

Factor	B	SE	p	exp(B)	95%CI
Age(by year)	-0.017	0.009	0.056	0.984	0.97-1.0
T1(reference)	-	-	0.088	-	-
T2-3	0.014	0.407	0.973	1.014	0.46-2.25
T4	0.552	0.413	0.181	1.737	0.77-3.9
Male gender	0.973	0.313	0.002	2.645	1.43-4.89
DWBS performed	1.882	0.373	<0.0001	6.568	3.16-13.63

Methods. Patients with intermediate and high risk non-metastatic differentiated thyroid carcinoma, who had bilateral thyroidectomy and ablation with ^{131}I , with consequent normal serum Tg levels (<1.0 ng/ml) for at least one year, and who afterwards had increase of suppressed serum Tg (>2 ng/ml). Cohort A underwent RAI treatment after a positive DWBS, but if negative they were observed, till persistent elevation of Tg levels prompted a new DWBS with positive results; cohort B had RAI treatment without DWBS. Main outcomes were frequency of second recurrences (RR) and Disease-free survival (DFS), which were analyzed using the logistic regression and Cox models. Diagnostic accuracy of DWBS in biochemical recurrences was determined.

RESULTS. 115 patients were included; 74 and 41 patients were included in cohort A and B, respectively. There were 85 women (73.91%) and 30 men (26.08%); mean age was 60 years (Standard deviation [SD] 15.7, range from 19 to 93). Surgical complications after total thyroidectomy were: hypoparathyroidism and recurrent laryngeal nerve lesion in 34 (29.6%) and 16 (13.9%) cases respectively. Average postoperative ablation dose was 137 mci (5069 MBq) and 153 mci (5661 MBq), in groups A and B, respectively. Non-diagnostic direct administration of ^{131}I resulted in positive uptake in 40 (97.5%) patients. DWBS sensitivity, specificity, negative and positive predictive values (PV) were: 31%, 100%, 9.6% and 100% respectively. Diagnostic accuracy was 36.4%. Recurrence and DFS factors significant in bivariate analyses were age, gender, T and N classification, differentiation grade, RAI ablation dose, and DWBS. Logistic regression analyses for RR showed age, T, N classification, DWBS and differentiation grade as independent factors $p < 0.05$. Final DFS Cox model is shown in Table ($p < 0.001$)

Conclusion. Sensitivity and negative PV of DWBS are low. Therapeutic dosage of ^{131}I in presence of biochemical recurrence of differentiated thyroid carcinoma has very high uptake rate. This therapeutic modality is associated to lower frequency of recurrence and better DFS.

Conflict of interest: No conflict of interest.

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COMPARISON OF TRANSORAL ENDOSCOPIC AND OPEN SURGERY IN THYROID CANCER BY SINGLE SURGEON

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Background. Transoral endoscopic thyroid surgery vestibular approach (TOETVA) is a promising thyroid surgery technique that does not leave any scar. However, there is little report on TOETVA in thyroid cancer surgery. In this study, the surgical outcome of thyroid cancer patients who underwent open thyroidectomy and TOETVA were compared, and the oncologic safety of TOETVA in cancer patients was assessed.

Materials and methods. This study consisted of thyroid cancer patients who underwent TOETVA or open thyroid surgery in a single institution between January and December 2017. A total of 178 thyroid surgeries (110 open, 60 TOETVA and 8 Robot BABA) were performed by a single endocrine surgeon. After excluding benign, Graves' disease, recurrence operation, completion, MRND and preoperative vocal cord palsy patients, 64 open surgery group and 54 TOETVA group were included in the analysis. Baseline clinicopathologic characteristics and parameters of surgical outcome were compared for all patients, lobectomy patients and total thyroidectomy patients between the open surgery and TOETVA groups.

Results. Age, gender, tumor location and main tumor size were not different between open and TOETVA group. Total thyroidectomy was

preferred in open surgery (19 versus 45) than TOETVA (37 versus 17). In lobectomy comparison, TOETVA showed longer operation time (84.47±22.62 versus 111.08±34.13 min, $p < 0.001$), more blood loss (22.37±34.66 versus 57.57±65.92 ml, $p = 0.036$) and higher postoperative 1-day VAS (visual analog scale) pain score (2.63±0.76 versus 3.14 ± 0.77, $p = 0.016$). Retrieved central lymph nodes (3.89±3.30 versus 3.03 ± 3.30, $p = 0.313$) and postoperative 2-day VAS score (2.53±0.62 versus 2.81±0.88, $p = 0.233$), transient and permanent vocal cord palsy were not different. In total thyroidectomy, TOETVA represented longer operation time (95.44±23.69 versus 141.47±36.35 min, $p < 0.001$) but Estimated blood loss (13.56±21.65 versus 48.24±74.43 ml, $p = 0.076$), retrieved central nodes (6.18±4.74 versus 5.35±3.35, $p = 0.448$), VAS score in postoperative 1 (2.78±0.77 versus 2.94 ± 0.75, $p = 0.1$) and 2-days (2.42±0.50 versus 2.53±1.01, $p = 0.424$) were not different. Transient hypoparathyroidism was low in TOETVA (28 versus 16, $p = 0.014$). Permanent hypoparathyroidism and vocal cord palsy were not different. Postoperative 3 months Tg level (0.31±0.94 versus 0.24±0.34 ng/ml, $p = 0.701$) and stimulated Tg level before first RAI (4.96±15.83 versus 0.76±1.16 ng/ml, $p = 0.241$) was not different. Percentage of stimulated Tg level below the 1.0 was 66.7% (7/14) in open and 62.5% (5/3) in TOETVA.

