

Abstract

A-1-1 Prognostic significance of adipose tissue radiodensity in gastric cancer patients.

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Background: Body composition is predictive in cancer patients, but the impact of adipose tissue (AT) radiodensity on the prognosis of gastric cancer (GC) is unclear. Thus, we measured the impact of AT radiodensity on overall survival (OS) and recurrence-free survival (RFS) in GC.

Methods: We retrospectively analyzed 230 patients with GC who underwent radical resection between June 2016 and December 2020. Subcutaneous AT (SAT) radiodensity, visceral AT (VAT) radiodensity, and skeletal muscle index (SMI) were assessed in pre-operative computed tomographic images.

Results: The overall three-year OS and RFS rates were 86.2% and 82.7%, respectively. Patients were divided into two groups based on SAT radiodensity, VAT radiodensity, and SMI. High SAT radiodensity, high VAT radiodensity, and low SMI showed a poor prognosis (three-year OS: 72.8%, 77.5%, and 72.7%, respectively; three-year RFS: 70.6%, 76.6%, and 71.1%, respectively). In the multivariable analysis of SAT, pStage \geq II, low SMI, and high SAT were factors for poor OS ($P < 0.001$, 0.007, and 0.037, respectively). In the multivariable analysis of VAT, age ≥ 75 years, pStage \geq II, low SMI, and high VAT remained factors for poor OS ($P = 0.038$, < 0.001 , 0.020, and 0.010, respectively). Combining AT radiodensity and SMI, patients with high SAT and low SMI and those with high VAT and low SMI had the worst three-year OS (50.6% and 66.7%, respectively).

Conclusion: High SAT and high VAT were independent factors for poor OS in GC patients after gastrectomy. Combining AT radiodensity and SMI improved prognostication. Further research is needed on the relationship between GC and AT radiodensity.

A-1-2 Clinical factors of postoperative diarrhea in minimally invasive surgery for gastric cancer

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Purpose: Postoperative diarrhea (PD) remains one of the significant complications. Only a few studies focused on PD after minimally invasive surgery. We aimed to investigate PD after minimally invasive gastrectomy for gastric cancer.

Methods: Consecutive 1476 gastric cancer patients who underwent laparoscopic or robotic gastrectomy between 2009 and 2019 at our institution were retrospectively reviewed. PD was defined as continuous diarrhea for ≥ 2 days, positive stool culture, or positive clostridial antigen test. The incidence, causes, and related clinical factors were analyzed.

Results: Of the 1476 patients, the median age was 69 years. Laparoscopic and robotic approaches were performed in 1072 (72.6%) and 404 (27.4%), respectively. Postoperative complications with Clavien–Dindo classification grade of \geq IIIa occurred in 108 (7.4%) patients. PD occurred in 89 (6.0%) patients. Of the 89 patients, *Clostridium difficile*, enteropathogenic *Escherichia coli*, and methicillin-resistant *Staphylococcus aureus* were detected in 24 (27.0%), 16 (33.3%), and 7 (14.6%) patients, respectively. Multivariate analysis revealed that age ≥ 75 years (OR 1.62, 95% CI [1.02–2.60], $p = 0.042$) and postoperative complications (OR 6.04, 95% CI [3.54–10.32], $p < 0.001$) were independent risk factors for PD. In patients without complications, Total gastrectomy (TG) (OR 1.88) and age of ≥ 75 years (OR 1.71) were determined as independent risk factors.

Conclusion: The incidence of PD following minimally invasive gastrectomy for gastric cancer was 6.0%. Older age and TG were obvious risk factors in such a surgery, with the latter being a significant risk even in the absence of complications.

A-1-3 Feasibility of EFT-CSS in ex vivo porcine models

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Introduction: Endoscopic full thickness resection (EFTR) is a minimally invasive procedure in which the gastrointestinal tract is resected and sutured using only a flexible endoscope. Suturing is performed by hemoclip, loop-snare-clip (LC), and OTSC (Over The Scope Clip), but no commonly accepted technique exists.

Objective: To investigate the feasibility of procedure “endoscopic full-thickness continuous suturing with stay suture” (EFT-CSS; Uesato et al. Endoscopy. 2023) with double-ended needle using the SutuArt® (Olympus) needle holder for endoscopic hand suture.

Methods: In the EFT-CSS, the suture needle is a double-ended needle with V-loc180 (Covidien) cut at 10 cm and joined at the cut ends, and all layers were continuously sutured. Experiment 1) Using the hemoclip, LC, OTSC, and EFT-CSS with the porcine stomach specimens with a 3cm diameter circular defect, closure was performed three times each, and the mean values of maximum tension were compared using a traction machine. Experiment 2) Using SutuArt®, a intestinal model (WetLab) with a 3cm diameter circular defect was continuously sutured three times each on an aluminum plate with a double-ended needle and an single-ended needle to verify (1) suture time (2) damage caused by scratches on the plate.

Results: Experiment 1) maximum tension (Newton: N) was 26.02 (EFT-CSS), 19.87 (OTSC), 5.35(LC) and 3.07 (hemoclip). Experiment 2) (1) The mean time(single-ended / double-ended) was $34.78 \pm 1.47 / 35.06 \pm 2.43$ minutes. (3) The ratio of the wound to the area(single-ended / double-ended) was $1.25 \pm 0.31\% / 0.48 \pm 0.30\%$.

Conclusion: The EFT-CSS method is superior to the single-ended in terms of strength and safety.

A-1-4 A case of laparoscopic distorsion release for small intestinal axis torsion with chylous ascites.

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A man in his 70s was brought to the emergency room chiefly complaining of lower abdominal pain and vomiting while at work. On arrival, his temperature was 37.6°C, blood pressure was 160/95 mmHg, and pulse was 79 beats/min. His abdomen was flat and soft, with tenderness in the lower abdomen, but without signs of peritoneal irritation. Blood tests revealed a mildly elevated inflammatory response with WBC 10,700/ μ L and CRP 0.2 mg/dL. Abdominal contrast CT scan showed torsion of the mesentery and dilatation of the small intestine, but there was no obvious evidence of intestinal ischemia. Intestinal volvulus was suspected, and although there were no findings of ischemia, the possibility of exacerbation was high, so emergency surgery was performed. Observation of the abdominal cavity revealed white milky ascites. The cecum was dilated and rotated inward, and the mesentery of the small intestine was rotated counterclockwise by 180 degrees.

After release of the volvulus, edematous changes were noted in the small intestine and mesentery, but as there were no findings suggestive of intestinal ischemia, the operation was completed without intestinal resection. The patient had a good postoperative course and was discharged from hospital 13 days after surgery.

Volvulus of the small intestine around its axis is a relatively rare disease, and early diagnosis is important because delay in treatment can be fatal. We report a case of small intestinal volvulus associated with chylous ascites, in which the volvulus was released and repaired laparoscopically, and briefly review the literature.

A-1-5 Outcomes of adjuvant chemotherapy and establishment of a novel cell line for small bowel adenocarcinoma

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Background: Small bowel cancer is very rare, and small bowel adenocarcinoma (SBA) accounts for 40% of all small bowel cancers. The prognosis is poor, with a 5-year survival rate of 14%–33% for all patients and 40%–60% for those who are curatively resectable. There are only a few reports on multidisciplinary treatments including adjuvant chemotherapy in SBA. We report five cases of jejunal adenocarcinoma that were treated with adjuvant chemotherapy. In addition, we established an SBA cell line SiCry-15X as a research infrastructure for the development of optimal drugs and therapies.

Result: Three patients were male and two were female, with a median age of 67 years. Laparotomy was then performed in all cases, employing partial resection with lymph node dissection. Pathological staging in all cases was as follows: stage IIB in two cases, stage IIIA in one case, and stage IIIB in two cases. In all cases, the regimen for adjuvant chemotherapy was selected based on the colorectal cancer guidelines. No serious complications arose from adjuvant therapy. No recurrence was observed in any of the cases, and all the patients survived. The cell line was established from patient-derived xenograft of SBA. The 50 % inhibitory concentrations of 5-fluorouracil, paclitaxel, irinotecan, oxaliplatin, and cisplatin for SiCry-15X were 104.05, 0.24, 63.3, 146.55, and 49.29 μ M, respectively.

Conclusions: The favorable outcomes were achieved in cases with adjuvant chemotherapy for SBA. In the future, we will elucidate pathogenesis of SBA using SiCry-15X.

A-2-1 Clinical practice of AERO stent placement for Tracheoesophageal fistulas

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Background: Tracheoesophageal fistulas (TEFs) are severe complications associated with the progression or treatment of esophageal cancer, frequently leading to pneumonia and poor prognosis. AERO stents have been utilized in the management of TEFs, but reports on their efficacy and safety are limited.

Patients and methods: The clinical course of four patients with esophageal cancer who underwent placement of the AERO stent for TEFs was retrospectively studied. The characteristics of the patients and outcomes of AERO stent placement in the airway between 2016 and 2021 were reviewed.

Results: All four patients had no indication for esophageal stenting for TEF derived from esophageal cancer - two after radiotherapy and esophageal dilatation, one with an anastomotic leak in the reconstructed gastric tube, and the other with complete esophageal obstruction. The length of fistulas ranged from 1.1 to 3.0 cm and were managed with stents placed in the trachea or left main bronchus under rigid bronchoscopy. No complication of the stent placement was observed. This treatment allowed one patient to resume oral intake and chemotherapy; two patients had their fistulas closed and oral intake resumed after AERO stenting followed by double stenting with esophageal stents; one patient did not recover oral intake, but the pneumonia was improved. Three patients eventually returned home. The survival after stent placement ranged from 56 to 187 days.

Conclusion: Placement of the AERO stent for TEF was safe and would potentially contribute to improving general condition.

A-2-2 A case of refractory anastomotic stenosis after esophageal cancer surgery

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A case of 55-year-old man was diagnosed with middle thoracic esophageal cancer (cT1bN0M0, cStage I), and underwent thoracoscopic esophagectomy with three field lymph node dissection and gastric tube reconstruction via the retrosternal route in Z, 20XY. Anastomotic leakage occurred after operation, but it improved with conservative treatment, and the patient was discharged on postoperative day 65.

