (M:F=5:31, age: avg.57 (20-76). tumor size: avg.18 (5-67) mm). There were 15 cases who found to have only a single metastatic node. In 6 of 15 cases (40%), a single metastatic node was found in the CC. In contrast, 9 cases (60%), it was found in LC. Eight cases were found to have 2 lymphnodes involvement. In one of 8 cases (13%), both of two nodes were found in within CC. Other 7 cases (88%) have those including LC. Thirteen cases were found to have three lymphnodes involvement. In 5 of 13 cases (38%) , all of 3 nodes were found within CC. Other 10 cases (62%) have those including LC. Thus, metastasis was more frequently involved in cervical lymphnode of LC than that in CC.

Conclusion

Initial lymphnode metastasis is more frequently occurs in LC than in CC. Surgeons should aware of this pattern of lymphnode spread when managing PTC with surgery alone.

P-34**A SINGLE-STAGE RECONSTRUCTION OF A LARGE TRACHEAL DEFECT WITHOUT A SECONDARY STAGED OPERATION AFTER A WIDE WEDGE RESECTION FOR THE TREATMENT OF INVASIVE THYROID CANCER**

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We present a single-stage procedure for the spontaneous closure of a large tracheal defect without a secondary staged operation after a conservative wide wedge resection (over 5 rings in length) for the treatment of invasive thyroid cancer.

After the removal of the cancer, the distal trachea was lifted to the proximal side. The site was then partially sutured with 3-0 absorbable sutures to reduce the size of the tracheal defect to 3 rings in length. Next, the preserved bi-pedicled infrahyoid muscles were sutured circumferentially around the reduced tracheal defect for the purpose of reinforcing the tracheal suture and separating the skin from the trachea.

The tracheal wall and the skin were sutured with a few points, so that the skin did not come in contact with the trachea. The tracheal skin stoma was located at the proper position and a tracheal cannula was inserted at the end of the operation. The tracheostomy tube was removed about one week after the operation and the stoma was covered with tape until the stoma was spontaneously closed over a period of several days.

The current method does not require any special technical expertise, long-term strict bed rest, or the additional resection of the reconstruction materials such as bone and cartilage. The temporary tracheal stoma makes postoperative management of the airway easier, enables direct observation of the suturing points, and it also closes spontaneously without a secondary operation

P-35 | JAPAN'S FIRST ROBOT-ASSISTED THYROIDECTOMY

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We herein report robot-assisted hemithyroidectomy for thyroid cancer using the gasless axillary approach.

Case: A 53-years-old male was referred to our department with a diagnosis of thyroid papillary cancer.

Operative procedure: An approximately 5-cm vertical skin incision was made to the right axilla, and a subplatysmal skin flap from the incision to the anterior neck area was dissected. After the medial border of the sternocleidomastoid muscle (SCM) was exposed, the dissection was approached through the avascular space of the SCM branches and beneath the strap muscle around the right lobe of the thyroid to expose it.

Then the da Vinci surgical system was introduced from left side of the patient. The endoscope and left robotic arm were inserted through the auxiliary incision, and the right robotic arm was inserted through another 8-mm port. The conventional endoscopic forceps used for traction of the thyroid was inserted through anterior chest port.

All dissections and ligations of vessels, the parathyroid gland, the recurrent laryngeal nerve were identified and divided individually using the robotic instruments. The thyroid gland then was dissected from the trachea, and divided between the left lobe and the isthmus. Then, central compartment node dissection was performed.

Pathological findings revealed papillary thyroid carcinoma. pT1b (12mm), pEx0, pN1a. The postoperative course was uneventful.

P-36 | FEASIBILITY AND SAFETY OF A NEWLY ADVANCED TECHNIQUE IN ROBOT ASSISTED THYROIDECTOMY-USING A GASLESS , TRANSAXILLARY APPROACH (RAA-TAA) : TRANSAXILLARY SINGLE INCISION SURGERY

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Background: Our noble procedure of the robot-assisted thyroidectomy had been performed with the two-incision system (ipsilateral axilla and anterior chest wall). With our experience and by using the advantages of robotic surgical system, we have recently developed and performed a less invasive surgical procedure; the transaxillary single incision surgery (5-6 cm) without the anterior chest wall incision.

Methods : To evaluate the feasibility and safety of this new procedure, we compared Patient's characteristics, operation types, operation times (working space times, docking times and console times), retrieved lymph nodes and complications between the new single incision (n=188) and the standard two incision (n=774) procedures.

Results : The total operation time of single-incision and two-incision robot-assisted thyroidectomies were 117.3 ± 27.7 and 135.3 ± 36.0 respectively ($P < 0.001$); working space time : 36.33 ± 11.27 vs 31.30 ± 14.97 ; $P = 0.007$, docking time : 5.76 ± 2.15 vs 5.68 ± 3.48 ; $P = 0.849$, console time : 53.55 ± 21.62 vs 56.83 ± 23.29 ; $P = 0.267$. The mean number of each retrieved lymph node were 5.09 ± 3.26 and 4.96 ± 3.58 ($P = 0.661$). There were no significant differences in tumor size or length of hospital stay between the two groups. All procedures were successfully completed without conversion to open surgery.

Conclusions : The Transaxillary single-incision robot-assisted thyroidectomy is a safe and feasible. And this less-invasive procedure could definitely provide more excellent cosmetic outcomes and comfort to the patients.

P-37

GASLESS, TRANSAXILLARY ENDOSCOPIC THYROIDECTOMY WITH OR WITHOUT ROBOT'S ASSISTANCE - THE FIRST 35 CASES

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Background:

Gasless, transaxillary endoscopic thyroidectomy (GTET) is a viable surgical option for patients wishing to be scarless in the neck. Although technically feasible, the addition of the da Vinci robotic system in GTET (or robotic-assisted endoscopic thyroidectomy) (RAET) remains questionable. Herein we report our preliminary experience of using this robotic system in GTET.

Methods:

From June 2009 to Nov 2009, 28 patients underwent GTET and 7 underwent RAET. All patients were female and the median (range) age was 46.0 (19-56) years old. Total operating time and postoperative outcome were compared between GTET and RAET.

Results:

Main surgical indications were suspicious or indeterminate FNAC (n=13), pressure symptoms (n=10), patient preference (n=7), inadequate FNAC (n=3), Graves (n=1), concomitant parathyroid adenoma (n=1) and malignant FNAC (n=1). The median size of the largest nodule and weight of each excised thyroid lobe were 2.5cm and 19g, respectively. There was a larger proportion of patients undergoing total thyroidectomy in the RAET group (5 vs 2, p<0.001). One patient in GTET (3.1%) required open conversion due to bleeding and 1 patient in GTET had postoperative cord palsy (2.6% per nerve at risk). When extent of thyroid resection was taken into account, the total median procedure time was significantly longer in the RAET (161.0 vs 121.0 mins, p=0.010).

Conclusion:

The addition of the robotic system in GTET appeared to increase the total procedure time in our early experience but both approaches were associated with acceptable morbidity.

P-38

LEARNING CURVE OF ROBOT-ASSISTED THYROIDECTOMY FOR THYROID CANCER

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Background: The learning curve means the process of gaining knowledge and skills in the field of surgical technology and is a commonly used assessment tool of training efficacy.

We already have reported the feasibility and safety of robot-assisted thyroidectomy using a gasless, transaxillary approach (RAT-TAA). In this study, we define the learning curve of a beginner surgeon and influencing factors to the learning curve for RAT-TAA.

Methods: From August 2008 to July 2009, a beginner surgeon has performed 140 cases of robotic thyroidectomy for thyroid cancer using da Vinci S robotic system. All procedures were successfully completed without conversion to the open surgery. We reviewed operation type, working space time, console time, total operation time and perioperative complications retrospectively. To evaluate the learning curve, locally weighted regression method has been used. Proficiency was defined as the point at which the slope of curve becomes less steep for operation time.

Results: 81 patients underwent less than total and 59 underwent bilateral total thyroidectomy. Mean total operation time of less than total and bilateral total cases were 135.8, 147.1min respectively. Mean working space time of less than total and bilateral total cases were 31.3, 31.2 min. Mean console time of less than total and bilateral total cases were 49.5, 72.6 min respectively. The learning curve for total operation times has made plateau after 20 cases in less than total, 30 cases in bilateral total thyroidectomy.

Conclusions: Proficiency for less than total and total RAT-TAA was achieved after 20 and 30 cases respectively.

P-39**THE EFFECTIVENESS OF ENDOSCOPIC THYROIDECTOMY IN EARLY THYROID**

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Purpose : The incidence of thyroid cancer is increasing in modern society.

The young female thyroid cancer patient is relatively high in Korea, & more cosmetic approach is required. Authors tried to investigate the effectiveness of endoscopic thyroidectomy in early thyroid cancer.

Methods : From May of 2006 to May of 2008 (for 2 years), a total of 116 patients underwent endoscopic thyroidectomy. Endoscopic total thyroidectomy was performed in 82 patients, lobectomy was performed in 24 patients, and 10 patients among the latter underwent completion thyroidectomy later.

Operation technique included bilateral axillo-breast approach under CO2 insufflation. Preoperative tumor size was under 2cm in all cases, and there was no extrathyroidal extension or lymphatic invasion in preop. diagnosis. Low dose radioactive iodine therapy was done for patients with multiple malignancies or lymphatic invasion postoperatively.

