of mechanic jaundice with elevated levels of bilirubin from 132 to 260 mmol/L. In 16 (42.1%) cases were observed signs of double block, where mechanic jaundice was accompanied with signs of duodenal stenosis. Decompression of biliary tract was performed preliminarily in all cases. Of them in 28 patients decompression was achieved by percutaneous transhepatic drainage at the first stage of treatment and in 10 cases decompression was performed by endoscopic papillasphyncterotomy and stenting of bile duct. The second stage of treatment included radical surgery after 4−6 weeks. According to type of formed anastomosis with the cult of pancreas, patients were divided into 2 groups: 1st group − n = 16 pancreatojejuno anastomosis; 2nd group − n = 22 was formed pancreatogastro anastomosis.

Results: The rate of postoperative complications in the 1st group constituted 31.2%, in the 2nd group 18.2%. Anastomotic failure in the 1st group was observed in 3 patients; meanwhile this type of complication did not occur in the 2nd group. Postoperative mortality rate constituted 12.5% and 0% correspondingly. 5 year survival rate made up 18.7% and 22.7%.

Conclusion: The proposed method of forming of gastropancreato anastomosis significantly reduces the rate of postoperative complications and general mortality rate.

No conflict of interest.

2287 POSTER

Yonsei criteria in minimally invasive surgery for left sided pancreatic cancer

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Background: Minimally invasive surgery (MIS) for left side pancreatic benign or borderline malignancy has been regarded as a feasible and safe. However, application of MIS for left-sided pancreatic cancer is still controversial.

Materials and Methods: From June 2007 to December 2014, 135 patients who underwent MIS or OPEN distal pancreatectomy (OS) for left-sided pancreatic cancer were enrolled. MIS have been applied for well selected patients with Yonsei criteria, including the following conditions: 1) tumor confined to the pancreas, 2) intact fascial layer between the distal pancreas and the left adrenal gland and kidney, and 3) tumor located more than 1−2cm from the celiac axis. We compared the perioperative and oncologic outcomes according to surgical approach (MIS vs. OS) and Yonsei criteria (within vs. out of)

Results: MIS and OS were performed in 29 and 106 patients for left-sided pancreatic cancer. The patients within Yonsei criteria were 16 patients in MIS and 38 in OS. In the MIS group, the mean tumor size was 2.75±1.32 cm and the mean number of retrieved lymph nodes was 10.5±7.14. The resection margins were confirmed to be negative for malignancy in all patients. Tumor size (2.8±1.3 vs. 3.5±1.9 cm, p = 0.05) and length of hospital stay (12.3±6.8 vs. 22.4±21.6 days, p = 0.002) were significantly different between two groups. In addition, pancreatic cancer within Yonsei criteria was found to be strongly associated with less aggressive biologic characteristics comparing with those out of Yonsei critiera (p < 0.05). MIS within Yonsei criteria had longer disease-free survival (DFS) and overall survival (OS) than the Open group out of Yonsei criteria (DFS: 47.6 vs. 24.7 months, p = 0.027; OS: 60.0 vs. 30.7 months, p = 0.046). However, there were no significant differences in median overall survival between the MIS and open group within Yonsei Criteria (60.00 vs. 60.72 months, p = 0.616).

Conclusions: A Yonsei criterion is useful in selecting MIS for left-sided pancreatic cancer. It can play important role as surrogate clinical marker to predict excellent long-term oncologic outcomes before surgery.

No conflict of interest.

2288 POSTER

Validation of the Memorial Sloan Kettering Cancer Center (MSKCC) nomogram after surgery for localized pancreatic adenocarcinoma: Long-term results from a Spanish pancreatic cancer surgery reference centre

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Background: Long-term survival after surgery for pancreatic adenocarcinoma is poor. Adjuvant therapy offers a small but clinically significant improvement in these dismal results. Better stratification of patients may help in the selection of adjuvant therapy. The MSKCC nomogram combines clinical and pathological data in order to predict disease-specific free survival (DFS) and may improve the prognostic value of the TNM system.

