English Abstract Session

Sat. Nov 15, 2025 11:00 AM - 11:50 AM JST | Sat. Nov 15, 2025 2:00 AM - 2:50 AM UTC Room 10

[E4] English Abstract Session 4 Diagnosis & Drug Therapy

Moderator:Tetsuo Ishizaki(Department of Digestive and Transplantation Surgery, Tokyo Medical University Hachioji Medical Center), JIN KIM(Korea University College of Medicine)

[E4-1]

Clinical value of CT 3D construction of pelvis and mesorectum in middle-low rectal carcinoma

Xiao-Cong Zhou[1], Fei-Yue Ke[2], Hao Chen[2], Qiang Wang[2], Gaurav Dhamija[3], Ruchi Dharamshibhai Viroja[4], Gui-Ping Chen[1] (1.The First Affiliated Hospital of Zhejiang Chinese Medical University (Zhejiang Provincial Hospital of Traditional Chinese Medicine), 2.The Dingli Clinical Institute of Wenzhou Medical University (Wenzhou Central Hospital), 3.Ram Krishna Medical College Hospital and Research Centre, 4.Bhavsinhji General Hospital)

[E4-2]

Pre-Operative Endoscopic Assessment and MRI as Predictors of Pathological Complete Response and Long-Term Survival in Locally Advanced Rectal Cancer after Neoadjuvant Therapy

Trevor M Yeung[1], Wing Wa Leung[1], Justin Lam[1], Prudence Tam[1], Julie Ng[1], Kaori Futaba[1], Sophie S Hon[1], Simon Chu[1], Esther Hung[2], Carmen Cho[2], Simon S Ng[1] (1.The Chinese University of Hong Kong, 2.Department of Imaging and Interventional Radiology, The Chinese University of Hong Kong, Prince of Wales Hospital)

[E4-3]

CRCFound: A Colorectal Cancer CT Image Foundation Model Based on Self-Supervised Learning

Du Cai[1], Jing Yang[2], Junwei Liu[3], Zhenfeng Zhuang[4], Yibing Zhao[5], Feng-Ao Wang[6], Chenghang Li[7], Chuling Hu[1], Baowen Gai[1], Yiping Chen[8], Yixue Li[9], Liansheng Wang[4], Feng Gao[1], Xiaojian Wu[1] (1.Department of General Surgery (Colorectal Surgery), The Sixth Affiliated Hospital, Sun Yat-sen University, 2.National Institute for Data Science in Health and Medicine, Xiamen University, 3.Guangzhou National Laboratory, 4.Department of Computer Science at the School of Informatics, Xiamen University, 5.Department of Colorectal Surgery, Ningbo Medical Center Lihuili Hospital (Affiliated Lihuili Hospital of Ningbo University), 6.Key Laboratory of Systems Health Science of Zhejiang Province, School of Life Science, Hangzhou Institute for Advanced Study, University of Chinese Academy of Sciences, 7.Artificial Intelligence Thrust, The Hong Kong University of Science and Technology, 8.School of Geospatial Engineering and Science, Sun Yat-Sen University, 9.Shanghai Institute of Nutrition and Health, Chinese Academy of Sciences)

[E4-4]

Deep learning in radiogenomics for enhanced risk prediction only from CT images in colorectal cancer