Result : A total of 106 thyroid cancer patients underwent endoscopic thyroidectomy, and acquisition number of central lymph node showed no significant difference compared to conventional thyroidectomy. Patient group with low dose RAI therapy was confirmed as not having residual thyroid tissue or lymph node invasion. And hospital days between endoscopic thyroidectomy group & conventional group showed no difference.

Conclusion : Endoscopic thyroidectomy showed no significant difference compared to conventional thyroidectomy in our study, and no recurrence or metastasis was detected after short term follow up. But multi-center, long term prospective randomized studies will be required to define endoscopic thyroidectomy as a standard operation in early thyroid cancer.

P-40**RECOVERY OF SENSATION IN THE SKIN FLAP AFTER THE BILATERAL AXILLO-BREAST APPROACH ENDOSCOPIC THYROIDECTOMY**

■ Su-jin Kim, Kyu Eun Lee, Jeonghun Lee, Do Hoon Koo, Seung Keun Oh, Yeo-Kyu Youn

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Background: The bilateral axillo-breast approach (BABA) endoscopic or robotic thyroidectomy is successfully used for various thyroid diseases with excellent cosmetic outcome. But there is little information about the manifestation and recovery of sensory impairment of the skin flap after endoscopic thyroidectomy. The aim of this study is to evaluate the sensory impairment after the BABA endoscopic or robotic thyroidectomy.

Patients and Methods: Fifty-one patients who had undergone BABA endoscopic or robotic thyroidectomy were analyzed. Semmes-Weinstein pressure threshold test was used to assess quantitatively the sensation of 19 sites in the skin flap of the chest wall. Questionnaires were used to assess patients' subjective perception of the sensation. The assessment was performed at follow-up visits (8-115 days). There were 35 cases of robotic thyroidectomy and 16 cases of endoscopic thyroidectomy. There were 45 female and 6 male patients and the mean age was 39.2 years (22-63 years).

Results: There were no significant differences in age, gender, duration of operation, method of operation, postoperative complication, breast feeding history and breast size between the patients with sensory impairment and without sensory impairment. The quantitative data showed a marked reduction of the proportion of sensory impairment after 3 months postsurgery ($p = 0.0083$).

Conclusion: It is suggested that the sensory impairment after BABA endoscopic or robotic thyroidectomy recovers after 3 months postoperatively. The outcome of this study relieves the surgeon and patient from the concerns about sensory impairment after the BABA endoscopic or robotic thyroidectomy.

Index Words: endoscopic thyroid surgery, endoscopic neck surgery, BABA

P-42 | **VIDEO-ASSISTED NECK SURGERY (VANS) FOR BENIGN THYROID NODULES**

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Endoscopic surgery has been used in operations of the neck in this decade. In particular, thyroid surgery has developed rapidly and has been increasingly refined by endocrine surgeons. The incidence of thyroid-related diseases is markedly higher in women than in men, and operations for these diseases result in a scar on the anterior neck that is exposed daily life. Therefore, a technique for endoscopic neck surgery that results in cosmetic appearance is desirable. In May 2009, our department introduced Video-Assisted Neck Surgery (VANS) that has developed by Shimizu et al. as a totally gasless surgical technique especially for thyroid tumors. Here we report the advantages and complications of VANS method comparing with conventional thyroidectomy for benign thyroid nodules.

P-43**INITIAL YUMC EXPERIENCE OF ROBOT-ASSISTED MODIFIED RADICAL NECK DISSECTION IN THE MANAGEMENT OF THYROID CARCINOMA WITH LATERAL LN METASTASIS**

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Purpose: Since the introduction of endoscopic technique to thyroid operation, several trials of endoscopic lateral neck dissection have been reported for the purpose of avoiding a long cervical scar after surgery. In this study, our initial experience of robot-assisted modified radical neck dissection (MRND) in thyroid cancer with surgical robotic system is described.

Patients and Methods: From Oct. 2007 to Oct. 2009, 995 patients have undergone robotic thyroidectomy using a gasless, transaxillary approach (RAT-TAA) for thyroid cancer. Among them, 33 patients have been performed additional robotic MRND for lateral LN metastasis. The clinico-pathologic data of the patients were analyzed retrospectively.

Results : Mean age of the patients was 37.2 ± 9.2 years and gender ratio was 7:26 (M:F). All the patients underwent bilateral total thyroidectomy with ipsilateral CCND and the underwent robotic MRND additionally. Mean operation time was 280.8 ± 40.6 min. and mean post operative hospital stay was 5.4 ± 1.6 days. Mean tumor size was 1.09 ± 0.52 cm and PTMC was in 20 cases. Mean retrieved L/N numbers are 6.1 ± 4.4 in central compartment and 27.7 ± 11.0 in lateral neck compartment. There was no serious post operative complication such as Horner syndrome and major nerve injury. There were 3 cases of minor chyle leak and all of the cases were resolved through conservative management.

Conclusions: This noble procedure of robot-assisted MRND is technically feasible, safe and cosmetically excellent. From our initial experience, the robot-assisted MRND can be the acceptable alternative as an operative method, currently in the low risk, well-differentiated thyroid cancer patients with lateral neck metastasis.

P-44**ENDOSCOPIC NECK LYMPH NODE DISSECTION FOR PAPILLARY CARCINOMA OF THE THYROID VIA ANTERIOR CHEST APPROACH**

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Objective Neck dissection requires a large incision providing adequate exposure of the surgical field. We evaluated the feasibility of endoscopic neck lymph node dissection in patients with papillary thyroid carcinoma (PTC).

Material and Methods: From January 2005 to February 2007, 16 patients with low-risk PTC underwent hemithyroidectomy and lymph node dissection at initial surgery, using a totally gasless anterior chest approach. All were women, aged 12 to 42 years, with a mean age of 30 years. All were performed enhanced CT scan of thyroid gland. In all cases, PTC was diagnosed based on ultrasonographically guided fineneedle aspiration biopsy.

Result 13 cases were performed with central neck lymph node dissection, 2 cases with the central and lateral zones were performed, 1 case was modified neck dissection. 14 cases metastases were found at frozen section examination or final histology. There were no recurrent laryngeal nerve injuries, hypoparathyroidism, or postoperative hemorrhage. **Conclusion** Our experience demonstrates the endoscopic neck lymph nodes dissection is feasible and safe. Some doubts persist about the oncologic validity of this approach. For definitive conclusions, larger series and longer follow-up evaluation are necessary to be drawn about it oncologic validity.

P-45**THE VOLUME CHANGING OF REMNANT THYROID TISSUE AFTER THYROIDECTOMY IN GRAVES' DISEASE**

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Purpose:

To investigate the factors affecting the volume of remnant thyroid tissue after thyroidectomy in Graves' disease.

Methods and Materials:

102 Patients with Graves' disease underwent subtotal thyroidectomy with regular follow-up the volume of residual thyroid tissue by ultrasonography for 1-10 years (mean 2.5years). All the thyroid remnant was less than 3 gram. The volume changing rate (defined as $V_n - V_1 / V_1$, V_1 : the first examined volume after operation) and the year-volume changing rate were studied to search the correlation with various factors, including patient's age, body weight, surface area, anti-TSH receptor antibody(ATR), THS level, anti-TPO antibody(ATPO), duration of follow-up, total thyroid volume, residual volume ratio (defined as residual volume/ total volume), follicular cell density, lymphocyte infiltration.

Results:

There are 16 (15.7 %) patients without volume changing (defined as $-7\% < \text{volume changing rate} < 7\%$) ---group A; 59 (57.8 %) patients increasing volume (defined as volume changing rate $> 7\%$) ---group B; 26 (25.5%) patients decreasing volume (defined as volume changing rate $< -7\%$) ---group C. The volume changing rate had significantly negative correlation with the patients' age, and residual volume ratio. The group C had more ATR negative patients ($P=0.048$, ATR negative 31 % in group A, 24% in group B, and 46 % in group C) than other groups. In the group C, volume changing rate had significantly negative correlation with ATR titer ($P=0.020$).

Conclusions:

In the Graves' disease, younger patients or low residual volume ratio may have higher potential to increase post-thyroidectomy residual volume, but high ATR titer may decrease post-thyroidectomy residual volume in the volume decreasing group.

P-46**FACTORS AFFECTING INTRAOPERATIVE BLOOD PRESSURE IN LAPAROSCOPIC ADRENALECTOMY FOR PHEOCHROMOCYTOMA**

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[Objective] Dramatic intraoperative changes in blood pressure may occur during laparoscopic adrenalectomy for pheochromocytoma. We retrospectively examined the influence of preoperative hypertension and preoperative management on intraoperative blood pressure changes and postoperative complications.

[Subjects and Methods] This study examined 23 patients with pheochromocytoma who underwent laparoscopic adrenalectomy at our hospital between October 2002 and May 2009. Mean age was 46.9 years (31-75 years), male/female ratio was 10/13, there were 11 left-sided and 12 right-sided lesions, and mean tumor diameter was 5.1 cm (2.0-12.0 cm). Patients were divided into an H group (n=11, intraoperative systolic blood pressure ≥ 180 mmHg) and an N group (n=12, intraoperative systolic blood pressure < 180 mmHg), and preoperative hypertension and preoperative management were examined.

[Results] Patient characteristics and preoperative management did not differ between the two groups. The following results are expressed as H group/N group. Mean tumor diameter tended to be larger in the H group (5.7/4.5 cm). Median preoperative blood catecholamine levels were: epinephrine 476/69.5 pg/ml, norepinephrine 1044/1004 pg/ml, and dopamine 24/27 pg/ml. In the H group, epinephrine tended to be slightly higher. Systolic blood pressure just before surgery did not differ (150.5/141.2 mmHg), but diastolic blood pressure was significantly higher in the H group (96.5/78.7 mmHg). Prolonged postoperative hypotension requiring catecholamine administration was more frequent in the H group (45%/17%).

