Abstract IDDF2021-ABS-0191 Figure 4

istics and outcome were extracted manually. Overall survival (OS) was analyzed using Kaplan-Meier method. Cox proportional hazard regression was performed to control the prognostic variables.

Results Of 4912 patients with CRCLM in our cohort, 2956 (60.12%) were male. Comparing with male patients, females showed a significantly higher frequency of extrahepatic metastasis (28.2% vs. 19.8%, $P<0.0001$). Moreover, male had better 8-year OS than female in both left and right colon cancer (Left: male 44.3% vs female 34.4%; $P=0.0001$; Right: male 51.9% vs. female 39.5%, $P=0.0004$) (IDDF2021-ABS-0191 Figure 1A, IDDF2021-ABS-0191 Figure 1B). Similarly, in both simultaneous and metachronous liver metastasis males also showed a better 8-year OS (simultaneous: male 44.0% vs. female 36.9%, $P<0.0001$; metachronous: male 53.3% vs. female 41.1%, $P=0.0006$) (IDDF2021-ABS-0191 Figure 2A, IDDF2021-ABS-0191 Figure 2B). Among patients with KRAS mutant status or age ranged from 44 to 74 years old, males also showed a favorable 8-year OS (IDDF2021-ABS-0191 Figure 3A, IDDF2021-ABS-0191 Figure 3B, IDDF2021-ABS-0191 Figure 4A, IDDF2021-ABS-0191 Figure 4B, IDDF2021-ABS-0191 Figure 4C).

Conclusions The advantage of males in survival indicates the impact of sex disparity in CRCLM. Further investigation in regard of the gender differences in CRCLM is warranted to investigate the potential mechanisms.

IDDF2021-ABS-0192 THE ROLE CYTOMEGALOVIRUS DETECTION IN ACTIVE INFLAMMATORY BOWEL DISEASE

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10.1136/gutjnl-2021-IDDF.173

Background It is known that Cytomegalovirus (CMV) can be detected in the colon during active Inflammatory Bowel Disease (IBD). However, its pathogenic role in causing active inflammation remains unclear as this ubiquitous virus is also regarded as innocent bystander. We aim to examine the utility of CMV testing in the colonic specimen and correlate with clinical outcome.

Methods A retrospective review of IBD patients with active symptomatic disease undergoing colonoscopy in National University Hospital Singapore from 2012-2020 and CMV tissue studies (histology with CMV Immunohistochemistry (IHC), CMV polymerase chain reaction (PCR), and tissue CMV culture) was conducted. The electronic medical

record was analysed for clinical outcomes and CMV treatment.

Results Of 492 patients under IBD clinic follow up, 91 patients with active disease (42 Crohn's Disease, 44 Ulcerative Colitis, 5 Unclassified IBD) underwent colonoscopy and CMV tissue studies. The mean age is 40.13 ± 15.24 years with 54 males and 37 females. CMV tissue studies were positive in 20 (28.8%) patients. A large majority of these patients (14/20; 70%) achieved steroid-free remission without CMV treatment which suggests that CMV is innocent bystander. However, the rest (6 patients) had worsening or protracted active disease and were treated with a course of valganciclovir or ganciclovir which resulted in remission in all 6 patients, suggesting that CMV contributed to active disease activity.

We compared different testing modalities among those 20 patients with positive CMV and correlated with disease course. Refractory disease occurred in 2/3 (66.6%) IHC positive patients and 3/5 (60.0%) patients with positivity of both IHC and CMV PCR, as compared to only 1/11 (9.1%) patients with positive CMV PCR, and none (0/1) in patients with positive CMV culture.

Conclusions Colonic CMV was detected in 28.8% of patients with active IBD, but the large majority does not need CMV treatment. Positive IHC was associated with refractory disease as compared to PCR and CMV cultures.

IDDF2021-ABS-0206 A NEW COMPUTER-ASSISTED DIAGNOSIS SCORING SYSTEM BASED ON DEEP LEARNING FOR PREDICTING INFLAMMATORY ACTIVITY FROM PATIENTS WITH ULCERATIVE COLITIS

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10.1136/gutjnl-2021-IDDF.174

Background Endoscopy is increasingly important for the evaluation of patients with ulcerative colitis (UC). However, there were considerable differences in endoscopic assessment because of the endoscopists' training experience, not only that, existing endoscopy scoring methods cannot reflect the inflammation's details of the full-length endoscopic video; therefore, we sought to develop an automatic scoring system using deep learning technology for consistent and objective of endoscopic images and videos from patients with UC.