Methods: Retrospective review of 90 patients (pts) with pancreatic adenocarcinoma treated with surgery (2003–2013). Prognostic factors for DFS evaluated as independent prognostic variables (elastic-net penalized Cox regression model). The random forest algorithm used to classify model (validated error rate of 26%). Selection of factors was based on variable importance reported by algorithm (cutoff value of 0.01). The nomogram was validated with the concordance index.

Results: Pts characteristics in table. In the regression analysis, posterior margin involvement (penalized coefficient (PC) 0.17), macroscopic vascular invasion (PC 0.10) and positive lymph nodes (PC 0.01) were independent factors for worse DFS. There was a correlation between the number of retrieved negative lymph nodes and better DFS.

Median follow-up of 78.9 mts (21.4–148.3 mts), mOS of 25.7 mts (95% CI 22–29.4 mts). Stratification according to nomogram: low-risk (<190 points, n 44), intermediate-risk (191–255 points, n 15) and high-risk (>225 points, n 11). mDFS was 29.61, 20.8 and 10.57 mts, respectively. The nomogram concordance index was 0.65, 0.71, 0.70 for DFS at 12-,-24- and 36-mts, respectively.

Characteristic	n (%)
Median age (range)	64 (37−81)
Male	47 (52.2)
Back pain	60 (66.7)
Weight loss	28 (31.1)
Diabetes	47 (53)
Jaundice	64 (71.1)
Pancreatic head	52 (58.4)
Portal vein involvement	5 (5.5)
Splenectomy	6 (6.7)
Grade 3	19 (21.1)
R1 resection	23 (25.5)
Posterior margin involvement	26 (28.9)
T1/T2/T3/T4	17 (18.9)/34 (37.8)/34 (37.8)/5 (5.7)
Median positive/negative lymph nodes (range)	1 (3−11)/11 (0−43)
Adjuvant treatment	46 (51.1)
Reason for no adjuvant treatment:	
PS	13 (30)
Delay >12 wks	6 (14)
Surgical complications	13 (30)
Disease progression	2 (3)
Unknown	10 (23)
Early surgery-related deaths	4 (4.4)

Conclusions: The MSKCC nomogram predicted accurately DFS in the first three years. Posterior margin involvement, vascular invasion and positive lymph nodes were independent prognostic factors. The correlation between better DFS and a higher number of retrieved lymph nodes could be explained by better surgery or tumor biology and merits further study. Adjuvant therapy was given in little more than a half of pts, despite its proven efficacy. Neoadjuvant approaches, especially in poor-prognosis pts, may improve these shortcomings, though this must be validated in clinical trials.

No conflict of interest.

2289 POSTER

Impact of sarcopenia on outcomes after pancreatectomy for malignancy

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Background: Sarcopenia, which is a subclinical loss of skeletal muscle mass as measured by cross-sectional imaging, is commonly observed in patients with malignancy. Few studies have examined the association between the presence of sarcopenia and outcome following surgery. The aim of this study is to evaluate the prevalence of sarcopenia and to investigate its impact on short- and long-term outcomes in patients who underwent pancreatectomy for malignancy.

Materials and Methods: A retrospective review of a pancreatectomy database was performed. Skeletal muscle index (SMI) was measured on preoperative cross-sectional imaging in 144 patients undergoing pancreatectomy for cancer between 2007 and 2014. Sarcopenia was defined, according to the international consensus, as an SMI <52.4 cm^2/m^2 and <38.9 cm^2/m^2 for men and women respectively. The prevalence and