[Conclusion] In patients with intraoperative hypertension (H group), tumor diameter was larger, blood epinephrine levels tended to be higher, diastolic blood pressure just before surgery was significantly higher, and prolonged postoperative hypotension was more frequent.

P-47

THE APPLICATION OF THE ALEXIS FOR PROTECTING THE SURGICAL WOUND IN THYROID SURGERY

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Background

Open thyroidectomy is generally performed through low collar incision in the treatment of thyroid carcinoma. And then, the skin incision are exposed to tumor cells or abrasion by surgical instrument. In this study, we performed thyroidectomy using Alexis for protection of surgical wound and report the usefulness of the Alexis during thyroid surgery.

Materials and Methods

From October 1, 2009, we performed 13cases of thyroidectomy using Alexis after the informed consent from the patients. We applied the Alexis to surgical wound during the thyroid surgery. It just took a few minutes. Figure 1. shows the entire procedure of Alexis application. We also described the postoperative outcome and evaluated cosmetic result at the outpatient department in brief.

Results

The Alexis was applied in 10 female and 3 male patients, with an average age of 49.7years(range, 29-68). Average patient body mass index was 25.0kg/m² (range, 20.6-29.3). There were neither dermal injury from the electrocautery nor exposure of tumor cells during the surgery. We observed no abrasion of the dermal layer soon after the operation. There were no wound infection postoperatively. There was no hypersensitivity reaction such as skin rash after the use of the Alexis.

Conclusion

The Alexis was very convenient to be applied to the surgical wound and effective to protect the surgical wound and to make the better surgical view.

P-48

ANALYSIS OF FACTORS INFLUENCING OUTCOME OF LOCALIZATION OF PARATHYROID ADENOMAS BY ^{99m}Tc-MIBI IMAGING

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(Introduction) In preoperative localization of parathyroid adenomas, overall accuracy of double-phase ^{99m}Tc-MIBI scintigraphy has been reported to be superior to that of other scintigraphic and radiological modalities. Although the sensitivity of sestamibi scanning is 70- 90% in patients with solitary parathyroid adenomas, false-negative results of ^{99m}Tc-MIBI scanning are unavoidable. (Material and Methods) 1985-2008, 122 patients underwent parathyroidectomy in our institution, and were diagnosed with a single-affected gland. Preoperatively, ^{99m}Tc-MIBI parathyroid imaging was performed in all patients. The clinicopathological characteristics were compared to determine the factors influencing the outcome of ^{99m}Tc-MIBI imaging. (Results) Eighty-four patients (69%) revealed a true positive result. The average age, BMI, glandular weight, volume, intact PTH level, oxyphil cell content and clear cell content in the MIBI-negative group and MIBI-positive group were 62.5 vs. 61.2 yrs (N.S), 22.5 vs. 22.4% (N.S), 502 vs. 1024 mg (P=0.001), 464 vs. 1239 mm³ (N.S), 204 vs. 217 pg/ml, 2.7 vs. 11.1% (P=0.006) and 61.2 vs. 39.0% (P=0.003), respectively. On multivariate analysis, gland size and clear cell content were statistically significant independent factors. (Conclusion) Some studies has reported that MIBI substrate accumulation is preferable in oxyphil cells that are rich in mitochondria and that oxyphil cell content in parathyroid tumors is also a significant influencing factor. However, this issue is still controversial. Our result showed that clear cell content has more influence than oxyphil cell content. This might be because chief clear cells may contain fewer mitochondria compared with not only oxyphil cell, but other types of chief cell.

P-49**BROWN TUMOUR IN UNSUSPECTED PRIMARY
HYPERPARATHYROIDISM MIMICKING GIANT CELL TUMOUR**

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Introduction

Brown tumour secondary to primary hyperparathyroidism is a localized bone tumour and an uncommon manifestation of hyperparathyroidism. We report a case of Brown Tumour in unsuspected case of primary hyperparathyroidism that mimicks Giant Cell Tumour of the bone.

Case Report

A 32-year old lady with no medical illness before presented with pain and swelling over the right elbow for 2 years duration. She was seen by an Orthopaedic Surgeon and was diagnosed as Giant Cell Tumour of the right radius and subsequently was scheduled for excision. However she voluntarily deferred the surgery and sought for second opinion from another Orthopaedic Surgeon from a tertiary referral centre which was immediately referred to me after suspicious of having Brown tumour. Her blood investigations revealed markedly elevated serum iPTH and calcium level. Her CT Scan neck showed ill-defined mass measuring 3x4 cm at the left lower pole of the thyroid gland, suggestive of enlarged left inferior parathyroid gland. She had parathyroidectomy done that made her calcium and iPTH level normalized. Histopathologically confirmed the mass of parathyroid adenoma. She noticed a tremendous decreased of pain and swelling over her elbow and radiologically confirmed the disappearance of osteoclastic lesions.

Conclusion

Brown tumour is an uncommon sequela of hyperparathyroidism. High index of suspicion with investigation of hyperparathyroidism may lead towards the diagnosis. Surgical resection of the Brown tumour should be spared if the mass does not regress after correction of the inciting hyperparathyroidism.

P-50**ANALYSIS OF PATIENTS WITH PRIMARY HYPERPARATHYROIDISM
(PHP) DUE TO HYPERPLASIA**

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In PHP, the adenoma of parathyroid is the most common pathology in benign tumors and hyperplasia type is minor. We retrospectively analyzed the characteristics of patients with primary hyperparathyroidism (PHP) due to hyperplasia. The enrolled subjects were initially treated in our hospital between 1990 and 2009, and entire patients were 117. Of 117 patients, 13 patients (11.1%) were diagnosed as PHP with hyperplasia (male; three, female; ten). The median age was 63 years old. The each mean±S.D. of the serum calcium, phosphate and intact PTH was 11.2±0.8 mg/dl, 1.9±0.7 mg/dl and 207.7±180 pg/ml, respectively. Before operation, seven patients (53.8%) were revealed to have multiple swellings of parathyroid glands by cervical ultrasonography. The remains were found to have multiple swellings at the operation, since they underwent ipsilateral and exploratory parathyroidectomy as a routine method. All the patients except one underwent total parathyroidectomy with autotransplantation successfully. The mean of the each largest size in the resected parathyroids was 1.8±0.9 cm. The exploratory parathyroidectomy was useful for the patients with hyperplasia who are detected a single swelling of the parathyroid.

P-51**A HEMODIALYSIS PATIENT WITH PALSY OF RECURRENT LARYNGEAL NERVE DUE TO INFARCTION OF HYPERPLASTIC PARATHYROID GLAND**

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A 59 years old male hemodialysis patient complained of husky voice due to palsy of left recurrent laryngeal nerve. He has continued hemodialysis for 19 years and suffered from moderate secondary hyperparathyroidism managed by medical treatment. He did not complained of sudden onset of neck pain and the levels of serum calcium, phosphorus and parathyroid hormone were stable. By CT and US, a nodule was detected inferior and lateral area of the left thyroid lobe and adhered to esophagus. Lymph node with metastatic papillary thyroid carcinoma was suspected. The left hemithyroidectomy and total parathyroidectomy with forearm autograft were performed. The left recurrent laryngeal nerve adhered to the nodule and could be relieved and preserved. The nodule was removed en bloc with thyroid lobe and the pathological diagnosis was infarction of hyperplastic parathyroid gland. It was speculated that mechanism of recurrent laryngeal nerve palsy was inflammatory change of the affected parathyroid gland. The husky voice was immediately improved after the operation.

Sometimes husky voice was complicated with after percutaneous ethanol injection therapy for the patients with advanced secondary hyperparathyroidism. However, in this case the palsy occurred spontaneously. It has reported that spontaneous remission of hyperparathyroidism in hemodialysis patients occurred and the incidence was rare. The inflammatory change can induce the palsy of recurrent laryngeal nerve.

We should keep in our mind the infarction of hyperplastic parathyroid gland is one of causes of recurrent laryngeal nerve palsy especially in hemodialysis patients.

P-52**VALUE OF INTRAOPERATIVE PARATHYROID HORMONE ASSAY IN MINIMALLY INVASIVE PARATHYROIDECTOMY**

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Background: Minimally invasive parathyroidectomy (MIP) has become the preferred surgical procedure in the treatment of primary hyperparathyroidism (pHPT) but the routine use of intraoperative parathyroid hormone (IOPTH) assay in MIP remains controversial. The study aimed at evaluating the value of routine IOPTH in MIP and factors which might alter its predictive value.

Patients: A retrospective review of a prospectively-collected database from June 1999 and December 2008 was performed. There were 314 patients with pHPT who underwent surgery and among them, 243 patients underwent MIP with IOPTH monitoring and 211 had at least 6 months of follow-up after surgery. A satisfactory IOPTH drop was defined as a drop in IOPTH level by > 50% at 10 mins after excision of an adenoma. Long-term cure was defined as normocalcemia at the latest follow-up.

Results: The overall cure rate was 97.6% (206/211). Among the 206 patients achieved long term cure, intraoperative parathyroid hormone assay (IOPTH) correctly predicted 187 (90.8%) patients' long term outcome. Among those cured, when clinicopathological features between those with a satisfactory IOPTH drop and those without a satisfactory IOPTH drop were compared, the latter group had significantly higher pre-operative serum creatinine level ($p=0.020$) and lower IOPTH on induction ($p=0.019$).