Methods ResNet50 pre-trained on ImageNet was selected as our CNN main framework. We collected 5,875 endoscopic images and 16 full-length videos from patients with UC who underwent colonoscopy from January 2017 through March 2021 as the dataset. The scoring system was trained by these images and could predict the Mayo score and UCEIS score by the feature it has learned on the training set. In addition, by using the predicted outcome, the CAD could show a ribbon in the shape of the colon which can reflect the conditions of the inflammation (location, severity). The scoring system is composed of clarity cleaning, similarity judgement and score prediction networks. This corresponding relation which combines the exiting endoscopy scores prediction, helps the system to output a new score with weighted calculation, as well as the lesions' location and severity ratio.

Results Two clinical reviewed our consistency statistics. The primary evaluation metric we used is quadratic weighted kappa (QWK). The trained CNN got high levels with 90.2% accuracy in the Mayo-scored task, while the QWK coefficient was 0.906 (95%CI, 0.880-0.933). The metrics of UCEIS-scored task were inspiring of which accuracy were 90.7%, 84.6%, 77.7%, QWK coefficient were 0.887 (95%CI, 0.860-0.915), 0.876 (95%CI, 0.844-0.907), 0.816 (95%CI, 0.739-0.892) for vascular pattern, erosions-and-ulcers and bleeding. Meanwhile, the CNN identified 16 full-length endoscopy videos and evaluated 1,360 local information from 100 intestine segments. The results of these localized intestinal tissue marked by the scored system were distributed in four ranges, and the quantities were 772(0.0-0.4), 124(0.72-2.35), 206(3.2-4.0), 258(5.2-8.4). It performed desirable compared with the clinical diagnosis.

Conclusions The results of objective evaluations of UC based on this scoring system appeared acceptable. Compared with the previous scored methods (only refer to the most severe lesion and ignored other mild parts), this work is of clinical significance and will help clinicians by supplying a good capacity in identifying endoscopy data and stimulating the colon's inflammatory environment.

IDDF2021-ABS-0208

DEVELOPMENT OF AN AUTOMATIC SYSTEM TO FAST QUANTIFY MARKING AND INCISION DURING ENDOSCOPIC SUBMUCOSAL DISSECTION

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10.1136/gutjnl-2021-IDDF.175

Background Facilitating accurate location of marking points and circumferential incision in the mucosa at a certain distance outside the boundary of the lesion is important to ensure the quality of endoscopic submucosal dissection (ESD). However, the decision-making of different endoscopists has a large variance due to subjective experience, leading to difficulty in quality control of ESD. To tackle this problem, this

study aims at utilizing an intelligent automatic system to give real-time guidance during the operation.

Methods We built an Artificial Intelligence (AI) assistant system that can detect the lesion boundary and marked points in real-time to quantify the location of marking points and cutting path during ESD of early esophageal cancer (EEC). This system was composed of two major components, that were the marking points suggestion module and the cutting line suggestion module. We collected 499 endoscopic images with Lugol's staining of EEC from 20 cases and 3397 detailed images of ESD from 12 cases. With these images, we built datasets for the evaluation of lesion boundary detection and marked points detection. Then, the algorithm was built to display the marking position and the mucosal incision position.

Results We conducted the experiments, including two parts. The first one was to assess the real-time boundary detection performance and marked points detection performance. Specifically, we achieved a satisfactory real-time lesion segmentation performance with Dice score of 96.1%, and a good marked points detection performance with average precision (AP) 50 of 72.1%. On the basis of boundary detection, our algorithm can automatically display the marking position at a certain distance (such as 0.3cm, which can be adjusted as needed) outside the boundary of the lesion. After the guidance of marking points, the automatic system can detect the marked points and display the mucosal cutting line at a certain distance outside the marked points.

Conclusions Suggesting position of marking and incision were successfully achieved during ESD with our automatic system, which can improve consistency of standard ESD procedure among different level hospitals.

IDDF2021-ABS-0211

CO-OCCURRENCE OF GUT MICROBIOTA DYSBIOSIS AND BILE ACID METABOLISM ALTERATION IS ASSOCIATED WITH PSYCHOLOGICAL DISORDERS IN CROHN'S DISEASE

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10.1136/gutjnl-2021-IDDF.176

Background Metabolites of the gut microbiota interacting with signals derived from the host immune, endocrine, and neuronal systems intertwining may influence the development of mucosal injury and inflammation and impacts also distal central nervous system, underlying the psychophysiological vulnerability of Crohn's disease (CD) patients. This study aims to elucidate the relationships between bile acid metabolism, gut microbiota, and psychological comorbidity in CD.

Methods A total 39 CD patients and 14 healthy controls were enrolled in this study. The psychological status of the participants was accessed by using Zung Self-rating Depression Scale (SDS) and Self-rating Anxiety Scale (SAS). Bile acids in the feces and serum samples were quantified by using liquid chromatography-tandem mass spectrometry (LC-MS/MS). 16S