impact of sarcopenia on morbidity, mortality, disease-free and overall survivals was assessed relative to other clinicopathological factors.
Results: Mean age was 67.15 years and 51% was female. Pancreatic adenocarcinoma represents 66.7% of all cases. Pancreaticoduodenectomy was performed in 114 cases (79.2%). Margin status was R0 in 76.9%. Mean BMI was 24.85 Kg/m^2 and mean SMI was 35,43 cm^2/m^2. One hundred and eight (74.5%) were sarcopenic, 37 (43.5%) were overweight/obese and 43 (29.7%) were both ($p = 0.041$). Sarcopenia was significantly related to histology, sex, BMI and albumin. Overall morbidity and 90-days mortality were 50.7% and 9.1% respectively. The median follow up was 21 months. Overall and disease-free survival rate were 25,44 months and 11,84 months respectively. Sarcopenia was associated to a not statistically significant increased risk of overall morbidity, mortality and shorter disease-free and overall survivals after pancreatic surgery for cancer.
Conclusions: Sarcopenia was found in 74.5% of cancer patients underwent pancreatectomy. It is an occult condition in overweight/obese patients but can be identified using CT scans. This condition, as defined by international consensus, is not associated with worse short-term and long-term outcomes after surgery.
No conflict of interest.

2290 POSTER

New clinical application to upper gastrointestinal surgery using indocyanine green (ICG) enhanced fluorescence system

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Background: Recent new imaging system using near-infrared (NIR) indocyanine green (ICG) enhanced fluorescence system has provided diverse clinical benefit in digestive surgery. A purpose of our study is to investigate anastomotic tissue perfusion at the reconstruction of upper gastrointestinal surgery using ICG-enhanced fluorescence system, and to evaluate clinical benefit and safety of ICG enhanced fluorescence system. Material and Methods Our study included 9 consecutive patients who underwent upper gastrointestinal surgery in the Department of Surgery at Teikyo University Chiba Medical Center between December 2014 and March 2015. In all cases, laparoscopic system (KARL STORZ GmbH & Co. KG, Tuttlingen, Germany) was used as ICG-enhanced fluorescence system. The imaging was generated by the high-end full high definition camera system (IMAGE 1 SPIESTM, KARL STORZ) connected to a laparoscope with 30º field of direction and 10 mm diameter equipped with a specific filter for optimal detection of the NIR fluorescence and white light without manual switching. To investigate anastomotic tissue perfusion, ICG injection during operation was performed using ICG solution at a concentration of 0.5 mg/ml/kg after performing the anastomosis to ensure adequate vascularization.
Results: The median (range) age of the patients was 67 (57−78) years with a median (range) BMI of 21.0 (16.8–27.0) kg/m^2. Five patients had distal gastrectomy, two patients had total gastrectomy, and two patients had esophagectomy with left colic graft interposition. Three cases was open surgery, four cases were laparoscopic surgery, and two cases were thoracoscopic surgery. A high-quality intraoperative ICG angiogram was achieved in all patients. After ICG injection, median (range) time to detect perfusion fluorescence of anastomosis was 60 (15–240) sec. Median (range) added time for the technique was 3 (2−5) min. There were no intra-operative complications in all cases. Although 8 patients had no postoperative complication, one patient who received esophagectomy with left colic graft interposition had minor leakage of anastomosis, and the patient's time to detect perfusion fluorescence of anastomosis was 240 min.
Conclusion: The assessment of anastomotic tissue perfusion using ICG-enhanced fluorescence system at the time of reconstruction of upper gastrointestinal surgery may be safe and useful with minimal added intraoperative time. Further work is required to determine optimum sensitivity and threshold levels for assessment of perfusion sufficiency with regard to anastomotic viability.
No conflict of interest.

2291 POSTER

Intraoperative gastroscopy in diagnosis and treatment of tumors of the upper gastrointestinal tract