Conclusion: A high cure rate was achieved in the select group of patients. The IOPTH was able to predict long term cure in 90.8% of the time. Among those cured but without satisfactory drop in IOPTH, they had significant poorer preoperative renal function and lower IOPTH levels on induction.

P-53**A PRIMARY HYPERPARATHYROIDISM IN WHICH TC-99M MIBI SCINTIGRAM FAILED TO DETECT THE PARATHYROID TUMOR BUT COMPLETELY RESECTED BY VIDEO-ASSISTED NECK SURGERY**

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We report a case, a 26-year-old woman of primary hyperparathyroidism who suffered from the complications of the urethral stone attack. Serum calcium and intact parathyroid hormone (PTH) levels were elevated, and serum phosphorus level was decreased, which was consistent with primary hyperparathyroidism. Technesium-99m-methoxyisobutylisonitrile (99mTc-MIBI) scintigraphy failed repeatedly to detect any abnormal accumulations in the neck and chest, while different imaging techniques, such as cervical ultrasonography and computerized tomography could demonstrate an abnormal parathyroid gland. We could not conclude whether the abnormal parathyroid gland is worth for the surgical resection or not. As following the patient's request, we performed an operation to resect the parathyroid gland as a causation of hyperparathyroidism leading to urethral stones. Video-assisted neck surgery was performed and the surgical resection was carried out successfully, accompanied by the intraoperative quick PTH assay. Histological findings showed parathyroid adenoma. Video-assisted neck surgery was considered to be a feasible method as one of the treatments of parathyroid tumor, even though the imaging examinations could not definitively confirm the location of parathyroid adenomas. This case is thought to be valuable and we report here.

P-54**ACCURATE DIFFERENTIAL DIAGNOSIS OF PARATHYROID CARCINOMA BY DETERMINING TELOMERASE EXPRESSION**

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Introduction:

Diagnosis of parathyroid carcinoma is difficult in certain cases without typical clinical and pathological features. Telomerase activity (TA) has been detected in immortal cells, such as cancer cells, while it is inactive in normal tissues. hTERT is a catalytic subunit of telomerase, and is essential for the activation of telomerase. In this study, we have demonstrated specific telomerase activation through hTERT expression in parathyroid carcinoma.

Materials and methods:

1) TA and mRNA analysis: Seventeen adenomas, and 1 metastatic lesion of parathyroid carcinoma were examined. TA was determined based on TRAP assay. Expression of hTERT mRNA were determined by RT-PCR. 2) Immunohistochemistry (IHC) : Twenty adenomas, and 6 carcinomas, and 4 normal glands were examined by IHC.

Results:

1) Only a lesion of carcinoma was highly positive for TA and hTERT mRNA. TA and hTERT were not detected in adenoma. 2) Normal parathyroid cells were negative for hTERT by IHC. In contrast, all carcinomas were positive for hTERT with 50 to 95 % of positively stained cells. Majority (90%, 18/20) of parathyroid adenomas showed negative results for hTERT by IHC. In a case of hTERT-positive adenoma, local recurrence occurred repeatedly. This adenoma also demonstrated high Ki-67 index.

Conclusion:

TA and hTERT were suggested to be useful molecular markersto determine parathyroid carcinoma as Ki-67. Diagnosis using hTERT IHC might demonstrate more practical clinical course than with conventional pathological diagnosis. Telomerase activation through hTERT expression may play roles in parathyroid carcinoma.

Keywords:

parathyroid carcinoma, telomerase activity, hTERT expression, diagnosis,

P-55**PARATHYROID ADENOMA TREATED BY EN BLOC RESECTION :
REPORT OF 3 CASES**

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Introduction: It is often difficult to make preoperative diagnosis of parathyroid carcinoma for which en bloc resection has been advocated. We report 3 patients with primary hyperparathyroidism who underwent en bloc resection based on pre- and intraoperative findings suggestive of parathyroid carcinoma. The tumors, however, turned out to be parathyroid adenoma on histological examination.

Case1: The-25-year-old man with palpable neck mass showed moderate hyperparathyroidism (Ca 12.6 mg/dl, i-PTH 424 pg/ml). Ultrasonography (US) of the neck showed parathyroid tumor (15×12×24mm) indicating adenoma. X-ray of the hands did not revealed osteitis fibrosa cystica (OFC). A firm, grey colored tumor was found at surgery.

Case2: The-74-year-old woman with mild hyperparathyroidism (Ca 10.8 mg/dl, i-PTH 115 pg/ml) showed a small parathyroid adenoma (8×5×8mm) on the neck US. She had no OFC. Intraoperatively, we found the tumor to be firm and grey in color.

Case3: The-33-year-old man with severe hyperparathyroidism (Ca 14.4 mg/dl, i-PTH 675 pg/ml) complained of multiple joint pain. Neck US showed a large heterogenous parathyroid tumor (18×19×20mm) that was palpable. OFC was found on the hands X-ray. A soft, red colored tumor adhering to the esophagus was found at surgery.

Result: In each case, pathological diagnosis was parathyroid adenoma.

Conclusion: The decision to perform en bloc resection of a parathyroid tumor is highly dependent in endocrine surgeons' expertise. "Overtreatment" should be avoided, yet wider resection may be inevitable or even appropriate in some equivocal cases.

P-56**A CASE OF THE PARATHYROID CANCER THYROID GLAND
INVASION**

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67 years old man. The chief complaint was inferior limb lassitude and presented it from about January, 2009. Because it is not relieved, a nearby doctor has a medical check-up. Because an examination for chest MRI showed a thyroid gland tumor, this hospital internal medicine introduction has a medical check-up in a close inspection medical treatment purpose. Biochemical examination of blood showed hypercalcemia. The cervical echography evidence showed a tumor image of border Hitoshi in the inferior pole of left thyroid gland back and showed a tumor image at the same time in the inferior pole of left lobe of thyroid gland. The cervical CT showed a tumor of about 1.5cm size equally in the inferior pole of left thyroid gland back.

Also, iPTH showed 2190 and high level. It was classIIIa when it performed fine needle aspiration cytology for a thyroid gland tumor. We became the surgical introduction in a surgery purpose by diagnosis of the primary hyperparathyroidism than the above. The surgery performed parathyroidectomy and left lobe of thyroid gland resection.

In the histopathology laboratory findings, it is diagnosed Adenocarcinoma of parathyroid, and its metastasis to thyroid. The parathyroid cancer is rare for a cause of the primary hyperparathyroidism. Also, there is the thing that it often suffers from the preoperative diagnosis that parathyroid cancer is diagnosed.

P-57**TUMOR-TO-TUMOR METASTASIS: PARATHYROID ADENOMA AS A RECIPIENT OF HEPATOCELLULAR CARCINOMA**

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Metastasis of one neoplasm to another unrelated neoplasm (tumor-to-tumor metastasis) is extremely rare. The most frequent recipient tumor is renal cell carcinoma, followed by sarcomas, meningiomas, thyroid neoplasms, and pituitary adenomas. Among the donor tumors, lung cancer is the most frequent primary, followed by breast, prostate, and thyroid carcinoma. Herein, we report a case of metastasis from hepatocellular carcinoma (HCC) to parathyroid adenoma. The patient was a 52-year-old man who was diagnosed incidentally with hepatitis B-related hepatocellular carcinoma on computed tomography scan. An elevated serum calcium with a elevated parathyroid hormone (PTH) was checked on routine laboratory examination and neck ultrasonography revealed parathyroid adenoma. With clinical diagnosis of primary hyperparathyroidism and HCC, we performed hepatic segmentectomy and parathyroidectomy. The final diagnosis revealed that parathyroid mass is metastatic HCC in parathyroid adenoma. To our knowledge, this case is the first reported case with such a combination to recipient and donor tumors.

P-58**A CASE OF PARATHYROID CANCER COMBINED WITH GASTRIC CANCER**

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A 61-year-old man was presented with appetite loss and general fatigue. His history had hypertension and gastric ulcer. At first, he was diagnosed hypertension and hypercalcemia. The initial serum calcium level was elevated (15.3 mg/dl) as well as the plasma PTH levels (490 pg/ml). The laboratory tests revealed also renal impairment. Ultrasonography demonstrated normal thyroid gland and a mass (2.7 cm) in contact with the lower pole of the left lobe of thyroid gland. CT scan showed a mass behind of the thyroid and wall thickening of the stomach. The scintigraphy raised the suspicion of a hyperfunctioned right lower parathyroid gland. The gastric endoscopy revealed a giant gastric cancer, which was complicated with pyloric stenosis. He was diagnosed primary hyperparathyroidism and gastric cancer, and intended parathyroidectomy and gastrectomy, simultaneously. At the operation, a parathyroid mass which was firmly attached to the left lobe of the thyroid was detected and resected. Total gastrectomy with D2 dissection was performed. Microscopic examination revealed parathyroid cancer. And the advanced gastric cancer was poorly differentiated adenocarcinoma, which was invaded almost whole of the stomach, SE, sci, INF r, ly3, v1, P1 stage IV. Post operative course was uneventful. He has been in clinical follow-up without recurrence of these cancers. Hyperparathyroidism combined with gastrointestinal disease is well known as gastrinoma. Hyperparathyroidism combined with gastric carcinoid is also sporadically reported. However, parathyroid cancer combined with gastric cancer has never been described. This is the first case of double cancer of parathyroid and gastric cancer.