Feng Gao[1,2,3], Fengao Wang[4,5], Chuling Hu[1,2,3], Du Cai[1,2,3], Yibin Zhao[6], Daisuke Izumi[7], Haoning Qi[1,2,3], Baowen Gai[1,2,3], Junxiang Ding[4,5], Ruikun He[8], Junwei Liu[5], Yixue Li[4,5,9,10,11,12,13], Xiaojian Wu[1,2,3] (1.Department of General Surgery (Department of Colorectal Surgery), The Sixth Affiliated Hospital, Sun Yat–sen University, 2.Guangdong Provincial Key Laboratory of Colorectal and Pelvic Floor Diseases, The Sixth Affiliated Hospital, Sun Yat–sen University, 3.Biomedical Innovation Center, The Sixth Affiliated Hospital, Sun Yat–sen University, 4.Institute for Advanced Study, University of Chinese Academy of Sciences, 5.Guangzhou National Laboratory, 6.Department of Colorectal Surgery, Ningbo Medical Center Lihuili Hospital (Affiliated Lihuili Hospital of Ningbo University), 7.Izumi Gastroenterology & Surgery Clinic, 8.BYHEALTH Institute of Nutrition & Health, 9.GZMU–GIBH Joint School of Life Sciences, The Guangdong–Hong Kong–Macau Joint Laboratory for Cell Fate Regulation

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[E4-5]

Vancomycin boosts immunotherapy in MSS CRC via gut microbiota modulation

Bo Shi, Songbing He (The First Affiliated Hospital of Soochow University)

[E4-6]

Clinical Impact of 1L Therapeutic Strategies in BRAF V600E-Mutant Metastatic Colorectal Cancer

Shihwei Chiang[1,2], Chia-Chang Yeh[1], Feng-Fan Chiang[1,3] (1.Taichung Veterans General Hospital, 2.Department of Nutrition, Chung Shan Medical University, 3.College of Humanities and Social Sciences, Providence University)

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[E4-1] Clinical value of CT 3D construction of pelvis and mesorectum in middle-low rectal carcinoma

Xiao-Cong Zhou[1], Fei-Yue Ke[2], Hao Chen[2], Qiang Wang[2], Gaurav Dhamija[3], Ruchi Dharamshibhai Viroja[4], Gui-Ping Chen[1] (1.The First Affiliated Hospital of Zhejiang Chinese Medical University (Zhejiang Provincial Hospital of Traditional Chinese Medicine), 2.The Dingli Clinical Institute of Wenzhou Medical University (Wenzhou Central Hospital), 3.Ram Krishna Medical College Hospital and Research Centre, 4.Bhavsinhji General Hospital)

Background
Laparoscopic anus-preserving radical resection for middle-low rectal carcinoma is challenging due to the confined pelvic space and bulky rectal mesentery. Few studies have quantified pelvic and rectal mesenteric volumes using three-dimensional (3D) reconstruction. This study reconstructs and measures pelvic and rectal anatomy in 3D, analyzes sex-based differences, and assesses their impact on short-term surgical outcomes.
Methods
This retrospective study included 103 patients with middle-low rectal carcinoma undergoing laparoscopic low/ultra-low anterior resection from January 2018 to January 2024. Pelvic measurements from CT imaging and 3D reconstructions were analyzed. Pelvic volume and rectal mesenteric fat volume were compared between sexes, and their influence on surgical outcomes was evaluated.
Results
Significant sex-based differences were found in pelvic diameter, angle, volume, and rectal mesenteric fat volume ($P<0.05$). Males had smaller pelvic volume ($P=0.007$) but larger rectal mesenteric fat volume ($P=0.047$). Females had lower intraoperative blood loss ($P<0.05$), despite more prior abdominal surgeries ($P<0.05$).
Conclusions
3D reconstruction reveals sex-based anatomical differences, aiding in defining a difficult pelvis. This enhances preoperative planning and surgical outcomes in rectal cancer surgery.

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[E4-2] Pre-Operative Endoscopic Assessment and MRI as Predictors of Pathological Complete Response and Long-Term Survival in Locally Advanced Rectal Cancer after Neoadjuvant Therapy

Trevor M Yeung[1], Wing Wa Leung[1], Justin Lam[1], Prudence Tam[1], Julie Ng[1], Kaori Futaba[1], Sophie S Hon[1], Simon Chu[1], Esther Hung[2], Carmen Cho[2], Simon S Ng[1] (1.The Chinese University of Hong Kong, 2.Department of Imaging and Interventional Radiology, The Chinese University of Hong Kong, Prince of Wales Hospital)