Follow-up endoscopy in Z+3 revealed residual esophageal flexure and anastomotic stenosis, so rigid bougie was frequently performed, but there was little improvement, and esophageal stent placement was performed in Z+4. It was removed in Z+7, but restenosis occurred, was re-inserted in Z+11. Oral intake was possible, but reflux symptoms appeared. Therefore an esophageal stent with a reflux prevention valve was inserted in Z+19. He suffered from frequent swallowing pain that required opioid pain control and damage to the mucosal surface due to the long-term placement of the stent. The symptoms gradually worsened, and CT showed abscess around the left clavicle, which was thought to be a micro perforation of the esophagus. Endoscopic extirpation was attempted to improve the patient's condition, but was difficult. The patient underwent the cervical esophagectomy and thoracoscopic partial gastrectomy with free jejunum reconstruction in Z+25. Anastomotic leakage was occurred, but it improved with conservative treatment, and he was discharged on postoperative day 47. The dysphagia have improved, and the patient is now able to take oral intake. The patient is currently undergoing outpatient follow-up.

A-2-3 SIRT1 as a Predictive Biomarker for Chemoradiotherapy Response in Esophageal Squamous Cell Carcinoma

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Background: A critical clinical challenge is identifying highly accurate biomarkers in predicting response to chemoradiotherapy (CRT) in patients with esophageal squamous cell carcinoma (ESCC). The protein SIRT1, recognized for its implications in longevity, has been suggested to act as a tumor promoter in ESCC. However, data regarding the correlation between SIRT1 and CRT sensitivity has yet to be reported. In this study, we investigated the relationship between SIRT1 expression and CRT sensitivity, concurrently assessing the effect of SIRT1 knockdown on radiotherapy (RT) sensitivity in ESCC.

Methods: The study included 73 patients who underwent radical esophagectomy after CRT. The evaluation of SIRT1 expression in pre-treatment endoscopic biopsies utilized immunostaining, followed by a comparative analysis of the CRT effect on surgical specimens.

Small interfering RNA (siRNA) attenuated SIRT1 expression in TE5 and TE10 cells. Following transfection, these cells underwent irradiation with varying doses (0, 3, and 6 Gy) of X-rays. Subsequently, cell viability was assessed using a CCK-8 assay.

Results: Positive SIRT1 tissue expression was significantly associated with CRT resistance ($p=0.046$). Furthermore, a significant relationship existed between high SIRT1 expression and poor overall survival (OS) ($p=0.041$).

In TE-5 and TE-10 cells, SIRT1 knockdown significantly decreased cell viability and sensitized cells to radiation treatment compared with negative control.

Conclusion: Our study reveals that SIRT1 can be a biomarker for predicting CRT treatment response, and transcriptional inactivation of SIRT1 confers heightened sensitivity to radiotherapy. Targeting SIRT1 may represent a promising strategy to increase the efficacy of radiation therapy for ESCC.

A-2-4 Expression and role of KCNB1 in esophageal cancer

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[Background]: KCNB1 (Potassium Voltage-Gated Channel Subfamily B Member 1) gene is a member of voltage-gated potassium channels, which mediate transmembrane potassium transport. Previous studies have elucidated the roles of and the mechanisms by which KCNB1 is activated in various cancer types, however, the role of KCNB1 in esophageal cancer remains poorly understood. In the present study, we analyzed the relationship between KCNB1 expression and tumor progression in esophageal cancer.

[Methods] Knockdown (KD) experiments were performed by transfecting human esophageal cancer cell lines with KCNB1 siRNA. Gene expression was assessed using microarray analysis. Samples from 129 patients with esophageal cancer were subjected to immunohistochemistry (IHC) for KCNB1, and its relationship with clinicopathological factors and prognosis was examined.

[Results] KCNB1-KD suppressed the proliferation, migration and invasion of cells and enhanced apoptosis. Cell cycle analysis showed that KCNB1-KD suppressed the progression of G2/M phase. Microarray analysis showed the up- or down-regulated expression of genes related to "Eph receptor signaling pathway" in KCNB1-KD cells.

Survival analysis showed significantly poorer 5-year relapse-free survival (RFS) in the KCNB1 high expression group by IHC (high vs low; 28.5% vs 58.1%, $p=0.0016$). The multivariate analysis identified the high expression of KCNB1 as an independent prognostic factor for 5-year RFS in esophageal cancer patients ($p=0.0197$).

A-3-1 A case of advanced breast cancer originated from Paget's disease

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Introduction: Paget's disease of the breast is a well-known form of breast cancer in which noninvasive ductal carcinoma of the breast extends to the nipple skin and forms eczema-like skin lesions. We report a case of invasive breast carcinoma that may have originated from Paget's disease.

Case Description: A 54-year-old woman had been aware of eczema and crusting on the nipple area for 4 years, but the abnormality was not detected during a breast cancer screening and was left untreated. One year ago, she visited a dermatologist who diagnosed nipple dermatitis and prescribed ointment. This time, when a ureteral stone developed, a CT scan was performed, and a right breast mass was pointed. She was referred to our department for further examination. On palpation, erosion and hemorrhage were observed over the entire right nipple areola. In addition, a hard mass of 5 cm in size was found in the breast. Needle biopsy revealed a diagnosis of invasive ductal carcinoma of the breast (ER- PgR- HER2 3+). After preoperative chemotherapy (HPDx4, ddACx1), total mastectomy and axillary dissection (level 2) was performed. The pathological diagnosis was invasive ductal carcinoma of the breast (tubule-forming type), and there was no Paget's cell proliferation.

Discussion: The long-term clinical course of the patient suggested that the tumor was probably derived from Paget's disease, but as the malignancy of the cancer cells increased, the Paget's cells may have transformed into invasive carcinoma.

A-3-2 Reliability and Validity Assessment of PRHISM (Principles for Health-Related Information on Social Media) on YouTube

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A large amount of medical information is disseminated on social media platforms (SMP).

Posting information by non-specialists is often leading to potential reliability issues. The DISCERN tool, commonly used to assess the quality of information on websites, may not be ideal for evaluating social media content, as it has already become out of date. Thus, Dennis recently introduced PRHISM (Principles for Health-Related Information on Social Media), for evaluating medical information on SMP.

In this study, we aimed to assess the reliability of PRHISM as a tool for evaluating the quality of medical information on YouTube. With permission, a Japanese version of PRHISM was created. We selected the top 60 videos using keywords such as "breast cancer," "treatment," and "chemotherapy" on YouTube. These videos were then evaluated by six certified breast cancer surgeons using the Japanese version of PRHISM. To further validate PRHISM, we conducted a subjective evaluation of each video's reliability and compared these results with the PRHISM assessments.

The findings of this study on the reliability and validity of the Japanese version of PRHISM, will be presented at the upcoming meeting. Additionally, we plan to extend our study to assess the overall quality of breast cancer treatment information on YouTube. Furthermore, a comparative analysis between the United States and Japan will be conducted to examine the differences in the situation of breast cancer information on SMP in these two regions.

A-3-3 Inter- and intra-observer variability of qualitative visual breast composition assessment in mammography among Japanese physicians

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Background: Visual assessment of mammographic breast composition remains the most common worldwide, although subjective variability limits its reproducibility. In Japan, there has been no multi-institutional observer performance study addressing this issue. This study aimed to investigate the inter- and intra-observer variability in qualitative visual assessment of mammographic breast composition through a multi-institutional observer performance study for the first time in Japan.

Methods: This study enrolled 10 Japanese physicians from five different institutions. They used the new Japanese breast composition classification system 4th edition that modified the Breast Imaging-Reporting and Data System to subjectively evaluate the breast composition of 200 patients using 400 normal bilateral mediolateral oblique mammograms twice with one-month interval. The precise sample size calculation determined the number of observers and the dataset. The primary endpoint of this study was to measure the inter-observer variability using kappa (κ) value.

Results: Inter-observer variability for the four and two classes of breast composition assessment revealed moderate agreement (Fleiss' κ : first and second reading = 0.553 and 0.587, respectively) and substantial agreement (Fleiss' κ : first and second reading = 0.689 and 0.70, respectively). Intra-observer variability for the four and two classes of breast composition assessment demonstrated substantial agreement (Cohen's κ , median [range] = 0.758 [0.578–0.916]) and almost perfect agreement (Cohen's κ , median [range] = 0.813 [0.710–0.937]).

Conclusion: Qualitative visual assessment of mammographic breast composition using the new Japanese classification revealed commendable intra-observer reproducibility. However, persistent inter-observer variability, presenting a challenge in establishing it as the gold standard in Japan.

A-3-4 NEW THERAPEUTIC APPROACH FOR MULTIPLE LUNG METASTASES OF THYROID CANCER ASSOCIATED WITH TRACHEAL INVASION OF RECURRENT TUMOR

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Tyrosine kinase inhibitor (TKI) therapies for radioiodine-refractory differentiated thyroid cancer (RR-DTC) invading the respiratory tract should be avoided due to the risk of bleeding and fistula development. Therefore, appropriate local control is required prior to introduction. We report two cases of TKI treatment for multiple lung metastases after endoscopic tumor ablation.

Endoscopic tumor ablation was performed on recurrent thyroid cancer invading the airway lumen, and SOR, which has a relatively mild tumor shrinking effect, was selected for the purpose of tumor control including multiple lung metastases. This is a new therapeutic option for lung metastasis of RR-DTC invading the respiratory tract.

A-4-1 Long-term outcomes of laparoscopic anatomical hepatectomy for HCC

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Background: Although laparoscopic anatomical hepatectomy (LAH) is widely adapted for hepatocellular carcinoma (HCC), data on its long-term outcomes are scarce.

Methods: We introduced laparoscopic anatomical hepatectomy more than sub-segmentectomy for HCC in April 2019, with a size limit of 8cm. We compared the short- and long-term outcomes between LAH and open anatomical hepatectomy (OAH) performed for HCC less than 8cm. The lateral segmentectomy was excluded from the analysis.