Conclusions. This is the first study to demonstrate the oncologic feasibility of TOETVA on the thyroid cancer patients by comparing outcome, including in particular similar post-operative mean stimulated Tg levels, and surgical completeness to open thyroidectomy.

Conflict of interest: No conflict of interest.

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TOWARDS INTRA-OPERATIVE RESECTION MARGIN ASSESSMENT USING NEAR INFRARED HYPERSPECTRAL IMAGING IN SQUAMOUS CELL CARCINOMA OF THE TONGUE

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Background. Patients with early stage squamous cell carcinoma of the tongue are generally treated with surgery. Surgeons aim to remove the tumor with a margin of healthy tissue, to ensure optimal local control and prognosis. However, in up to 85% of the patients, the margins are considered inadequate and a successive surgery is required to remove residual disease. Especially the deep resection margin challenges complete tumor removal.

In this study, we are evaluating whether hyper spectral imaging (HSI) is feasible for intra-operative assessment of the deep resection margin. In HSI, the tissue is illuminated with light, which is partially absorbed and reflected by different components in the tissue. Our hypothesis is that components in tumor tissue reflect light differently compared to healthy tissue making HSI a promising technology for the detection of tumor tissue at the deep resection margin.

Materials and methods. Since our focus is on the detection of tongue cancer at the deep resection margin, we compared tongue tumor tissue with healthy tongue muscle tissue, rather than healthy tongue mucosal tissue. To obtain a surface with both tumor and healthy muscle tissue, the pathologist cleaved the freshly resected specimen through the middle of the tumor. This surface was scanned by the HSI camera. For each pixel of the hyperspectral image, a measure of the diffuse light reflectance was acquired (wavelength range of 900-1700). After precise registration of the HSI image with the corresponding histopathology slide, the data could be used in a machine learning analysis to develop a model that can predict the measured tissue type.

Results. Fourteen fresh surgical specimens of squamous cell carcinoma of the tongue were included in this study. A total of 820 pixels containing light reflectance spectra obtained from tongue tumor and 679 pixels from healthy tongue muscle tissue were selected from the HSI images. A simple linear classifier as a model to predict the measured tissue type. Prior to testing the performance of the model on the data obtained from one patient, the model was trained on data obtained from all other patients. Training and testing of the model was repeated in such a way that every patient was used to test the model once. Mean sensitivity and specificity of the light reflectance spectra in detecting tongue tumor tissue were 86% ± 6

and 77% ±10, respectively.

Conclusions. Near infrared hyperspectral imaging can discriminate tongue tumor tissue from healthy tongue muscle tissue in an *ex vivo* setting. Future work will firstly focus on increasing the data set to improve the results.

Conflict of interest: No conflict of interest.

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SHORT-TERM AND LONG-TERM OUTCOMES OF J-POUCH VS SIDE-TO-END VS END-TO-END COLORECTAL ANASTOMOSES AFTER TOTAL MESORECTAL EXCISION FOR RECTAL CARCINOMA: A RANDOMIZED TRIAL

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Background: randomized trial was conducted to analyze outcomes of different type colorectal anastomoses after low anterior resection for rectal carcinoma.

Method: From 2015 to 2017, patients with rectal carcinoma were randomized to J-pouch (JP), side-to-end (SE) and end-to-end (EE) anastomosis. Preventive ileo- or colostomy were formed in all the patients. Stoma closure was carried out in 2-6 month after surgery. Intraoperative peculiarities, postoperative complications rate, functional results and quality of life according to Wexner score, LARS score, FIQL were assessed in 3, 6, 12 months after surgery.

Results. 90 patients with rectal carcinoma T2-4N0-2M0 were randomized. In JP, 8 patients were withdrawn due to technical reasons, 7 converted to EE and 1 – to SE. One patient was converted from SE to EE group. As a result, 22 patients were recruited in the J-pouch group, 30 patients – in side-to-end anastomoses and 38 in end-to-end anastomoses group. Laparoscopic approach increases time of operation in comparison to open, irrespective on type of anastomosis (230 and 180 min, $p=0.001$). Postoperative complications developed in 13,6%, 16,7% and 34,2% in JP, SE and EE, respectively ($p=0.705$). Anastomosis leakage rate was similar (4,5%, 3,3% and 7,9%, accordingly, $p>0.05$).