P-59**CLINICAL EVALUATION OF LAPAROSCOPIC ADRENALECTOMY: A SINGLE INSTITUTE EXPERIENCE OF 132 PROCEDURES**

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Purpose) We evaluated our experience and the outcome with laparoscopic adrenalectomy.

Summary) 132 laparoscopic adrenalectomies were performed in Kansai Medical University from July 1992 to September 2009, including 47 primary aldosteronisms, 15 Cushing syndromes, 25 Pre-Cushing syndromes, 21 pheochromocytomas, 17 non-functioning tumors and 7 other procedures. There were 57 male, 75 female with mean age of 50.3 years (range 9-83 years) and 67 right, 61 left and 4 bilateral adrenal. Mean tumor size was 29.6mm (range 5-75mm). Mean operative time and estimated blood loss (EBL) were 188.2 minutes and 55.4ml. 21 complications occurred in 17 patients, resulting in a total complication rate of 15.9%. Conversion to open surgery occurred in 1 patient (0.7%). There was no mortality. We evaluated peri-operative data of laparoscopic adrenalectomy by each disease, tumor size, between first 30 and last 30 cases. Operative time among each disease was not significant difference. But the larger tumor size, operative time and EBL have increased. Particularly it was significant difference at tumor size of more than 40mm. Mean operative time at first 30 and last 30 cases were 238.1 and 170.8 minutes. With increasing experience, operative time decrease significantly.

Conclusion) Laparoscopic adrenalectomy is effective procedure and standard for various adrenal disease. It is necessary to manipulate with attention because EBL is trend to increase in case of large tumor size regardless a kind of adrenal disease.

P-60**CLINICAL OUTCOME OF LAPAROSCOPIC ADRENALECTOMY AT KYORIN UNIVERSITY**

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Objectives: The objective of this study was to present the clinical outcomes of 104 patients who underwent laparoscopic adrenalectomy at our institution.

Patients and methods: A total of 104 patients with adrenal tumor underwent laparoscopic adrenalectomy in our institute between 1994 and 2009. A laparoscopic transperitoneal approach was used in 102 cases and retroperitoneal approach in 2 cases. Underlying pathologies comprised Cushing syndrome ($n = 19$), pheochromocytoma ($n = 13$), primary aldosteronism ($n = 32$), non-functioning adenoma ($n = 35$) and others ($n = 5$).

Results: 95 laparoscopic adrenalectomies were finished successfully, and open surgery was necessary in 9 cases. There was no operative mortality. Mean operative duration was 241 min, and mean estimated blood loss was 167 mL. Tumor diameter was significantly larger for pheochromocytoma than for primary aldosteronism and non-functioning adenoma. No significant differences in operative time and estimated blood loss were noted between benign tumors.

Conclusions: Laparoscopic adrenalectomy for adrenal tumor offers excellent surgical outcomes and convalescence.

P-61

LAPAROSCOPIC ADRENALECTOMY. COMPARING INITIAL AND LATE EXPERIENCE

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Introduction:Laparoscopic adrenalectomy has been shown to be the gold standard treatment for most adrenal tumors with learning curve reported to be between 20 to 40 cases.We aim to evaluate our experience with trans-peritoneal laparoscopic adrenalectomy (TP), comparing our first 25 cases with subsequent cases.We also looked into our recent series of retro-peritoneal laparoscopic adrenalectomy (RP) and single port adrenalectomy (SP).**Patients and Methods:**Data were collected retrospectively on patients with laparoscopic adrenalectomy performed from 1996 to 2009.This included patient's demographics, disease characteristics, operative details and complications.We compared our first 25 cases of TP (Group A) with the remaining 62 cases of TP (Group B) performed during the study period.We also reported on our initial experience with retro-peritoneal and single port approaches.**Results:**Patients in Group B were older, with mean age of 51 years as compared to 44 years.Conn's disease consisted the majority of the cases in both groups (69% in Group A and 62% in Group B). The mean size of resected specimen in Group B was larger, 5.9cm versus 4.7cm (p 0.003). Mean operative time (106 versus 120 mins) and hospitalization stay (2.7 versus 3.3 days) appeared to be shorter in Group B but were not statistically significant.Conversion to open surgery occurred in 12% of Group A but 0 cases in Group B (p 0.02).There was no peri-operative mortality in both groups.We performed 7 cases of RP and 5 cases of SP with comparable results with TP.**Conclusion:**Surgical results of laparoscopic adrenalectomy improved with experience.Initial series of RP and SP showed promising results.

P-62

LAPAROSCOPIC ADRENALECTOMY: SAPPORO EXPERIENCE OF 110 PROCEDURES

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Objectives: Laparoscopic adrenalectomy is established as the standard procedure for surgical treatment of adrenal tumors. In this study, we retrospectively analyzed our experience with laparoscopic adrenalectomies.

Materials and Methods: From November 1995 through May 2008, 110 laparoscopic adrenalectomies were performed in Sapporo Medical University Hospital. There were 49 cases of primary aldosteronism adenoma, 24 cases of Cushing adenoma, 11 cases of pheochromocytoma, including 1 MEN IIA, 21 cases of clinically nonfunctioning adrenocortical adenoma and 4 cases of other types. All procedures except for two were performed by the trasperitoneal approach.

Results: Two cases (1.8%) needed conversion to open surgery due to a port site hernia and port site bleeding. The median operative time was 152 (range, 70-354) minutes. The median blood loss was 15 (range, 0-1200) ml. After the initial 20 procedures, operative time and blood loss were all within a certain range except for a few procedures. There was no significant difference in the mean operative time among the types of adrenal pathology. On the other hand, the mean blood loss for pheochromocytomas (138ml) was significantly higher than for primary aldosteronism adenomas (29ml). The clinical characteristics of cases in which the blood loss was over 100ml were right adrenal tumors and/or pheochromocytoma.

Conclusions: Laparoscopic adrenalectomy is a safe and minimally invasive procedure for the surgical treatment of adrenal tumors. However, we should pay careful attention to patients with right adrenal tumors and/or pheochromocytoma because of the higher risk of bleeding.

P-63**CUSHING'S SYNDROME DUE TO BILATERAL ADRENOCORTICAL ADENOMAS**

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Objective: To describe surgical approaches and outcomes for patients with Cushing's syndrome due to bilateral adrenocortical adenomas (BAA).

Materials: Between 1981 April and 2009 October, we carried out adrenalectomy on 216 patients with Cushing's syndrome. Four patients (1.9%) had BAA causing Cushing's syndrome.

Case 1: A 50-year-old woman with bilateral adrenal tumors (right, left: 2.6 cm, 1.4 cm). Since NP-59 scintigraphy showed right adrenal uptake, she underwent right total adrenalectomy and could discontinue steroid supplementation at 22th month. 4 years later, she showed up with recurrent hypercortisolism which was subsequently cured by left partial adrenalectomy. Supplementation of steroid hormone was stopped at 48 month after the second operation.

Case 2: A 37-year-old woman with bilateral adrenal tumors (2.2 cm, 2.0 cm) showing bilateral NP-59 uptake. She underwent laparoscopic right partial adrenalectomy along with left total adrenalectomy. She was able to discontinue steroid supplementation at 13th month.

Case 3: A 36-year-old woman had bilateral adrenal tumors (2.0 cm in both) that were positive for NP-59 scintigraphy. She received laparoscopic bilateral partial adrenalectomy and could stop taking hydrocortisone 10 months later.

Case 4: A 62-year-old woman was found to have bilateral, functional adrenal tumors (2.5 cm, 2.3 cm) by CT scan and NP-59 scintigraphy. She underwent laparoscopic bilateral partial adrenalectomy and is still on steroid supplementation at 6th month.

Conclusion: Cushing's syndrome due to BAA is a rare but distinct clinical entity. Laparoscopic surgery is a feasible and useful approach in an attempt to preserve cortical function while resecting adrenal tumors.

P-64**IMMUNOHISTOCHEMICAL EXAMINATION FOR ALDOSTERONE-PRODUCING ADENOMAS AND CORTISOL-PRODUCING ADENOMAS**

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Objective: Aldosterone synthase (CYP11B2) and steroid 11beta-hydroxylase (CYP11B1) catalyze the terminal steps for syntheses of aldosterone and cortisol, respectively, determining the functional differentiation of human adrenocortical cells. We recently established an immunohistochemical method for detecting CYP11B2 and -B1. The aim of this study is to visualize the pathological conditions of these adenomas.

Methods: An immunohistochemical analysis using antibodies specific to either human CYP11B2 or -B1 was performed with formalin-fixed paraffin-embedded sections of 22 APAs, and 6 CPAs after antigen retrieval. The two types of adenomas had been confirmed based on the Endocrine Society clinical practice guidelines of primary aldosteronism and Cushing's syndrome.

Results: The 22 APAs were found to contain cells expressing CYP11B2 but not -B1 with varied populations: 91-100% in 6; 51-90% in 8; 11-50% in 6; <10% in 2. Cells negative for CYP11B2 but positive for -B1 and those negative for both CYP11B2 and -B1 were also observable in most of the APAs. The cell populations expressing CYP11B2 appeared to be inversely correlated with the tumor sizes and with the cell populations expressing CYP11B1. In the 6 CPAs, CYP11B1 was entirely expressed in the adenoma, whereas CYP11B2 was not detected.

Conclusions: This immunohistochemical method for detecting CYP11B2 and -B1 thus made it possible to visualize the pathological conditions of these adenomas. Therefore, the method was found to be useful for the pathological confirmatory diagnosis for APAs and CPAs.