Result: We performed LAH in 28 patients and OAH in 107 patients during the study period. There was no significant difference in tumor size (5.0cm vs. 4.5cm, $P=0.63$) and tumor location (S7 or S8: 43% vs. 57%, $P=0.38$). Though operation time was significantly longer in the LAH group (292min vs. 268 min, $P=0.04$), LAH shows superiority in the blood loss (200ml vs. 645 ml, $P < 0.001$). There was no significant difference in the overall complications (21% vs. 32%, $P = 0.25$) and severe complications (Clavien-Dindo grade \geq III, 11% vs. 16%, $P=0.74$), but three 90-day mortalities (3%) due to liver failure were observed in OAH. The postoperative hospital stay was significantly shorter in LAH (7 days vs. 11 days, $P=0.008$). There was no significant difference in DFS (1-year: 80% vs 68%, 3-year: 46% vs. 51%, $P=0.80$) and OS (1-year: 96% vs 88%, 3-year: 96% vs. 77%, $P=0.52$).

Conclusions: LAH for HCC has favorable short-term outcomes and comparable long-term outcomes with OAH. Specifically, LAH demonstrates superiority regarding reduced blood loss and shorter hospital stays.

A-4-2 The prognostic impact of perioperative dynamic changes in cachexia index in patients with hepatocellular carcinoma

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Background: The cachexia index (CXI), which consists of skeletal muscle, inflammation, and nutritional status, has been associated with prognosis in patients with hepatocellular carcinoma (HCC). We hypothesized that dynamic changes in CXI might be associated with long-term outcomes in HCC.

Methods: This study comprised 131 patients who had undergone primary hepatic resection for HCC between 2008 and 2019. Pre-operative CXI (pre-CXI) and postoperative CXI (post-CXI) were calculated by the following formula: skeletal muscle index x serum albumin level / neutrophil-to-lymphocyte ratio. Pre- and post-CXI were classified into two groups (high vs. low). We retrospectively investigated the association of perioperative dynamic changes in CXI with disease-free and overall survival.

Results: In multivariate analyses, negative HBs-antigen ($p=0.02$), high serum PIVKA-II level ($p<0.01$), poor tumor differentiation ($p=0.02$), multiple tumors ($p<0.01$), microvascular invasion ($p<0.01$), partial resection ($p<0.01$), postoperative complications ($p<0.01$), and low-pre-CXI ($p<0.01$) were significant predictors of disease-free survival, while high ICG_{R15} ($p=0.01$), poor tumor differentiation ($p<0.01$), multiple tumors ($p=0.01$), postoperative complications ($p<0.01$), low-pre-CXI ($p<0.01$), and low-post-CXI ($p<0.01$) were significant predictors of overall survival. Low-post-CXI was associated with older age ($p=0.045$), larger tumor ($p<0.01$), longer operation time ($p=0.047$), greater intraoperative bleeding ($p<0.01$), and intraoperative blood transfusion ($p<0.01$). Moreover, dynamic changes in CXI were associated with overall survival in each subgroup of patients with low-pre-CXI ($p=0.02$) or high-pre-CXI ($p=0.03$).

Conclusions: Not only post-CXI but also dynamic changes in CXI from pre- to post-hepatectomy can be a prognostic indicator of HCC, providing a compelling rationale for aggressive perioperative nutritional and physical interventions to improve long-term outcomes.

A-4-3 Significance of para-aortic lymph node sampling for perihilar cholangiocarcinoma patients.

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Aim: Prognosis of para-aortic lymph node (PALN) metastasis of perihilar cholangiocarcinoma that classified as distant metastasis is worse. However, it is still controversial whether PALN metastasis should be considered an unresectable factor, and the significance of PALN sampling remains unclear. In this study, we report a treatment strategy using PALN sampling in perihilar cholangiocarcinoma and clarify its significance.

Methods: Among 202 patients of perihilar cholangiocarcinoma whom we treated from April 2008 to March 2020, 133 patients who underwent PALN sampling were included in this study. We compared clinicopathological factors between the two groups of 119 PALN-negative cases and 14 PALN-positive cases.

Results: No significant difference was observed in the number of #16b1 inter lymph nodes identified on preoperative on preoperative CT scan (PALN- vs. PALN+: 2 (1-3) vs. 2.5 (2-3), $P = 0.175$) and the largest diameter (PALN- vs. PALN+: 8.4 (3.9-22.0) vs. 8.6(6-15), $p = 0.849$). Only two patients (14.3%) in the PALN+ group were positive in preoperative PET-CT scan. MST was 42.8 months in the PALN- group and 14.3 months in the PALN+ group, with the PALN+ group having a worse prognosis ($p < 0.01$). Six patients in the PALN+ group underwent surgery due to uncontrolled cholangitis, and the prognosis did not improve compared to the remaining eight patients (6.95 months vs. 18.0 months, $p = 0.954$).

Conclusion: PALN metastasis was a significant poor prognostic factor in perihilar cholangiocarcinoma. As the preoperative diagnosis of PALN metastasis is difficult, intraoperative PALN sampling helps determine the treatment strategy of perihilar cholangiocarcinoma.

A-4-4 Real-time depicting intrahepatic biliary anatomy during recipient surgery with contrast-enhanced ultrasonography in living donor liver transplantation

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In living donor liver transplantation (LDLT), biliary complications have been considered the Achilles heel, various attempts have been made to reduce their incidence and various innovations in surgical techniques have been reported. We herein report a case of intraoperative ultrasound cholangiogram (IOUSC) in the recipient's abdominal cavity after reperfusion of the graft. Case report: A 39-year-old male with decompensated alcoholic cirrhosis underwent LDLT. The donor was his younger brother. Preoperative MRCP revealed no evidence of biliary anatomical variance which would have been problematic when donating the left lobe graft. Intraoperative cholangiography showed that the left hepatic duct was sufficiently long for division with guaranteeing donor safety. Back-table observation of the bile duct revealed three orifices; of these, the central orifice was very small, and the corresponding bile duct was not evident on cholangiography. After injection of perfluorobutane microbubbles (Sonazoid) diluted 1000-fold into the small central orifice, the bile duct of segment 4 (B4) was clearly visualized by IOUSC. The off-label use of Sonazoid was approved by Nagasaki University Hospital. Based on this finding, we determined that all three openings required reconstruction and reconstructed them using a telescope reconstruction method. In addition to a detailed preoperative evaluation and careful intraoperative evaluation at the time of bile duct transection, IOUSC is useful as a tool to confirm the anatomy of the bile ducts when they are not revealed by other evaluations, and is a method that transplant surgeons should be familiar with.

A-4-5 Laparoscopic liver resection using a SAND balloon catheter for a large cystic lesion of the liver

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Introduction In recent years, laparoscopic liver resection (LLR) has been widely performed for liver tumors. Especially for a low-grade malignant liver tumor, LLR is considered a beneficial surgical procedure due to its smaller incision, less pain, and superior cosmetic results. However, the use of LLR in large cystic lesion may cause cystic rupture due to the intraoperative laparoscopic procedure. Herein, we report a case of a large cystic lesion of the liver in which we were able to prevent cystic rupture and complete the LLR using a SAND balloon catheter.

Case A 72 - year - old female was referred to our department for further examination and treatment for cystic lesion of the liver that exhibited growth tendency. CA19-9 level was 486.0 U/mL. And, MRI revealed 15-cm multilocular cystic lesions occupying the right lobe. These findings were suggested as mucinous cystic neoplasm of the liver. Therefore, we performed laparoscopic right hemi-hepatectomy using a SAND balloon catheter. This catheter facilitated the management of the cyst lesion and allowed for safe surgical procedures for surgery. The entire lesion was successfully resected with a laparoscopic approach. The patient was discharged without any complication on postoperative day 14.

Conclusion Use of the SAND balloon catheter facilitates aspiration of the cyst contents without leakage, and, as a result, LLR can be performed safely and easily, even for a large cystic lesion of the liver.

A-5-1 A case of robot-assisted pancreaticoduodenectomy for primary pancreatic SFT

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[Background] Solitary fibrous tumors (SFT) are rare tumors of mesenchymal cell origin, occurring mainly in the pleura. We report a case of primary pancreatic SFT.

[Case] A 50-year-old woman presented with a chief complaint of right upper abdominal pain. She presented with a complaint of right upper abdominal pain, and CT scan showed a 9mm-sized mass in the pancreatic head with clear border and delayed staining, MRI showed T1 low, T2 high and DWI high, and EUS showed an 18mm-sized round mass in the pancreatic head. Since it was difficult to rule out a solid pseudopapillary neoplasm (SPN) or pancreatic cancer, the patient was referred for surgery. The patient underwent robot-assisted pancreaticoduodenectomy with preservation of the pyloric ring. The patient was discharged from the hospital on the 12th day after surgery without any complications. The final pathological examination revealed a diagnosis of SFT.

[Discussion] SFT is a rare tumor in which fibroblast-like spindle-shaped cells are separated by relatively thick collagen bundles to form a localized mass, first described by Klemperer et al. in 1931. In recent years, various extra-thoracic parenchymal organs have been reported to be involved, and the most common sites are the head and neck region including the upper airway, orbit, salivary glands, abdominal cavity, and soft tissues. Reports of SFT originating from the pancreas are rare, and we report this case with a review of the literature.

A-5-2 A resected case of high grade PanIN diagnosed as early PDAC due to focal parenchymal atrophy

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A case of 63-year-old female with a history of right renal cancer and lung metastasis, underwent a follow-up CT scans that revealed stenosis of main pancreatic duct (MPD) in pancreatic head and dilatation of MPD in pancreatic body and tail. Consequently, she was referred to our hospital. Endoscopic ultrasound showed no evidence of a tumor in pancreas. However, the CT scans showed progressive focal parenchymal atrophy (FPA) in the pancreatic head over time, leading to suspicion of early pancreatic adenocarcinoma. Subsequent to the placement of an endoscopic nasopancreatic drainage tube, nine consecutive pancreatic juice cytology (SPACE) were performed. Even though no obvious malignant findings were detected in the cytology, the potential for malignancy could not be ruled out due to the progressive findings of FPA and MPD stenosis on CT scans. Therefore, pancreatoduodenectomy was performed and the patient was discharged on post operative day 29 without major complications. Pathological diagnosis was high grade PanIN. A year and four months after surgery, the patient is alive with no recurrence. Recently, finding of FPA in CT images and SPACE are reported as useful strategies for early diagnosis of pancreatic ductal adenocarcinoma. We report the present case with detail analysis of our four former cases of high grade PanIN and literature review.