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Introduction: Intraoperative gastroscopy (IOG) and surgery with endoscopic assistance is a selectively used method in diagnosis and treatment of the upper gastrointestinal tract tumors. Our aim is to enlighten the possible advantages and limitations and to set possible indications of the IOG.
Methods: Evaluation of 65 consecutive IOG in 61 patients with upper gastrointestinal tract tumor including early (3) and advanced (5) esophageal cancer, intramural esophageal (15) and gastric (12) tumors, tumors of the cardia (3), polyps (4), early cancer (8) and advanced gastric cancer (5), duodenal adenoma (1), unclear stomach resistance (2) and postoperative gastrointestinal tract bleeding (3). Evaluation included pre- and postoperative diagnosis, strategy of IOG, new findings, endoscopic and surgical therapy and complications.
Results: The endoscopy started preoperatively in 52 (78%) and peroperatively in 13 cases (22%) respectively. This resulted in a sole endoscopy in 16 cases including interventional endoscopic therapy. Lesion was localised in 64 cases, localisation failed in1case. Based on IOE, the type of surgery was generally changed in 2 cases (esophagectomy to gastrectomy), to a wider resection (5) and smaller resection (2). Conversion to open surgery was in 5 cases, minimaly invasive approach was used in 21 cases. During the surgical therapy of bleeding, endoscopy was indicated in 3 patients. No specific intraoperative complications of the endoscopy were observed, postoperatively 1 perforation after endoscopic submucosal dissection and 1 recurrence of the bleeding were observed. 30 day mortality was 0%.
Conclusion: Despite a heterogenic cohort of patients, we distinguish IOE as a meaningful complementary method in interventional treatment of upper gastrointestinal tract tumors. It enables minimally invasive and targeted therapy with individualization of treatment in selected patients. IOE expects a wide cooperation between surgeon and endoscopist and is demanding on technical skills. Further systematic studies are necessary.
No conflict of interest.

2292 POSTER

The prognostic significance of neutrophil-lymphocyte ratio, platelet-lymphocyte ratio and prognostic nutritional index in metastatic pancreas cancer

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Background: Inflammation has role in carcinogenesis. Neutrophil-lypmhocyte ratio (NLR), platelet-lymphocyte ratio (PLR) & prognostic nutritional index (PNI) were investigated as proinflammatory markers in various malignancies. We aimed to evaluate the prognostic significance of NLR, PLR & PNI in metastatic pancreas cancer (MPC). We excluded early stage patients to have a relatively more homogenous group for more accurate analysis of these parameters as prognostic factors.
Material and Methods: 146 MPC patients between 2002–2014 at our center were evaluated retrospectively for clinicopathological features, treatment modalities and survival rates with NLR, PLR & PNI. PNI was calculated as [10 $\times$ serum albumin (g/dL)] + [0.005 $\times$ peripheral lymphocyte count (per mm^3)]. Log Rank & Cox Regression analysis were used.
Results: Median age was 53 (22−78) with male predominance (73.3%). Liver (95.4%) was the most common site for metastasis. Half (53.4%) of the patients had ECOG-PS <2. 18% had cholestasis. Palliative chemotherapy was given to 86.3% of the patients, most of them had gemcitabine [cisplatin/gemcitabine (61.9%), gemcitabine (34.9%)]. Clinical benefit rate was 58.2% (stable disease 35.2%, partial remission 22% & complete remission 1%). Median values for NLR, PLR & PNI were as 3.47, 152 & 47 respectively. Median values were accepted as cut-off values. Median overall survival was 6 months (1−38). Age ($p = 0.003$), ECOG-PS ($p = 0.0001$), palliative chemotherapy ($p = 0.002$), cholestasis ($p = 0.001$) & NLR ($p = 0.001$) were statistically significant but PLR ($p = 0.062$) & PNI ($p = 0.51$) were not significant in univariate analysis. In multivariate analysis, age (HR 1.026, 95% CI 1.007–1.045, $p = 0.007$), ECOG-PS (HR 0.299, 95% CI 0.202–0.443, $p = 0.0001$), cholestasis (HR 0.541, 95% CI 0.325–0.901, $p = 0.01$) & NLR (HR 1.076, 95% CI 1.025–1.130, $p = 0.003$) were almost significant prognostic factors.
Conclusions: Basal high NLR (>3.47), advanced age(>60 y), poor ECOG-PS (>2) & cholestasis were independent poor prognostic factors in MPC. However, PNI or PLR had no prognostic significance. The patients with high basal PLR (>152) & PNI (>47) had better OS trend than those with low PLR & PNI though the differences were not statistically significant ($p = 0.062$, $p = 0.51$).
No conflict of interest.