P-65**ADRENOCORTICAL CARCINOMA. OUR INSTITUTION'S EXPERIENCE**

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Introduction: Adrenocortical carcinoma is rare malignancy with an estimated incidence of 1-2 per million per year. We report on our institution's series of 7 patients with adrenocortical carcinoma diagnosed from 2002 to 2008.

Patients and Methods: Data were collected retrospectively on patients diagnosed with adrenocortical carcinoma from 2002 to 2008. This included patient's demographics, disease characteristics, operative details and long term outcome.

Results: There were a total of 7 patients, 3 females and 4 males, with mean age of 57 years. Majority of the patients (57%) presented with mass related symptoms while 2 patients (29%) presented with Cushing's syndrome. 71% of the patients were classified as stage 3 or 4 by the time of presentation. All underwent adrenalectomy with 1 case performed laparoscopically. Mean operating time was 215 minutes (range 150 to 340 minutes). Mean size of tumor was 14cm (range 5 to 22cm). Mean hospitalization stay was 11 days (range 2 to 27). There were no major post operative complications or peri-operative mortality. Mitotane was started in 6 of the patients. 71% (n=5) of patients developed local or distant recurrence within mean follow up of 30 months (range 5 to 84 months) after initial surgery. 3 of the 7 patients died during the follow up period with a median survival of 36 months. (range 4-94 months).

Conclusion: Adrenocortical carcinoma is an uncommon disease presenting either with symptoms related to excess steroids or mass effect. Many presented late with either stage 3 or 4 disease. Surgery is recommended for resectable disease. However, it is usually associated with high recurrence and poor prognosis.

P-66**SEVEN CASES OF ADRENOCORTICAL CARCINOMA**

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Background: Adrenal cortex carcinoma is a relatively rare condition with generally poor prognosis in progressive cases. We treated 7 patients with adrenal cortex carcinoma at our institution between January 2003 and December 2009. We report herein the outcome of all patients and the clinical course of one patient in whom combined paclitaxel and carboplatin therapy was effective.

Patients: Patients comprised 2 men and 5 women aged between 34 and 80 years (57.6 ± 13.6 years) at first examination. Three of the 7 patients died from the malignancy within 5 months post-examination despite administration of mitotane. One patient in whom surgery was not feasible was still alive 40 months post-examination with progressive disease (PD) under mitotane therapy. Three patients had no evidence of disease (NED) following surgical treatment. A female patient of 49-year old with initially inoperable carcinoma who had continued PD despite oral treatment with mitotane. Weekly paclitaxel/carboplatin therapy (70 mg/m² paclitaxel, AUC5 carboplatin) was started and complete remission (CR) of pulmonary metastasis and partial remission (PR) of the primary lesion was achieved after 3 cycles. Therefore, left adrenalectomy and concurrent renal resection were performed after 10 cycles. Mitotane was then readministered and no recurrence or metastases were observed at 13 months postoperatively.

Discussion: Although surgery constitutes the basic treatment for adrenal cortex carcinoma, the present study confirmed the value of mitotane in unresectable cases. The present findings also suggest the efficacy of weekly paclitaxel/carboplatin therapy for second-line chemotherapy in cases of mitotane-resistant adrenal cortex carcinoma.

P-67 | LAPAROSCOPIC ADRENALECTOMY FOR PHEOCHROMOCYTOMA

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PURPOSE: To investigate the factors that affect the operative data and to evaluate the validity of a laparoscopic adrenalectomy (LA) for pheochromocytoma.

PATIENTS AND METHODS: Between July 1993 and November 2009, 192 LAs were performed in this department, and 39 of them were for pheochromocytoma. The characteristics and operative data of LAs for pheochromocytoma were examined with respect to the intraoperative systolic blood pressure (SBP) and the side of tumor.

RESULTS: The intraoperative SBP rose to 180 mm Hg or more in 50% cases of LAs for pheochromocytomas. The analysis of SBP (<180 versus >180 mm Hg), however, showed that there were no differences in the operative data between the two groups. The tumor size was significantly associated with operative time ($P < 0.05$) or the blood loss ($P < 0.05$) in an LA for pheochromocytoma. In a comparison of the operative data between pheochromocytoma and other adrenal tumors, the tumor was larger (4.3 versus 2.5 cm) and the blood loss was greater (100 versus 30 mL) than for other adrenal tumors.

CONCLUSIONS: The operative data showed no correlation with the intraoperative high SBP, but they were associated with the tumor state. Although the procedure seems to be influenced by the size and state of tumor, LA is not contraindicated for pheochromocytoma, and it can therefore be performed safely.

P-68 | FEASIBILITY OF LAPAROSCOPIC ADRENALECTOMY FOR SURGICAL MANAGEMENT OF PHEOCHROMOCYTOMA

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Although laparoscopic adrenalectomy was initially regarded as a contraindication for surgical management of pheochromocytoma, due to development of surgical skill and perioperative patient care, the safety of this procedure for pheochromocytoma has been much improved.

Between April 1999 and June 2009, 15 consecutive patients with hemilateral adrenal pheochromocytoma were undergone laparoscopic adrenalectomy at our institution. There were 9 males and 6 females, and average age was 51.6 years old. Eleven cases revealed either continuous or paroxysmal hypertension, while 4 cases were asymptomatic. Average tumor diameter was 41.8 (range 5-80) mm. Doxazosin mesilate was prescribed in all patients and was increased gradually up to 8-16 mg/day for 2-5 months preoperatively. Extracellular fluid was continuously administrated for 24 hours prior to the surgery (100 ml/h).

Laparoscopic adrenalectomy was performed via transperitoneally in all cases. Average operative time and blood loss was 209.8 min and 178.3 ml, respectively. No case underwent open conversion and required blood transfusion. Pathological examination revealed 4 of 15 cases were extraadrenal paraganglioma. Comparing with the results of laparoscopic adrenalectomy for cortical adenomas ($n=75$), there were trends that pheochromocytoma showed larger tumor diameter, longer operative time and more blood loss. In addition, there was a statistically significant difference in operative time between adrenal medullary pheochromocytomas and extraadrenal paragangliomas (162 vs. 341.3 min).

Although it requires advanced surgical skill and intensive perioperative care, laparoscopic adrenalectomy seems to be a safe and effective alternative for surgical management of pheochromocytoma.

P-69**MALIGNANT PHEOCHROMOCYTOMA RESPONSIVE TO LOW DOSE
CVD CHEMOTHERAPY : A CASE REPORT**

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We report the case of 73 year-old female with para-aortic lymph-node metastasis 50 months after the initial surgery for right adrenal pheochromocytoma. Partial resection of metastatic lymph nodes followed radiation therapy was performed. But after surgery and radiation, the serum catecholamine level was increased and CT scan revealed enlarged lymph nodes and liver metastasis. The patient received palliative low dose CVD (cyclophosphamide, vincristine, dacarvazine) chemotherapy on an out-patient clinic every 3~4 weeks. The metastatic tumor was markedly reduced in size and showed complete response (CR) after 20 course of chemotherapy. No significant side effect was observed with remarkable improvement of clinical symptoms. Low dose CVD regimen is considered effective chemotherapy for metastatic malignant pheochromocytoma.

P-70**LAPAROSCOPIC ADRENALECTOMY FOR PREOPERATIVE
EQUIVOCALLY MALIGNANT PHEOCHROMOCYTOMA : REPORT OF
TWO CASES**

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Diagnosis of malignant pheochromocytoma is occasionally difficult to confirm using any preoperative imaging studies. Open surgery is necessary for resection of malignant pheochromocytomas preoperatively confirmed with gross infiltration of adjacent structures, lymph node or distant metastasis. However, laparoscopic approach is a treatment of choice for resection of pheochromocytoma in equivocal cases. We report two patients with pheochromocytoma proven to be malignant by histopathological examination after laparoscopic adrenalectomy.

Case 1: A 75-year-old woman with longstanding hypertension was found to have left adrenal pheochromocytoma in diameter of 3.8 cm, with cystic degeneration by CT and MRI. Case 2: A 65-year-old woman with hypertension and diabetes mellitus was found to have left adrenal pheochromocytoma measuring 4.9 cm in diameter. In the latter case, the tumor suspected to be potentially malignant because of its irregular shape and adherent sign to the left renal vein. ¹³¹I-MIBG scan showed a strong accumulation at the left adrenal tumor alone in both cases. They underwent laparoscopic adrenalectomy, and we found no evidence of malignancy during surgery. Histopathological diagnosis was highly suspicious of malignant pheochromocytoma in case 1, due to increased cellularity, cellular monotony, tumour cell spindling, large confluent nests, macronucleoli, in addition to highly immunoreactivity for MIB-1 labeling index of 5%. In case 2, pheochromocytoma was proven to be unequivocally malignant because of the peritumoral infiltration. Follow-up period of our patients were very short (7 months and 1 month), none developed recurrence. Long-term treatment outcome will be mandatory for evaluation of validity of this surgical procedure.

P-71

LEFT ADRENOCORTICAL CARCINOMA EXTENDING INTO THE INFERIOR VENA CAVA AND RIGHT ATRIUM: REPORT OF TWO CASES

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Adrenocortical carcinoma (ACC) is a rare and aggressive malignancy with a poor prognosis. We present two cases of left adrenocortical carcinoma with intravascular tumor extension into right atrium. Both patients presented insidiously with abdominal mass and pain associated with notable weight loss. Adrenal hormonal studies were unremarkable. Computerised tomography (CT scan) of abdomen and thorax showed the large left adrenocortical carcinoma with extension of tumor thrombus into right atrium. Echocardiography confirmed the tumour thrombus in the right atrium. A combined abdominal and cardiac surgery was undertaken in both cases. The postoperative recovery was uneventful in both patients and they were subsequently started on mitotane therapy. The presence of intravascular tumour extension into the IVC and right atrium should not be considered as a contraindication to surgery as it provides the only hope of long term survival.