A-5-3 Robotic pancreaticoduodenectomy for recurrence of Intraductal Papillary Mucinous Neoplasm after laparoscopic single duct resection

○Baglan Askeyev, Tomohiko Adachi, Hajime Imamura, Mampei Yamashita, Kantoku Nagakawa, Takano bu Hara, Hajime Matsushima, Akihiko Soyama, Susumu Eguchi
(Nagasaki University Graduate School of Biomedical Sciences)

Treatment of recurrent intraductal papillary mucinous neoplasm is still under debate. Repeated surgical intervention for recurrent pancreatic neoplasm is one of the most difficult procedure but accumulation of experience in the field of robotic surgery allowed us to perform robotic pancreaticoduodenectomy after previous laparoscopic operation on pancreas. In this case, A 50-year-old woman was admitted to hospital with diagnosis recurrent intraductal papillary mucinous neoplasm of the pancreatic head. Previously in 2010, she underwent laparoscopic single duct resection due to the tumor in pancreatic ulcinate process. We performed robotic pancreaticoduodenectomy in 2022. The operation time was 412 minutes. Pathological examination reported the intraductal papillary mucinous carcinoma of low- and high-grade dysplasia. Postoperative period was uneventful and she was discharged home on 20th postoperative day. In conclusion, we can verify the safety and feasibility of performing robotic repeated pancreatic surgery for recurrence of pancreatic neoplasm for a patient who had previously undergone laparoscopic pancreatic resection.

A-5-4 Combined with resection of common hepatic artery without reconstruction in pancreaticoduodenectomy with preserving the right gastric artery: two cases report

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The first case, a 58-year-old man diagnosed with pancreatic head cancer due to obstructive jaundice. CT showed a 40 mm-sized hypovascular mass in the pancreas, invading the replaced CHA branched from the SMA. Diagnosed as borderline resectable, the patient received neoadjuvant chemotherapy before undergoing subgastric-preserving pancreaticoduodenectomy (SSPPD) with CHA resection and portal vein reconstruction. Pathological findings showed T4N2M0 and Stage IVb cancer with R0. The postoperative course was uneventful, but subsequent CT revealed lung metastases, leading to the patient's demise 20 months post-surgery. The second case, a 69-year-old man with locally advanced pancreatic head cancer underwent detailed investigations after diabetic ketoacidosis. CT showed a 20 mm-sized tumor in the head of the pancreas, which infiltrating from CHA to the splenic artery root. Deemed unresectable, the patient received 7 course of GnP. The radiological efficacy was stable disease (SD) on RECIST. We judged that CHA could be resected in the same way as in the first case by the occlusion test. Then we performed SSPPD + CHA combined resection + portal vein reconstruction. Pathological findings showed T3N0M0 and Stage III with R0. The patient's postoperative course was smooth, receiving S-1 as adjuvant therapy, and remains alive without recurrence 20 months post-surgery. Both cases highlight successful radical resection of pancreatic head cancer with CHA infiltration. Hepatic blood flow was maintained without vascular reconstruction by preserving the right gastric artery. These cases underscore the importance of meticulous preoperative assessment, neoadjuvant therapy, and surgical techniques in managing complex pancreatic malignancies.

A-6-1 Prognostic value of the fibrinogen to prognostic nutritional index ratio in pancreatic ductal adenocarcinoma

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Pancreatic ductal adenocarcinoma requires multidisciplinary treatment. Thus, preoperative prognosis prediction is critical for therapy selection. Inflammation and immune environment indicate long-term prognosis. This study aimed to evaluate a novel prognostic value of fibrinogen to prognostic nutritional index rate (Fbg/PNI) in pancreatic resection cases.

Patients and Methods: 140 patients who underwent pancreatic resection for pancreatic cancer from 2006 to 2019 were studied. The relationship between clinicopathological variables of Fbg/PNI and overall survival (OS) and disease-free survival (DFS) was examined in univariate and multivariate analyses retrospectively.

Results: The median age was 71 years (IQR:63-76), and 86 (61%) patients of them were male. The median preoperative serum fibrinogen was 371 mg/dL (IQR:307-438), and the median PNI was 46 (IQR:43-49). R0 resection was achieved in 107 (76%) patients. Adjuvant chemotherapy was performed on 110 (79%) patients. Median OS and DFS after pancreatic resection were 29.6 months and 14.3 months, respectively. The patients were divided into Fbg/PNI High (≥ 8.8) and Fbg/PNI Low (< 8.8) groups based on the ROC curve for 3-year survival. On multivariate analysis, the high group was an independent factor for OS progression (HR=1.81,95%CI:1.19-2.77, $p < 0.01$) along with male, borderline resectable cancer, lymph node metastasis, intermediate or poorly differentiated cancer and no postoperative adjuvant chemotherapy. The high group was also an independent DFS-promoting factor (HR=1.54,95%CI:1.05-2.26, $p = 0.03$), along with serum CA19-9 ≥ 300 U/mL, borderline resectable cancer, lymph node metastasis, and intermediate or poorly differentiated cancer.

Conclusion: The preoperative Fbg/PNI is a significant independent prognostic index for OS and DFS in patients post-pancreatic resection with curative intent.

A-6-3 A case of BR-A pancreatic head cancer that responded well to chemotherapy

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Reevaluation of borderline resectable (BR) pancreatic cancer for resectability is recommended after chemoradiation therapy. We experienced a case of BR-A pancreatic head cancer with invasion of the superior mesenteric artery (SMA) that was diagnosed pathologically as Grade 3 response for pancreaticoduodenectomy after careful evaluation of treatment effect. A man in his 60s visited his previous doctor complaining of abdominal pain and was diagnosed as having pancreatic head cancer and referred to our hospital. A 31-mm tumor was observed in the pancreatic head with about half of its circumference in contact with the SMA and portal vein. From the above, we originally diagnosed T4 stage III BR-A pancreatic head cancer and started chemotherapy with GEM+nabPTX. At reevaluation after approximately 8 months of treatment, we determined that down-staging had not been achieved because the SMA contact area had not been reduced, so treatment was switched to mFOLFIRINOX. After another 8 months of treatment, the tumor continued to shrink and surgery was planned. Intraoperative rapid pathology confirmed that the dissected surface SMA tissue was negative for cancer, and a pyloric ring-preserving pancreaticoduodenectomy was performed. Postoperative pathology revealed a 5 × 5 × 4-mm tumor, T1a, N0, M0 Stage IIA, with a histologic treatment rating of Grade 3. The patient remains alive 1 year post-operatively without recurrence. For BR-A pancreatic cancer, the mean survival time of patients following surgery after neoadjuvant chemotherapy is 11-18 months, which is an unsatisfactory outcome. Careful preoperative evaluation may, in some cases, lead to a favorable prognosis even if multidisciplinary treatment is prolonged.

A-6-4 A case of giant splenic hemangioma resected under laparoscopy

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Primary splenic tumors are rare conditions, with reports of hemangiomas, lymphangiomas, hamartomas, malignant lymphomas, and angiosarcomas. It is said that approximately 25% of splenic hemangiomas result in non-traumatic rupture. Here, we report a case of laparoscopic splenectomy for a giant splenic hemangioma. The patient, a man in his 40s, had a history of temporal lobe epilepsy and had undergone vagus nerve stimulation device placement surgery at our hospital's neurosurgery department. Blood tests revealed abnormal values: Hb 10.9 g/dL, PLT 12.8×10^3 /dL, and D-dimer 61.5 μ g/dL. A contrast-enhanced CT scan showed a 137*102 mm mass in the spleen, leading to referral to our department. Due to the potential risk of tumor enlargement leading to rupture in the future, as well as the possibility of developing Kasabach-Merritt syndrome with Disseminated Intravascular Coagulation (DIC) due to platelet consumption within the hemangioma, and the presence of spontaneous pain in the left hypochondrium, the decision was made to proceed with splenectomy. The surgery was performed laparoscopically to remove the spleen. The pathological diagnosis revealed a tumor with intermittently fibrous capsules, characterized by clusters of thin-walled dilated vessels resembling cavernous hemangiomas. The postoperative course was generally uneventful, and the patient was discharged on the 12th day after surgery.

B-1-1 Trial of predicting difficulty in colorectal ESD by CT-colonography

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【Background】 Fibrosis of the submucosa can be a major obstacle in endoscopic submucosal dissection (ESD) of the colorectum, but there is no preoperative means of assessing fibrosis. CT-colonography (CTC) is an imaging study performed by dilating the colon. Unlike barium enema, it provides information on the serosal side, and if there is poor dilatation due to the lesion, deformities may be seen on the serosal surface as well. If the mucosal surface and the muscularis mucosae are fixed by fibrosis of the submucosal layer, poor dilatation of the mucosal surface is thought to be reflected on the serosal surface.

【Objective】 To investigate the possibility of capturing fibrosis of the submucosal layer as an imaging finding of poor dilatation in CTC that is performed by pumping air into the colon.

【Result】 In this study, 46 colorectal ESD cases (January 2013-October 2023) without muscle layer invasion in which preoperative CTC was performed and deformation of the serosal surface was evaluable were included. The Fisher test showed a significant difference ($p < 0.001$) between F2 and F1 cases.

【Discussion】 This study suggests that there is a relationship between the depressed serosal surface in CTC and fibrosis of the submucosa. We also evaluated the pathology of three patients without muscle layer invasion who underwent surgery for initial treatment (January 2018-December 2022) who had a serosal surface depression at CTC. All three patients had findings of muscle layer pulling into the lesion due to advanced fibrosis of the submucosa.