Wexner, LARS score and "Coping / behavior" of FIQL at 3, 6 and 12 months showed significantly better results for J-pouch compare to SE and EE. In 12 months, there were no difference between SE and EE according to Wexner score and FIQL, but LARS score. SE showed tendency towards better results in comparison to EE.

With anorectal manometry, the maximum tolerated volume was significantly higher in 3, 6, 12 months in J-pouch vs SE and EE (160 vs 138 vs 121 ($p <0.0001$), 190 vs 169,5 vs 155 ($p <0.0001$), 223 vs 184 vs 168 ml ($p <0.0001$), respectively).

Conclusions. J-pouch shows better functional results in 3-12 months after surgery, albeit technically is more demanding. Side-to-end reconstruction also can be preferred.

Conflict of interest: No conflict of interest.

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WHOLE BLOOD GENE EXPRESSION PROFILING IN PATIENTS UNDERGOING COLON CANCER SURGERY IDENTIFIES DIFFERENTIAL EXPRESSION OF GENES INVOLVED IN IMMUNE SURVEILLANCE, INFLAMMATION AND CARCINOGENESIS

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Background. Surgery is included in any curative treatment strategy for solid cancers. Growing evidence supports that the stress, related to cancer surgery, might increase the risk of residual cancer in otherwise curatively treated cancer patients. The aim of this study was to identify changes in transcription of genes involved in immune surveillance, inflammation and carcinogenesis after surgery in a cohort of patients undergoing curatively intended laparoscopic colon-cancer surgery.

Material and methods. Patients undergoing elective, curatively intended laparoscopic surgery for colon cancer stage I-III UICC were included

in the study. Patients followed standard of care. Whole blood gene expression profiling (WBGEP) was performed on the day prior to surgery and 1, and 10-14 days after surgery. Samples were collected in Paxgene tubes and labeled cDNA was fragmented and hybridized to Affymetrix GeneChip™ 2.0. Results were corrected for multiple hypothesis testing using the false discovery rate. Pathway analysis was performed through the Molecular Signature Database. Paired fold changes of gene expression were calculated for post-operative compared to pre-operative samples.

Results. WBGEP of 33,804 genes in 26 patients showed more than 6000 significantly differentially expressed genes between samples from the day prior to surgery and the day after surgery. Pathway gene enrichment analysis showed a downregulation of immunologically relevant pathways. There was a significant downregulation of genes involved in T-cell receptor signaling, antigen presentation, NK-cell activity and IFN- γ signaling after surgery. Furthermore, there was an upregulation of cytokines related to metastatic ability and growth.

Conclusion. Whole blood gene expression profiling revealed dysregulation of genes involved in immune surveillance, inflammation, and carcinogenesis after curatively intended laparoscopic colon cancer surgery.

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RETURNS TO SURGERY AND FAILURE TO RESCUE AMONGST COLORECTAL CANCER PATIENTS FOLLOWING MAJOR RESECTIONAL PROCEDURES – THE PICTURE ACROSS ENGLAND 2009-2014

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Background. Major resectional surgery remains the mainstay of treatment for colorectal cancer (CRC). Returns to theatre after surgery, and failure to rescue (FTR) are used as indicators of quality of care. This population-based study used administrative data to quantify returns to surgery and FTR in CRC patients across England. It assesses differences between key patient groups, variation over time and across NHS trusts.

Materials & Methods. Using linked National Cancer Registration and Hospital Episode Statistics data, CRC patients undergoing a major resection, between 2010-2014, were identified. Details of returns to theatre within thirty days of resection were extracted. FTR was calculated as deaths within 30 days of primary resection in those who were returned to theatre.

Results. Of 118,714 patients undergoing a major resection, 8.2% returned to theatre at least once within 30 days. Returns were more common in patients with rectal tumours (10.9%) than patients with either colonic (7.1%) or rectosigmoid (8.2%) tumours. Returns were less common in the elderly (6.76%), and more frequent in men (9.4%).

Nationally, returns remained stable between 2010-2013 but fell to 7.4% in 2014. In contrast FTR has fallen each year from 9.5% in 2010 to 7.3% in 2014. Between Trusts, returns to theatre ranged from 2.5%-14.6% (IQR 2.2), and FTR from 0-23.3% (IQR 3.2).

Conclusions. Both returns to theatre and FTR can be estimated from national administrative data for CRC patients, and show trends in time and between patients and Trusts. This demonstrates the utility of both as indicators of quality of care in England.

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BARRIERS TO ORGANIZED MAMMOGRAPHY SCREENING PROGRAM IN HUNGARY: A QUESTIONNAIRE-BASED STUDY OF 3 313 WOMEN

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