P-72

LAPAROSCOPIC RESECTION OF PANCREATIC NEUROENDOCRINE TUMORS

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Background:

Reports on laparoscopic resection for pancreatic neuroendocrine tumors (pNETs) remain scarce. The study aimed at reviewing our experience with laparoscopic resection in pNETs.

Methods:

From 1998 to 2009, 23 patients with pNETs underwent laparoscopic resection. There were 12 men and 11 females, including 3 patients with MEN 1 syndrome. The median age of patients was 53.0 years. All had laparoscopic intraoperative ultrasonography (LIOUS) before resection.

Results:

There were 17 insulinoma and 6 non-functioning tumors (2 were malignant). All except for 1 were single tumor located at the head (n=4), body (n=10) and tail of the pancreas (n=8). Of the 17 insulinoma, 5 had enucleation (LE), 7 had spleen-preserving distal pancreatectomy (LSPDP), 3 had distal pancreatectomy with splenectomy (LDPS), 1 had LE + LSPDP and 1 had LE + LDPS. Of the other 6 non-functioning tumors, 1 had LE, 1 had LSPDP, 3 had LDPS and 1 had subtotal pancreatectomy without splenic preservation. Three patients had concomitant procedure including 1 laparoscopic liver resection for a PPoma solitary metastasis. Overall, 4 patients had LE at the head and overall splenic preservation rate was 52.9%. Three patients (13.0%) required open conversions: 1 due to failed localization and 2 due to dense adhesions. There was no hospital mortality and pancreatic fistula occurred in 3 patients (13.0%) with 1 requiring reoperation. The median hospital stay was 8.0 days.

Conclusion:

Laparoscopic resection is safe and feasible in pNETs. With greater experience, LE at the head as well as splenic preservation during DP became increasingly possible.

P-73

TWO PATIENTS WITH VIPOMA, WE SUCCEEDED IN CURATIVE SURGICAL RESECTION

■ Izumi Komoto, Syuichi Ota, Wataru Hirata, Takahiro Nishio, Kenta Isoda, You Mizukami, Atsushi Harada, Mikiko Ueda, Tomika Harada, Yukito Adachi, Kiyoshi Hirai, Masayuki Imamura

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Introduction: VIPomas are very rare pancreatic neuroendocrine tumors. We experienced two patients with VIPoma.

Patients: Case 1 is 74 years-old female. She suffered from watery diarrhea. She came to our hospital and hypokalemia and high serum VIP level (1980pg/ml) were pointed out. We diagnosed her thr WDHA syndrome and treated her with Octreotide Acetate before surgery. Vascular-rich tumor, its diameter was 25mm, was detected in the tail of the pancreas by CT scan and US. Selective arterial secretagogue injection test (SASI test) with calcium was positive when calcium was injected into the splenic artery. We diagnosed that VIPoma was located in the tail of the pancreas. Distal pancreatectomy was performed. Case 2 is 82 years-old female. She suffered from large-volume watery diarrhea and renal failure. Before treated with long-acting Octreotide Acetate, her serum VIP level was 1420 pg/ml. A small vascular rich tumor was detected in the pancreas head by CT scan. SAG or SASI test were not useful in this case. Under the diagnosis of pancreas head VIPoma, we performed enucleation of pancreas-head tumor. In both cases, after surgery, the serum VIP level returned to the normal and diarrhea stopped instead of give up treatment with Octreotide Acetate.

Conclusion: We experienced two patients with VIPoma, to whom we performed curative surgical resection successfully. One of these cases, SASI test was useful to diagnose the location of VIPoma. SASI test with calcium may have chance to help the localization VIPoma, similar to gastrinomas or insulinomas.

P-74

MANAGEMENT OF INSULINOMA

■ P.S. Venkatesh Rao

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Introduction (Purpose):

Various techniques of Localization & laparoscopic enucleation of Insulinoma are discussed in this presentation which includes a video.

Summary:

The techniques of Localization include:

1. Ultrasound/ CT scan/ MRI/ EUS
2. Angiography
3. Percutaneous trans-hepatic venous sampling (PTHVS) of insulin from pancreatic veins
4. Selective Intra-Arterial Calcium Stimulation with Hepatic Venous Sampling
5. Somatostatin receptor scintigraphy, PET, PET-CT
6. Per-operative ultrasound

Laparoscopic approach to enucleation of Insulinoma depended on location of Insulinoma.

Conclusion:

Most Insulinoma can be successfully enucleated laparoscopically. Adverse location of an Insulinoma or lack of localization may require pancreatic resection or open surgery.

P-75 | FOCAL EXCISION OF ADULT NESIDIOBLASTOSIS

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Introduction (Purpose):

Diffuse and focal forms of Nesidioblastosis are well known cause of persistent neonatal hypoglycemia. However, very few cases of Nesidioblastosis have been described in adults, and these are presumed to be of diffuse type, and surgical treatment has been near-total pancreatectomy. Three adults underwent Focal excision of Nesidioblastosis by a single surgeon for symptomatic hypoglycaemia.

Materials and methods:

The surgical records of patients who were operated on for Insulinoma / Adult Nesidioblastosis by a single endocrine surgeon at three different hospitals over a 10 year period were evaluated retrospectively. All patients in whom a single Insulinoma was localized by CT / MRI scan underwent Laparoscopic/Open enucleation. In three adult patients the lesion was not seen on imaging. Percutaneous trans-hepatic venous sampling (PTHVS) of insulin was used successfully in localizing the occult source of hyperinsulinism. These three underwent Focal excision of Nesidioblastosis i.e. the entire pancreas was mobilized and examined at laparotomy and a small (about 1 cm) piece of Pancreas that corresponded to the target area and looked and felt different from the rest of the gland was excised and the biopsy showed Nesidioblastosis. Those, in whom the source of hyperinsulinism could not be localized, probably had diffuse Nesidioblastosis and were managed conservatively.

Summary of Results:

Two of the patients who underwent Focal excision of Nesidioblastosis are asymptomatic over a follow up of 5 and 3 years and the last is lost to follow up. The second of these patients had a pancreatic leak which was successfully treated with an internal pancreatic drain. All patients who underwent (Laparoscopic/Open) enucleation of Insulinoma are asymptomatic over a follow up of 11 to 1 ½ years.

Conclusion:

There is a subset of adult hypoglycaemic patients with Focal Nesidioblastosis who can be effectively treated by excision of the focus of hyperinsulinism in a small (about 1 cm) part of the Pancreas. Percutaneous trans-hepatic venous sampling (PTHVS) of insulin from pancreatic veins can be used successfully in localizing the occult source of hyperinsulinism in these patients.

P-76 | OUTCOME OF RETROPERITONEOSCOPIC LIVING DONOR NEPHRECTOMY IN OBESE DONORS

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BACKGROUND AND OBJECTIVE:

The applicability of retroperitoneoscopic living donor nephrectomy (RPLDN) has not been assessed in obese donor. In order to assess the safety, feasibility and usefulness of RPLDN in obese donors, we reviewed and compared the outcomes of RPLDN in between obese and non-obese donors.

METHODS:

Of 425 patients underwent live donor renal transplants, retrospectively collected data of 68 donors with a body mass index (BMI) over or equal 25 kg/m² who underwent RPLDN were compared. One hundred ninety-one donors with a BMI \leq 22 kg/m² served as controls. Study variables included operative time, blood loss, warm ischemic time (WIT), score for adhesion of perirenal fat (SAPF), hospital stay, early graft function. SAPF was ranged from 0 to 3 (0: no adhesion, 3: severe change). Complications were classified modification of the Clavien classification system.

RESULTS:

Mean BMI in obese donors was 27 kg/m² (range from 25 to 31). There was significant difference between control and obese group regarding operative time (mean 300 vs 346 min, P<0.0001), blood loss (mean 45 vs 71 g, P=0.0004), and SAPF (mean 0.28 vs 0.76, P<0.0001). However, the results of early graft function and complication in obese group was similar with that in control group.

CONCLUSIONS:

Although operative time in obese donors was longer than that in non-obese donors due to the strong adhesion of perirenal fat, excellent donor safety and allograft function were obtained with RPLDN in obese donors.

P-77**CONCOMITANT SURGERY WITH RETROPERITONEOSCOPIC ADRENALECTOMY AND LIVING DONOR NEPHRECTOMY: A CASE REPORT**

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Routine live donor evaluations reveal unexpected silent pathologies, and heretofore, there have been few reports of concomitant surgery with live donor nephrectomy. Herein, we describe a case report of treating adrenal gland mass at the time of retroperitoneoscopic living donor nephrectomy (RPLDN).

Sixty-four-year-old woman was found to have a 2 X 1.5-cm enlargement of the left adrenal gland mass on three-dimensional spiral CT angiography interpreted as a cortical adenoma. There were no clinical symptoms for functional adrenal tumor. Her body mass index was 21 kg/m². Predonation biochemical work-up of the mass was negative. After discussion of the relative merits of surgical vs. conservative management, the patient requested that the lesion be removed at the time of organ procurement. The patient underwent standard 3-ports placement of left RPLDN, and then retroperitoneoscopic exploration and removal of the adrenal gland. Operative time was 265 min, with a blood loss of 27 g. There were no postoperative complications. Length of postoperative stay in the hospital was 3 days. The pathology showed an adrenal cortical adenoma and no evidence of malignancy. The serum creatinine level of recipient at 7 days after transplantation was 1.01 mg/dl.