B-1-2 A Case of High-Grade Appendiceal Mucinous Neoplasm

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The patient is a 77-year-old woman who was followed up without active suspicion of malignancy, although a monocystic cystic lesion was noted on CT in 20XX. 20XX+4 years later, she presented to our department with an enlarging trend of 8.7 cm on CT and an elevated CEA of 16.0. MRI showed a T2high, well-defined cyst in the same area, and DWI showed diffusion limitation. Lower gastrointestinal endoscopy revealed a hard and smooth surface lesion at the appendiceal orifice with volcano sign. Based on the above, a diagnosis of low grade appendiceal mucinous neoplasm (LAMN) was made, and laparoscopically assisted partial appendectomy was performed. The appendix was cystically enlarged, and yellowish-white, light green, agar-like, viscous contents were observed in the lumen. Histopathology showed more atypia and polarity disorder than LAMN, but no invasive growth like adenocarcinoma, and a diagnosis of high-grade appendiceal mucinous neoplasm (HAMN) was made. HAMN is the name used by Carr et al. in 2016 to classify appendiceal mucinous tumors, and was listed as a new disease unit within the category of mucinous tumors among appendiceal epithelial tumors in the 5th edition of the WHO classification revised in 2019. It has not yet been described in the Japanese Code of Medical Practice for Colorectal Cancer, and previous reports are rare.

B-1-3 Oral and anal side stoma prolapse of loop colostomy with the stapled modified Altemeier method using indocyanine green fluorescence imaging

○Koji Komori, Takashi Kinoshita, Yusuke Sato, Akira Ouchi, Seiji Ito, Tetsuya Abe, Kazunari Misawa, Yuichi Ito, Seiji Natsume, Eiji Higaki, Tomonari Asano, Masataka Okuno, Hironori Fujieda, Satoru Akaza, Yasuhiro Shimizu

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Background: Stoma prolapse is a common complication in the late phase after stoma creation. With advances in chemotherapy, a double-orifice colostomy or ileostomy and chemotherapy are used to treat primary unresectable colorectal cancer. Preoperative therapy with a double-orifice colostomy or ileostomy is performed to aid primary colorectal cancer miniaturization. Therefore, the number of stoma prolapses will likely increase in the future. Previous reports on the repair of stoma prolapse focused on unilateral stoma prolapse of loop colostomy, and there are no reports about the bilateral stoma prolapse of loop colostomy or ileostomy.

Case Report: We report a novel repair technique for oral and anal side (bilateral) stoma prolapse of a loop colostomy with the stapled modified Altemeier method using indocyanine green (ICG) fluorescence imaging considering the distribution of marginal artery in preventing marginal artery injury which has considerable clinical significance.

Conclusion: Our novel technique for the oral and anal side prolapse of a loop colostomy is considered effective and safe.

B-1-4 A case of perforated appendicitis requiring open abdomen management

○Kanami Iwama, Toshimichi Kobayashi, Shoma Iida, Takumi Seichi, Yoshihiro Nagae, Hiroyuki Higuchi, Itsuki Koganezawa, Kei Yokozuka, Yuji Kikuchi, Masatoshi Shigoka, Satoshi Tabuchi, Naokazu Chiba, Eiji Hidaka, Shigeyuki Kawachi

(Tokyo Medical University Hachioji Medical Center)

Introduction: Open abdomen management (OAM) was firstly indicated as a part of 'damage control surgery' and was mainly observed in severe abdominal trauma. Recently it is also known to be an effective indication in non-traumatic patients and may be an important strategy for treatment of severe abdominal sepsis.

Case: A 75 year-old-man presented to hospital with a chief complaint of worsening dyspnea. He was diagnosed with lower gastrointestinal perforation and admitted to our hospital for emergency laparotomy. Initial explorative surgery revealed perforated appendicitis with generalized peritonitis, and he underwent appendectomy and OAM using negative pressure wound therapy (NPWT) for prevention of abdominal compartment syndrome. While in intensive care unit, the management of septic shock including endotoxin adsorption using PMX-DHP and cytokine removal CHDF using a AN69ST membrane hemofilter (*SepXiris*[®]) was performed, followed by fluid removal using CHDF in order to achieve early definitive abdominal closure. Abdominal closure took place at 60 hours after primary laparotomy. On post operative day 24, the patient was discharged home without any complications.

Conclusion: Technique of OA has become a significant surgical advancement not only in patient with trauma but also in patient with severe abdominal sepsis. OAM may be a useful strategy for prevention of abdominal compartment syndrome due to severe intra-abdominal infection. Surgeons should be well aware of pathological condition of sepsis and be able to use OA effectively in right patient at correct time.

B-1-5 A case of strangulated bowel obstruction due to vaginal dissection after total hysterectomy

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The patient is a woman in her 60s. She underwent ATH (abdominal total hysterectomy) + BSO (bilateral tubal oophorectomy) + OMT (oophorectomy) at our gynecology department for cancer of unknown primary, and was discharged without complications on postoperative day 15. On the 37th postoperative day, she visited the gynecology outpatient clinic with a chief complaint of abdominal pain, and was found to have prolapsed small intestine from the vagina, which was diagnosed as strangulated bowel obstruction due to vaginal dissection. Although the prolapsed intestine showed edema and congestion, peristalsis was good and the pulsation of the intestinal peritoneal artery was palpable, but manual evacuation into the abdominal cavity was difficult, so emergency surgery was indicated. A median incision was made in the lower abdomen, and the small intestine extending about 50 cm from the mouth 15 cm from the end of the ileum was prolapsed out of the body cavity through the vaginal segment. The patient was pathetically released from the strangulation of the prolapsed intestine, and ICG evaluation of the blood flow in the prolapsed intestine revealed scattered areas of contagion, so a partial resection of the small intestine and functional end-to-end anastomotic reconstruction were performed. The vaginal segment was sutured closed by a gynecologist. The patient had a good postoperative course and was transferred to the gynecology department to start chemotherapy on the fifth postoperative day. Although vaginal dissection after total hysterectomy is considered a rare complication, prolapse of the small intestine or intussusception requires immediate attention, including emergency surgery. In this report, we describe a case of strangulated bowel obstruction due to vaginal dissection after total hysterectomy, with some discussion of the literature.

B-2-1 Single-incision robot-assisted surgery for resection of colon cancer using the da Vinci Xi system

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Background: In recent years, the use of da Vinci-assisted surgery for the treatment of colorectal cancer has increased worldwide. Herein, we present our experience with four cases in which we attempted to reduce the invasiveness of this surgical technique by decreasing the number of incisions and ports through the abdominal wall. To the best of our knowledge, this is the first case of single-incision robotic colectomy using the da Vinci Xi system.

Methods: Single-incision robotic surgery for colon cancer was successfully completed in all four patients from August to November 2023. Routine operative and short-term postoperative outcomes were assessed to evaluate the feasibility of single-incision robotic surgery using the da Vinci Xi system.

Results: All four procedures were technically successful without requiring conversion to open or laparoscopic surgery or intraoperative complications. The mean total operation time was 134.5 (118-165) min, the mean blood loss was 4 (3-5) ml, and the mean incision length was 3.0 cm. All patients had an uneventful postoperative course, with a mean hospital stay of 6.5 (6-7) days. None of the patients experienced complications 30 days after surgery.

Conclusions: Single-incision robotic surgery using the da Vinci Xi system appears to be feasible and safe for the treatment of colon cancer.

B-2-2 Detailed long-term follow-up of the sequelae of lower urinary tract complications in male imperforate anus patients with rectovesical/rectourethral fistula

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【Purpose】

To report the long-term sequelae of lower urinary tract complications (LUTC), specifically, posterior urethral diverticulum (PUD), intraoperative injuries (INJ), postoperative dysuria (DYS), and recurrence (REC) associated with male imperforate anus with rectovesical/rectourethral fistula (IA+F) repaired by laparoscopy assisted anorectoplasty (LAARP) or posterior sagittal anorectoplasty (PSARP).

【Methods】

154 boys with IA+F treated at two institutions between 1986 and 2019 (LAARP: n=56; PSARP: n=98) were studied.

【Results】

Overall LUTC were 6/56 (10.7%) for LAARP and 7/98 (7.1%) for PSARP. Specifically, PUD: LAARP (n=5), PSARP (n=0); INJ: prostate: LAARP (n=0), PSARP (n=2), urethra: LAARP (n=0), PSARP (n=1), seminal vesicle: LAARP (n=0), PSARP (n=2); DYS: LAARP (n=1), PSARP (n=1); and REC: LAARP (n=0), PSARP (n=1). PUD presented after a mean of 5.13 years. Treatment was: PUD: surgery (n=2/5), INJ: immediate intraoperative repair (n=5/5), DYS: conservative (n=2/2), and REC: redo PSARP (n=1/1).

【Conclusions】

LUTC differed because the anterior wall of the residual fistula can be dissected under direct vision during LAARP, and the urethra is hidden by the rectum during PSARP. With experience, LUTC are now rare and can be managed readily.

B-2-3 Combined surgery using the Senhance Digital Laparoscopy System and conventional laparoscopy for right-sided colon cancer

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BACKGROUND: The Senhance digital laparoscopic system (Senhance) is a laparoscopy-based robotic system that is good at delicate procedures but not at large operations. In our department, we perform combined surgeries utilizing the advantages of both systems: lymph node dissection, which requires delicate techniques, is performed with Senhance, and intestinal manipulation is performed by shifting to laparoscopic manipulation. The purpose of this study was to compare the short-term outcomes of combined Senhance and laparoscopic ileocecal resection (CICR) versus Senhance-only ileocecal resection (SICR).

METHODS: This was a single-center, retrospective study of right-sided colon cancer from April 2020 to March 2023. short-term results of the two groups were compared.

RESULTS: 39 patients underwent Senhance-assisted ileocecal resection for right-sided colon cancer. Of these, 19 underwent CICR and 20 underwent RICR. Surgical time was significantly shorter in the CICR group compared to SICR (CICR 186 min vs RICR 230 min, $p=0.03$). Blood loss, intraoperative complications, median number of total lymph nodes removed, blood transfusions, postoperative hospital stay, and previous abdominal surgery. There were no significant differences between the two groups.

Postoperative complications were one case of paroxysmal atrial and one case of peri-anastomotic inflammation fibrillation in CICR, and one case of peri-anastomotic inflammation in RICR. There were no postoperative complications of Clavien-Dindo classification Grade 3 or above between 2 groups.

CONCLUSIONS: Combined laparoscopic surgery with Senhance for right-sided colon cancer is expected to reduce operative time while ensuring safety. Further studies with additional cases are needed in the future.

B-2-4 The function and clinical analysis of TRPV2 in human colon cancer

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Background: Transient receptor potential vanilloid 2 (TRPV2) is a calcium channel. The relationship between TRPV2 expression and prognosis has been shown in various organ cancers. However, the function and clinical significance of TRPV2 in colon cancer (CC) has been still unclear. The aim of our study was to investigate the role of TRPV2 in CC.

Methods: The knockdown effects on cell proliferation, cell cycle, apoptosis, and wound healing by using TRPV2 small interfering RNA (siRNA) in CC cell lines were evaluated. Immunohistochemistry (IHC) for TRPV2 on 200 patients who underwent radical colectomy was performed. Patients were divided into two groups according to the expression level of TRPV2, and clinicopathological background and prognosis were analyzed.

Results: TRPV2 suppressed CC cells reduced cell proliferation and migration, and induced apoptosis. Furthermore, inhibition of the transition from G1 phase to S phase was observed in cell cycle assay. IHC showed that the high TRPV2 expression group was significantly poor prognosis for 5-year relapse-free survival (RFS) (68% vs. 82%, $p = 0.012$). In multivariate analysis, high TRPV2 expression was identified as independent poor prognostic factor ($p = 0.016$, hazard ratio = 2.045).

Conclusions: This study revealed that TRPV2 controls proliferation, apoptosis, and migration of CC cells. In addition, high expression of TRPV2 was a poor prognostic factor for CC patients.

B-2-5 Palliative Treatment of Intestinal Obstruction in Patients with Advanced or Recurrent Gynecological Cancer

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Patients with late-stage gynecological cancer often experience intestinal obstruction due to pelvic tumors or peritoneal dissemination. Management must account for prognosis and quality of life (QOL).

Patients who experienced pelvic recurrence and intestinal obstruction after the completion of standard treatment between January 2011 and May 2021 were retrospectively analyzed. The patients were divided into two groups: a surgical treatment group (surgery group) and ileus tube insertion group (ileus tube group). Clinical parameters, post-treatment changes in condition, and prognosis were examined retrospectively. This study was approved by the Clinical Trials Review Committee of our institution (Approval Number: 5449).

The study included 56 cases with primary diseases (18 cases of cervical cancer, 9 cases of endometrial cancer, and 29 cases of ovarian, peritoneal, and fallopian tube cancers). There were 25 cases in the surgery group and 31 cases in the ileus tube group. Post-treatment, 100% of patients in the surgery group could resume oral intake, compared with 58% in the ileus tube group. The median time to resumption of oral intake was significantly shorter in the surgery group (5 days, range: 2–16 days) than in the ileus tube group (20 days, range: 6–47 days) ($p < 0.001$). The duration of oral intake ability after treatment was significantly longer in the surgery group than in the ileus tube group ($p = 0.0461$).

In patients with gynecological cancer undergoing surgery for intestinal obstruction, oral intake ability was achieved and the time to resumption of oral intake was shorter than that for ileus tube insertion. These findings suggest that surgical indications were appropriately assessed.

B-3-1 Use of Intraoperative Fluoroscopy for Safe and Reliable Removal of a Migrated Broken Dental Needle

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Introduction: Intraoperative fluoroscopy can assist in identifying needle position during surgery. Therefore, we report that we used fluoroscopy to identify an infiltrative anesthesia needle that broke during surgery, and removed the needle using minimally invasive surgery.

Case presentation: This is a 33-year-old patient who requested treatment for the removal of an infiltration anesthesia needle that had broken around the mandible and the extraction of the remaining wisdom tooth. At the time of the patient's first visit to our department, he was in a state of mental decline and requested removal of the foreign body and wisdom tooth extraction as soon as possible. I explained that the needle had strayed into the soft tissue around the mandible, and requested that it be removed using X-ray fluoroscopy for minimally invasive and reliable removal. On the same day of the first visit, a foreign body was removed using X-ray fluoroscopy, and a wisdom tooth was extracted. I was able to use the same incision made by my previous doctor, and any stray needles were easily identified.

Conclusion: We proposed an effective method to remove broken needles that have penetrated soft tissue and are difficult to detect. It is a simple method that requires no special preparation and can be performed using hospital equipment, ensuring short preparation times and minimal invasiveness for safe and reliable surgery.

B-3-2 A case of early invasive squamous cell carcinoma in an 18-year-old Japanese woman manifested by smear cytology

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The patient, an 18-year-old Japanese woman, complained of discomfort of the tongue. She had no medical history. We found a leukoplakia-like lesion with a diameter of three mm at the right lateral tongue, no lymph node was palpable. Smear cytology was done with cotton swab, showing Class III. As the cytology specimen showed slight inflammatory cells, steroid ointment was prescribed for 1 week, being not effective. Repeated brush cytology showed Class III-IV (SCC). Now a slight tenderness was palpable around the lesion.

Surgery was planned with the patient and her parents' consent. Preoperative examinations included CT, MRI and PET-CT, showing no invasion at the primary site nor metastases. Blood examination including tumour markers such as SCC and CYFRA were normal. Our preoperative diagnosis was SCC at the lateral right tongue (cTisN0M0, Stage 1).

Surgery was done under i.v. sedation. The lesion was resected measuring six x four cm, eight mm depth including the muscle layer with a sufficient safety margin. The surgical defect was primarily closed. The operation time was 30 min., loss of blood volume was five gram. Histopathological diagnosis was SCC, well differentiated, early invasive. Microscopically, the size of the lesion was two x two mm, with a depth of one mm. The surgical margin was cancer free: pT1, L0, V0, Pn0, Nx, M0, R0 (Hm0, Vm0), G1. Postoperative course was uneventful for two years and nine months.

Special attention even to extremely small oral lesions should be paid, and cytology is recommended to all suspicious lesions.

B-3-3 Consideration of treatment with buccal fat body stem grafts

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Buccal fat bodies are fatty masses located in the region bounded by the buccal muscle and mandibular branch, and have abundant blood flow from the surrounding tissues. The buccal fat body is almost constant regardless of the weight or nutritional status of the individual, and can be used to replace or reconstruct defects after resection of intraoral tumors or to close oral maxillary sinus fistulas. However, depending on the extent of the defect and the presence of inflammation, the prognosis may be poor in a few cases. Therefore, we evaluated buccal fat body transplantation cases.

Subjects: Twenty-three patients who underwent buccal fat body transplantation between January 2008 and May 2022 at the Department of Dentistry, Maxillofacial and Oral Surgery, Kagawa University Hospital were included in the study. The study items included gender, age, causative disease, defect size, presence or absence of covering or surface treatment, and prognosis. The median age was 72 years. The most common causative disease was maxillary/palatal malignancy in 10 patients, and fistula due to ARONJ in 4 patients. Defect size ranged from 8-85 mm. The buccal fat body surface was protected with PGA sheets and fibrin glue or fibrin glue alone in most cases. Four of the 23 cases had a poor prognosis and developed fistulas during follow-up.

Conclusion: Although the prognosis of buccal fat stem grafting may be poor in some cases depending on the defect size and other factors, it is a very useful reconstruction method with minimal surgical invasiveness and complications.

B-3-4 Evaluation of multi-task learning in deep learning-based positioning classification of mandibular third molars

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Introduction: The Pell & Gregory and Winter classifications are frequently used to classify mandibular third molars (MTM) and are very important for safe tooth extraction. The purpose of this study is to evaluate the classification accuracy of CNN(convolutional neural network)-based deep learning models using panoramic radiographs according to the classifications for the location of MTM. In this study, we compared the diagnostic accuracy of single and multi-task learning.

Materials and Methods: Data were collected to label the data, including 1330 images of MTM from digital panoramic X-rays taken at department of oral and maxillofacial surgery. MTM classification was analyzed using the VGG16 model. We statistically evaluated the performance metrics of each CNN classification prediction in multi-task and single-task.

Results: In the comparison between the two groups by p-value, single-task was superior to multi-3task, and single-task was superior to statistics in all metrics. In single-tasking and multi-2task of class and position, single-task was superior in all metrics except AUC of position classification. In the single task and multi-3task, the effect size was large in all the metrics except the position classification in AUC as well as the p-value. On the other hand, in single-task and multi-2task, recall and f1 score in position classification were medium effect sizes, and all others were small effect sizes.

Conclusion: The classification of MTM is the first study to examine single-task and multi-task. In the deep learning classification of MTM, it is more effective to classify Pell & Gregory and winter classification as their respective tasks.

B-3-5 Strength Comparison Between Titanium and Bioactive Resorbable Screw Systems for Fixation of Mandibular Condylar Head Fracture

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Introduction: Osteosynthesis resorbable materials made of uncalcined and unsintered hydroxyapatite (u-HA) particles, poly-L-lactide (PLLA), are bioresorbable, and these have feasible bioactive/osteoconductive capacities. u-HA/PLLA materials frequently use for fixation maxillofacial fracture except for mandibular fracture in Japan. Sufficient strength is required for use in mandibular condylar head fractures. However, it still remains unclear in mandibular condylar head fractures treatment. The strength of u-HA/PLLA screws should be comparable to titanium screws, but no comparison has been.

Materials: This in vitro study aimed to assess the biomechanical strength of u-HA/PLLA screws after the internal fixation of condylar head fractures. To evaluate their strengths between u-HA/PLLA screws and Titanium screws, 32 hemimandible replicas were divided into eight groups, each consisting of single-screw and double-screw fixations with titanium or u-HA/PLLA screws. A linear load was applied as vertical and horizontal load to each group to simulate the muscular forces in condylar head fractures. Samples were examined for 0.5, 1, 2, and 3-mm displacement loads. Two screws were needed for stable fixation of the mandibular condylar head fracture during biomechanical evaluation.

Results: In result, after screw fixation for condylar head fractures, the titanium screws model was slightly more resistant to vertical and horizontal movement with a load for a small displacement than the u-HA/PLLA ones. There was no statistically significant difference with load for large displacements.

Discussion: The u-HA/PLLA screw has a low mechanical resistance under small displacement loading compared with titanium within the limits of the mandibular head fracture model study.