Although indication for concomitant surgery with donor nephrectomy should be carefully considered, simultaneous surgical interventions at the time of retroperitoneoscopic live kidney donation are safe and can be undertaken in selected cases.

P-78**RETROPERITONEOSCOPIC RADICAL PROSTATECTOMY IN A RENAL TRANSPLANT PATIENT**

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Introduction: We report a case of retroperitoneoscopic prostatectomy for localized prostate cancer in a renal transplant recipient.

Patients & Methods: A 52-year-old man presented with Gleason 4+3 localized prostate cancer with a prostate-specific antigen level of 21.16 ng/ml. He had a history of end-stage renal failure secondary to diabetes mellitus nephropathy. Renal allograft transplantation in the right iliac fossa was performed in July 2006, with adequate renal function while continuing his immunosuppressant regimen. We modified our surgical procedure as all ports placed to left side compared to the standard port site to provide adequate access without allograft injury. We could not find severe adhesion in pelvic space.

Results: The patient did not need any perioperative blood transfusion. The final pathology report revealed pT3a Gleason 9 (4+5) disease and positive surgical margins on the apex. Then he undertook adjuvant radiotherapy. After radiation therapy, a serum PSA level decreased rapidly to less than 0.01 ng/ml. His PSA level has been undetectable and his renal function has been stable.

Conclusions: Retroperitoneoscopic radical prostatectomy is technically feasible and acceptable as a minimally invasive treatment in the carefully selected renal transplant recipient with localized prostate cancer.

P-79 | TWO CASES OF BLADDER PARAGANGLIOMA

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We report our experience with two cases of bladder paraganglioma.

Case 1: The patient was a 43-year-old woman in whom hystero-myoma was found on detailed tests performed for anemia at another clinic. She was referred to our hospital after subsequent MRI showed a bladder tumor (size, 20 mm). Cystoscopy revealed a submucosal bladder tumor, and the patient was hospitalized. Based on transurethral bladder biopsy, the tumor was pathologically diagnosed as a paraganglioma. During biopsy, systolic blood pressure temporarily increased to the 190's, and the patient had a headache and vomited. Partial cystectomy was performed based on the diagnosis of bladder paraganglioma. No relapse has been observed at one year postoperatively.

Case 2: The patient was a 58-year-old man who presented with asymptomatic macroscopic hematuria and was hospitalized after a bladder tumor (size, 10mm) was detected on cystoscopy. Transurethral resection of the bladder tumor was performed, and the tumor was pathologically diagnosed as a paraganglioma. No intraoperative changes in blood pressure were observed.

Discussion: In the present two patients, biopsy and surgery were performed without preoperatively diagnosing the tumor as paraganglioma. In the first patient, although transient, hypertensive crisis was induced by biopsy, and this is a potentially serious symptom. Although tumor resection is the cornerstone of treatment, in cases of submucosal bladder tumors it is necessary to consider the possibility of paraganglioma when performing tests and surgery.

P-80 | A CASE OF JUXTAGLOMERULAR CELL TUMOR (RENINOMA) OF THE KIDNEY TREATED WITH LAPAROSCOPIC PARTIAL NEPHRECTOMY

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A 23-year-old woman was referred to our hospital with persistent hypertension for 5 years irrespective medication. Her blood pressure on admission was 210/130 mm HG. Biochemical evaluation revealed hypo-potassium (2.7 mEq/l) and high concentration of plasma rennin activity (20.6 ng/ml/h).

An abdominal computed tomography scan showed 1cm iso-density, weak contrast enhancing solid mass in the right kidney cortex. Magnetic resonance imaging (MRI) with and without gadolinium showed a well-defined iso-intensity mass in the right kidney by T1 weighted image. The mass showed low intensity in fat saturation T2 weighted image with weak contrast enhancement, and high intensity in diffusion MRI. This MRI finding was suggestive to reninoma.

Although selective venous sampling failed to show any significant difference in the rennin activity between right and left renal vein, it was highly suspected that this kidney tumor was producing rennin. After getting a written informed consent, the right kidney tumor was removed by laparoscopic partial nephrectomy.

The tumor was well-capsulated and its cutting surface was white. Histological and immunohistochemical examinations revealed that the tumor had inconspicuous nuclear morphism and plenty of rennin granules in the cytoplasm.

Two hours after tumor removal, the concentration of plasma rennin and aldosterone were normalized. In a few days after operation, her blood pressure had been normalized.

Reninoma should be considered when hypertension is uncontrollable with hypo-potassium. As far as we know, only 89 cases of reninoma have been reported. This is the 2nd patient who was successfully treated with laparoscopic partial nephrectomy.

P-81**RECOVERY OF MENSTRUATION AFTER LONG-TERM CHEMOTHERAPY AND ENDOCRINE THERAPY IN PREMENOPAUSAL PATIENTS WITH BREAST CANCER**

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Background: A luteinizing hormone-releasing hormone (LH-RH) agonist and tamoxifen (TAM) are used in hormonal therapy following pre- and post-operative chemotherapy in premenopausal advanced breast cancer patients who are positive for hormone receptors. However, it remains to be clarified how often patients recover menstruation after long-term LH-RH agonist plus TAM therapy. In this study, the incidence of menstruation recovery after therapy was examined.

Methods: The subjects included 73 premenopausal breast cancer patients who were positive for hormone receptors and had undergone surgery at our institution. They were treated with four cycles of the CEF regimen and four cycles of docetaxel (Doc) before surgery as adjuvant chemotherapy. Thereafter, they were treated with an LH-RH agonist plus TAM for 24 months and followed to determine menstruation recovery.

Results: Menstruation resumed in 14 cases (19.2%) after the last LH-RH agonist treatment session. It took 7.5 ± 2.7 months for the patients to recover menstruation. The rate of menstruation recovery was 45.5% in patients aged 40 years or younger and 7.8% in those aged 41 years or older; the difference was significant. The period until menstruation recovery tended to be longer in older patients at the end of treatment.

Conclusion: The menstruation recovery rate after therapy was higher in younger women. However, since ovarian function may be lost even in younger patients, the potential consequences of this therapy should be fully explained beforehand to patients who may wish to become pregnant.

P-82**PREDICTION OF TREATMENT RESPONSE TO DOCETAXEL ADMINISTERED FOR METASTASIS AND RECURRENCE BY MEASURING CYP3A4 EXPRESSION IN A PRIMARY BREAST CANCER LESION**

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Background: Docetaxel (DOC) is metabolized by CYP3A4, so when tumors express high levels of CYP3A4, a treatment response to DOC can hardly be expected. In recurrent breast cancer, tissue samples are sometimes hard to obtain just before treatment because of the difficulty in accessing the tumor. In this study, CYP3A4 expression levels in the primary lesion were measured by immunohistochemistry and compared with the treatment response to DOC in cases of recurrence.

Methods: A total of 42 breast cancer cases that underwent surgery and had metastasis and/or recurrence were treated by DOC (60 mg/m², triweekly). Tumor samples resected at surgery were immunostained for CYP3A4 and its expression levels were compared with the response rate to ongoing DOC treatment.

Results: Patients with CYP3A4-negative tumors (n=19) by immunohistochemistry showed a significantly higher response rate (63.2%) to DOC treatment than did those with CYP3A4-positive tumors (n=23) (26.1 %). The predictive value, negative predictive value, and diagnostic accuracy of CYP3A4 expression in the prediction response to DOC were 63.2%, 73.9%, 68.6%, respectively.

Conclusions: Measuring CYP3A4 expression levels by immunohistochemistry in the primary breast cancer lesion was useful for predicting the treatment response to DOC when the tumor recurred after a long interval.

P-83 | WHAT IS BENEFITS IN ENDOSCOPIC BREAST SURGERY

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Minimally invasive Technique improved not only cosmetic results in breast conserving surgery. We performed 142cases of endoscopic breast surgery. Patient selection: Patients with the tumor, which was within 3cm, N0 or N1 were selected. Method :Our method consist of Video-assisted total or partial mastectomy and Endoscopic axillary lymph node dissection. Video-assisted mastectomy consists of 3step. 1st step is Skin flap formation by using subcutaneous tunnel method. Visiport is inserted into subcutaneous layer for making tunnels. The vessels are dissected and collected into septum between tunnels, septum were dissected by LCS. 2nd step is dissection of fascia of pectoralis major by using dissecting balloon. 3rd step is Mastectomy, Mammary gland was completely dissected from skin and fascia by LCS. After partial mastectomy, defect was plugged by cellulose. Endoscopic axillary dissection consist of 2step, 1st step :VISIPOINT is inserted behind of Major pectoral muscle.Visiport was changed to dissecting balloon, and inflate 15times by using squeeze pomp as attachment. After space making in axilla, axillary lymph nodes were dissected by endoscopic technique, or by sliding window method.

Results: We performed 142cases of breast conserving surgery with Level 2 axillary dissection. The shapes of breast after surgery were almost well. No rehabilitation was required. Only 1.4% of edema and disturbance of motility of arm were observed. We should be thinking about oncoplastic surgery in breast cancer, edema and motility of arm were one of the important cosmetic factors. In this point, endoscopic breast surgery should be included in the option of therapeutics of breast surgery.

P-84 | ENDOCRINE DISEASE AND OBESITY

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