B-3-6 Advantage of Alveolar Ridge Augmentation with Bioactive Screws Made of Composites of Unsintered Hydroxyapatite and Poly-L-lactide

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Background: The purpose of this study was human bone healing characteristics and histological environment using uncalcined and unsintered hydroxyapatite (u-HA) / poly-L-lactide (PLLA) composite devices.

Methods: This study included eight consecutive patients (two men and six women; age range, 33–59 years) who needed maxillary alveolar ridge augmentation as preimplantation surgery because their residual bone width was <4 mm. All operations were performed fixation using u-HA / PLLA screws for maxillary alveolar ridge augmentation using mandibular cortical bone block as pre-implant surgery. Histology and immunohistochemistry evaluation using Runx2, Osterix and leptin receptor (LepR) were performed on five appropriate samples including screws.

Results: In all cases observed by histological evaluation, bone components were completely mixed with u-HA / PLLA screws and the bone was directly connected to the biomaterial and inflammatory cells did not invade the space between the bone and the u-HA / PLLA screw. In the tissues surrounding u-HA / PLLA by immunohistochemistry evaluation, there were many cells positive for RUNX2 and Osterix, which were markers for osteoprogenitor cells. In addition, it was revealed that there are many bone marrow-derived mesenchymal stem cells that were both positive for LepR + / RUNX2 +.

Conclusion: The u-HA/PLLA material showed excellent bioactive osteoconductivity and a highly biocompatibility with bone directly attached. In addition, this study suggested that many bone marrow-derived mesenchymal stem cells are recognized in the osteogenic environment performed using u-HA / PLLA screws, and that this is a suitable environment for osteogenesis.

B-3-7 Comparative study of masticatory function of maxillary prosthesis and implant over denture (IOD) in patients with jaw defects

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Patients with extensive jaw defects due to malignancy or other causes have markedly reduced masticatory function. In April 2012, in Japan, if the patient meets the requirements, the insurance covers an extensive jawbone-supported prosthetic device (implant over denture: IOD), and it has become an alternative treatment to the maxillary prosthesis. Therefore, we conducted a comparative study of masticatory function between a maxillary prosthesis and an IOD. The subjects were 4 of the 16 cases in which extensive jawbone-supported devices were fabricated and 4 cases in which a maxillary prosthesis was used prior to the IOD. Three were male and one female, ranging in age from 59-81 years old. Masticatory function was evaluated using LOTTE xylitol chewing check gum and UHA Taste Gummi Jelly for measuring masticatory ability by UHA Gustatory Sugar Co. The check gum was evaluated on a 5-point color scale on the package, and the gummy jelly was evaluated on a 10-point scale based on the size of the bite pieces. Results showed that IOD improved masticatory function compared to maxillary prosthesis in all patients. Bone resection of the upper and lower jaw is often performed as a curative treatment for oral malignancies. However, the loss of the jawbone, including the teeth, results in a loss of masticatory function. Maxillary prostheses are simple and inexpensive, but it has been found that the application of an extensive jawbone-supported devices can improve masticatory function at a relatively low cost. We will continue to study this further.

B-4-1 The First Experience in Japan of Photon-Counting Detector-Equipped CT for Qualitative Evaluation of Lung Cancer

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Background: Photon-counting detector-based CT (PCD-CT) represents a novel approach that uses a semiconductor-based photon-counting detector and converts photons directly into electrical signals, which has the potential to achieve better spatial resolution and material discrimination. However, there have been no report comparing the results of PCD-CT analysis with pathological findings in lung cancer surgery cases. Here, we present our experience with PCD-CT in preoperative imaging assessment of lung cancer.

Materials and Methods: We prospectively enrolled patients undergoing preoperative CT imaging in our thoracic surgery department between March and November 2023. Utilizing reconstructed spectral images alongside contrast-enhanced CT scans, we measured CT values, water reference material pixel values, iodine reference material pixel values, and electron density. Regions of interest (ROIs) were designated for frosted or enhanced components measuring 25 mm² or larger on coronal section CT images at the level of maximum tumor diameter.

Results: Among the six eligible cases, the male-to-female ratio was 5:1, with a median age of 75 years (range 43-84). We identified six lesions: two with well-differentiated adenocarcinoma and four with moderately differentiated adenocarcinoma. Four lesions exhibited a frosted component, while six displayed an enriched component. Mean CT values, water reference material pixel values, iodine reference material pixel values, and median electron density for frosted and enriched components were as follows: -532.1 and -179.5 Hounsfield Units (HU), 420.4 and 789.7, 13.2 and 7.9, and 1.5 and 2.7 x 10²³/cm³, respectively.

Discussion: CT values are generally variable values depending on imaging conditions, and new quantitative values may contribute to improve the accuracy of qualitative diagnosis of lung cancer.

B-4-2 The Prediction of Pathological Pleural Invasion of Lung Cancer by Artificial Intelligence Assisted Imaging Analysis

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Introduction: Visceral pleural invasion (VPI) is a poor prognostic factor of lung cancer and is related to the proportion of lymph node metastases. Radiological findings of VPI might be subjective judgment, which could not be reliable for clinical use. Our study aimed to explore objective radiological findings to predict VPI using artificial intelligence (AI) analysis.

Methods: A total of 556 patients with complete surgical resection of lung cancers at Tokyo Medical University Hospital between 2011 and 2018 were enrolled. We performed AI-assisted analysis of three-dimensional computed tomography (3D-CT) images utilizing the Synapse Vincent software (Fujifilm, Japan). The software distributed radiological features of the tumor with each confidence score. The patients were assigned to the training and test cohorts at a ratio of 3:1, and the association of the features with VPI was statistically assessed.

Results: VPI was present in 179 patients (32%), and the median radiological tumor size on CT images was 2.3 cm (IQR 1.7-3 cm). Binary logistic regression analysis using stability selection in the training cohorts demonstrated solid nodule (Odds ratio 3.00; 95% confidence interval (CI) 2.28-4.04; p < 0.01) and pleural contact (Odds ratio 1.80; 95% CI 1.39-2.36; p < 0.01) as statistically significant factors related with VPI. The receiver operating characteristic analysis for the VPI prediction model created by these two factors showed that the area under the curves was 0.831 and 0.782 in the training and test cohorts, respectively. The sensitivity and specificity were 0.739 and 0.657 in the test cohorts.

Conclusion: AI-assisted analysis of 3D-CT imaging enables preoperative prediction of VPI with high accuracy. Precise preoperative assessment of VPI is expected by integrating the AI software analysis.

B-4-3 The prediction of STAS using artificial intelligence driven three dimensional image analysis in clinical stage 0-IA primary lung adenocarcinoma

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Background: The number of sublobar resection for small-sized lung cancer is increasing. Spread through alveolar spaces (STAS) by histological analysis of resected lung has been recognized as a risk factor for local recurrence after sublobar resection in stage I lung adenocarcinoma, however preoperative image recognition of STAS remains challenging. Artificial intelligence (AI) analysis is promising for preoperative assessment of pulmonary nodules with STAS.

Methods: A retrospective study of 364 cases of clinical stage 0-IA lung adenocarcinoma surgically resected from 2018 to 2021 was conducted. Preoperative CT images were analyzed using three-dimensional (3D) image analysis (Synapse Vincent, Fujifilm) with AI, which performed automatic measurements including the volume, and evaluated 22 characteristic imaging features of the pulmonary nodules. Pathological evaluation of STAS was performed on resected specimens, and correlations with image features were examined.

Results: In patients with STAS (n=107) compared to those without (n=257), PET/CT revealed higher median SUVmax (4.5 vs. 2.0, p<0.01). AI-driven 3D analysis noted marked differences in solid component metrics between the two groups (STAS: 1.37 cm³ at 68.6% vs. non-STAS: 0.38 cm³ at 26.0%, p<0.01). Based on the 22 imaging features by AI-driven 3D analysis, serrated, spiculated, lobular, full nodules, and pleural thickening were identified as STAS-associated features (confidence level ≥ 0.5). Multivariate analysis highlighted lobulation (OR 5.38, p=0.01) and pleural thickening (OR 3.40, p<0.01) as strong predictors of STAS. Sensitivity and specificity of detecting STAS using AI were 91% and 46%, respectively.

Conclusion: Incorporating AI image analysis into conventional imaging can improve the accuracy to predict STAS and contribute to surgical strategies.

B-4-4 Association between pathological infiltrative tumor growth pattern and prognosis in patients with resected lung squamous cell carcinoma

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Background: Lung squamous cell carcinoma (LUSC) usually shows histological expansive growth with a large solid nest of tumor cells. There are only a few reports to date on the infiltrative growth pattern (INF) of tumors in LUSC patients, which is associated with an unfavorable prognosis in other cancers.

In this study, we investigated the correlation between the pathological grading of INF and prognosis in surgically resected LUSC.

Method: A total of 254 consecutive resected LUSC in our hospital between January 2008 and December 2017 were studied. We statistically analyzed the association between INF and clinicopathological factors.

Result: In the cohort, INF was classified into 3 categories, as INFa (consisting of only well-demarcated large solid nests of tumor cells) in 59 patients (23%), as INFb (consisting of medium to small solid nests of tumor cells in addition to large solid nests of tumor cells) in 89 patients (35%), and as INFc (consisting of cord-like or small solid nests or isolated tumor cells in addition to large solid nests of tumor cells) in 98 patients (39%). INFc tumors were highly associated with pathological visceral pleural invasion, vascular invasion, and lymphatic permeation. INFc was associated with unfavorable prognosis for recurrence-free survival (RFS) in p-stage I patients (HR 1.985; 95% CI, 1.033–3.814). In p-stage I patients, the 5-year RFS rate was 74.9% in INFa/b group and 53.3% in INFc group (p = 0.010). In addition, INFc group demonstrated distant metastasis as the initial recurrence site more frequently than INFa/b group.

Conclusion: INF of LUSC was a significant prognostic factor in patients completely resected in early stage.

B-4-5 Contralateral pleural effusion following video-assisted thoracic surgery for metastatic lung tumor in patient with Buffalo Chest after esophagectomy

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A 52-year-old male received total esophagectomy and retrosternal route with gastric tube reconstruction due to esophageal, mesopharyngeal and hypopharyngeal carcinoma 4 years ago, underwent metastatic lung tumor, presenting a unique postoperative complication. Follow-up chest computed tomography scan showed a growing nodule in the right S6, which was suspected to be the metastatic lung tumor from hypopharyngeal carcinoma. Wedge resection of right lower lobe by video-assisted thoracic surgery (VATS) was performed. During operation, 1000ml warm saline and 1600ml distilled water were used for intrathoracic irrigation, with uncollected volume of approximately 800 ml. However, no fluid was recognized in the right thoracic cavity and the operation was finished. Postoperative chest X-ray revealed decreased transparency in the left lung field, while the patient's oxygenation status remained stable. By the first postoperative day, significant volume of pleural fluid was drained through the right chest tube, improving the left lung field's transparency on X-ray. The patient's postoperative course was uneventful. This phenomenon suggests that the irrigating fluid used during surgery migrated to the opposite side, possibly due to pleuro-pleural communication, known as Buffalo Chest, caused by previous esophagectomy. We report the extremely rare case of Buffalo Chest following esophagectomy, which presented with contralateral pleural effusion after VATS for metastatic lung tumor, accompanied by a review of the literature.

B-4-6 Association between whitish exudate on anastomotic rings and intraluminal granulation formation following bronchial sleeve resection: a retrospective study

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[Objective] This study aimed to investigate whether whitish exudate adhering to the anastomotic ring after bronchial anastomosis could be a risk factor for intraluminal granulation formation.

[Methods] Patients who underwent bronchial sleeve resection at our institution between January 2008 and September 2021 were retrospectively reviewed. We selected bronchoscopic images taken within 21 days postoperatively, ensuring that the entire anastomotic ring was captured within the frame. Using image analysis software (ImageJ), we quantified the "Belag Index (BI)" by dividing the area of whitish exudate by the area within the anastomotic ring. If bronchoscopic evaluation was conducted several times within 21 days postoperatively, the image with the higher BI value was selected. The diagnosis of "granulation tissue formation" included cases requiring interventions such as balloon dilation due to actual stenosis and respiratory distress, as well as those where granulation tissue formation was evident on bronchoscopic.

[Result] In total, 71 patients were enrolled in the study. Among them, 12 patients (17%) showed granulation tissue formation. The BI was significantly higher in cases with granulation tissue formation compared to those without (median BI 1.86 vs 0.37, $p=0.0004$). Using a BI cutoff of >0.8 , the sensitivity for detecting granulation tissue formation was 91.7%, specificity was 83.1%, positive predictive value was 52.4%, and negative predictive value was 98%.

[Discussion] A BI of less than 0.8 suggests a low risk of granulation tissue formation. Because granulation tissue formation can lead to anastomotic stenosis, the BI may serve as a valuable tool for predicting the prognosis of post-bronchial anastomotic stenosis.

B-5-1 Feasibility of Small Peripheral Lung Cancer Resection Using Preoperative CT-Guided Marking

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Background: With advancements in imaging technology, the prevalence of surgical cases involving small peripheral lung cancers is increasing. We have encountered numerous instances where palpating the tumor in a small incision poses challenges in accurately identifying the tumor and ensuring precise margins. At our hospital, the CT-guided dye-marking injection method is regarded as minimally invasive, safe, and reliable for lung resection, with no reported incidents of air embolization, as seen with VATS markers.

Purpose: This study aimed to investigate the safety and usefulness of lung resection following CT-guided marking for small peripheral lung cancer conducted at our hospital through imaging and clinicopathologic studies.

Patients and Methods: We retrospectively examined seven surgical cases and eight lesions of primary small peripheral lung cancer that were managed at our department from April 2018 to October 2023.

Results: The mean age of the patients (three men and four women) was 69 (52–79) years. All patients underwent CT-guided percutaneous puncture. A dye solution (indigocarmine + contrast medium) was injected into the lung, and marking was conducted on the lesion prior to surgery. No complications, such as shock or respiratory distress, were observed postoperatively. No instances of intra-operative dye loss were noted. The mean invasion diameter was 5.6 (1.0–16) mm. The mean follow-up period was 30 months, and all patients survived with no stump recurrence.

Conclusion: Preoperative marking with indigocarmine is relatively easy and safe, making it beneficial for current minimally invasive surgeries owing to its ability to ensure effective pulmonary resection.

B-5-2 Anomalous Arterial Supply to the Normal Basal Segment of the Right Lower Lobe: Thoracoscopic Surgery Following Endovascular Vascular Plug Embolization

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Pulmonary systemic arterialization to the normal basal lung without sequestration is a rare congenital anomaly, with arterialization of the left lower lobe being the most common manifestation. Traditionally, surgical interventions have been performed. We have recently adopted a minimally invasive approach combining thoracoscopic surgery with endovascular vascular plug embolization, primarily utilizing coils.

A 55-year-old female presented to our hospital with an abnormal chest CT shadow, revealing increased vascular markings in the left lower field, a partial defect in the lateral line of the descending thoracic aorta, and ground-glass opacity (GGO) in the S2 segment of the left lower lobe. 3D CT depicted an artery arising from the descending thoracic aorta, supplying the left basal segment with an absence of normal pulmonary arteries. A clinical diagnosis of systemic arterial supply to the basal segment of the left lower lung was established. We conducted a left lower wedge resection, complemented by the closure of the anomalous systemic artery using video-assisted thoracic surgery (VATS) in conjunction with endovascular vascular plug embolization. Histopathological examination revealed a normal alveolar structure, along with sclerosis and hypertrophy of pulmonary arteries in the lesion, categorized as Heath-Edwards V, indicating irreversible vascular changes due to pulmonary hypertension. The patient discharged fifth days after surgery without trouble. Our findings suggest that the VATS with Endovascular Vascular Plug Embolization procedure is a more advantageous and less invasive method for cases involving systemic arterial supply to the basal segment of the left lower lung when compared to standalone VATS.

B-5-3 Optimal Surgical Management of Azygos Vein Aneurysm: A Case Report and Comprehensive Treatment Approach

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Azygos vein aneurysm is extremely rare. The majority of patients have no obvious clinical symptoms, so they are found by routine physical examination or incidentally. Currently, there are no guidelines, rules, or reviews outlining the optimal treatment strategy for these patients. We present herein the case of a 73-year-old woman, whose radiographic examination revealed a progressive mediastinal enlargement. Contrast-enhanced chest computed tomography (CT) revealed a cystic dilatation of the azygos arch, measuring 5.3 cm in diameter. Given the discernible risks associated with thrombosis and rupture, the decision was made to pursue surgical resection. Based on the preoperative three-dimensional (3D) reconstruction imaging findings, preparations were made for angioplasty of the superior vena cava under cardiopulmonary bypass. Despite the aneurysm's proximity to the superior vena cava, successful resection was accomplished through Video-assisted thoracic surgery (VATS). The patient was discharged four days after surgery without any complications. Azygos vein aneurysms are uncommon, and preoperative 3D reconstruction aids surgeons in clarifying the disease diagnosis, formulating the surgical plan, and preventing intraoperative massive bleeding. VATS is a viable option for treating azygos vein aneurysms, with an increasing number of reports detailing varicose vein resection in thoracoscopic surgery. However, we emphasize that the treatment approach should be determined based on meticulous preoperative examination results.

B-5-4 Treatment Experience of Pulmonary Arteriovenous Fistula at Our Institution

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Pulmonary arteriovenous fistula (PAVF) is a rare pulmonary disease characterized by abnormal communication between the pulmonary artery and pulmonary vein. Even when asymptomatic, it warrants treatment due to complications such as hypoxemia, hemoptysis, cerebral embolism, and brain abscess.

The primary treatment choice is embolization by interventional radiology (IVR), but some cases require surgical resection. We report cases of PAVF treated at our institution.

We reviewed 10 cases of PAVF treated at our institution from 2009 to 2021 (2 males, 8 females).

There were 7 cases of solitary PAVF and 3 cases of multiple PAVF, with the most common localization being the right lower lobe, observed in 7 cases including multiple cases. Six cases were symptomatic, while the remaining 4 were asymptomatic and incidentally detected during health check-ups. Among congenital cases, 4 were diagnosed with hereditary hemorrhagic telangiectasia (Rendu-Osler-Weber disease).

Treatment methods included IVR in 7 cases and surgery in 3 cases, all of which showed favorable post-treatment outcomes. Surgical procedures comprised lung partial resection in 2 cases, segmentectomy in 1 case. In some cases where it was challenging to identify the extent of resection intraoperatively, we have experience using indocyanine green (ICG) to clearly delineate the resection area and would like to provide surgical videos for reference.

B-5-5 Stent Placement Followed by Radiation Therapy for Central Airway Stenosis in Adenoid Cystic Carcinoma: Case Series

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Background: Adenoid cystic carcinoma (ACC) often causes central airway stenosis due to its frequent occurrence in the trachea and main bronchi. Surgical resection is the preferred treatment, but its invasiveness and potential for positive margins limit its applicability. Non-surgical interventions, including airway stenting and radiation therapy, are explored in cases unsuitable for surgery, with limited evidence of their efficacy.

Methods: We retrospectively analyzed five cases of primary tracheal or bronchial ACC treated with non-surgical interventions at Tokyo Medical University, Ibaraki Medical Center between January 2011 and December 2021.

Results: Among the five cases, there were three males and two females, with a median age of 55 years (range: 45-79 years), and all cases presented with airway narrowing and respiratory distress. Initial treatments included tumor debulking and ablative therapy via rigid bronchoscopy in two cases, stent placement alone in two cases, and combination of rigid bronchoscopic tumor debulking and stent placement in one case. Silicon stents were selected for all three cases where stent placement was performed. All five cases received additional radiation therapy, including proton therapy. After the initial treatment, all five cases showed improvement in airway stenosis and respiratory distress, and no recurrence was observed. Therefore, stent removal was possible in all three cases, and there was no restenosis after removal.

Conclusion: The combination of stent placement and additional radiation therapy for ACC with central airway stenosis demonstrated favorable outcomes, and all stent placement cases allowed for successful stent removal.