Aims
We assessed the value of using pre-operative endoscopy and magnetic resonance imaging (MRI) in predicting pathological complete response (pCR) and long-term survival in patients with rectal cancer following neoadjuvant therapy.
Methods
Single-center retrospective analysis of a prospectively maintained database of all patients with stage II/III rectal cancer who underwent neoadjuvant therapy followed by surgery between 2016-2024. Patients underwent pre-operative endoscopic assessment and MRI restaging 4-8 weeks after completion of their neoadjuvant therapy, followed by surgery at 8-12 weeks. Primary outcome was the pCR rate in each endoscopic/MRI category.
Results
203 patients with rectal cancer were treated with neoadjuvant therapy. Overall, the pCR rate was 19.7%. 17 patients had complete clinical response (cCR), with a pCR rate of 76.4%. 42 patients had a near complete response (nCR), with a pCR rate of 47.6%. 130 patients had incomplete clinical response (iCR), with a pCR rate of 0%. Using cCR alone as a predictor of pCR yielded positive predictive value (PPV) 85.4%, negative predictive value (NPV) 65.5%, sensitivity 97.5%, and specificity 32.5%. Combining cCR with nCR yielded PPV 95.1%, NPV 55.9%, sensitivity 84%, and specificity 82.5%. The pCR rates for the different MRI TRG scores were: TRG1 (50%), TRG2 (38.5%), TRG3 (17.3%), TRG4 (9.6%), and TRG5 (25%). 8 -year overall survival rates for cCR, nCR and iCR were 100%, 75.2% and 62.3% respectively (p=0.038).
Conclusion
Endoscopic assessment provides a stronger predictor of pCR compared to MRI alone. Patients who develop cCR or nCR have better long-term overall survival compared to iCR and are good candidates for watch and wait.

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[E4-3] CRCFound: A Colorectal Cancer CT Image Foundation Model Based on Self-Supervised Learning

Du Cai[1], Jing Yang[2], Junwei Liu[3], Zhenfeng Zhuang[4], Yibing Zhao[5], Feng-Ao Wang[6], Chenghang Li[7], Chuling Hu[1], Baowen Gai[1], Yiping Chen[8], Yixue Li[9], Liansheng Wang[4], Feng Gao[1], Xiaojian Wu[1]
(1.Department of General Surgery (Colorectal Surgery), The Sixth Affiliated Hospital, Sun Yat-sen University, 2.National Institute for Data Science in Health and Medicine, Xiamen University, 3.Guangzhou National Laboratory, 4.Department of Computer Science at the School of Informatics, Xiamen University, 5.Department of Colorectal Surgery, Ningbo Medical Center Lihuili Hospital (Affiliated Lihuili Hospital of Ningbo University), 6.Key Laboratory of Systems Health Science of Zhejiang Province, School of Life Science, Hangzhou Institute for Advanced Study, University of Chinese Academy of Sciences, 7.Artificial Intelligence Thrust, The Hong Kong University of Science and Technology, 8.School of Geospatial Engineering and Science, Sun Yat-Sen University, 9.Shanghai Institute of Nutrition and Health, Chinese Academy of Sciences)

Background: Existing deep learning models perform poorly in the preoperative diagnosis for colorectal cancer (CRC) and lack generalizability due to insufficient annotated data. To address these issues, we propose CRCFound, a self-supervised learning-based CT image foundational model for CRC.

Methods: A total of 6,332 CRC patients with preoperative CT images were collected from 2008 to 2019 at the Sixth Affiliated Hospital of Sun Yat-sen University. Among them, 5,137 unlabeled CT images were used for pretraining, and 1,195 images were reserved for fine-tuning and validation. Comprehensive benchmark tests were conducted on six diagnostic and two prognosis tasks in comparison with other models. Model interpretation was also explored to gain a more profound understanding of the model's behavior and decision-making process.

Results: For preoperative diagnosis of TNM stage, the average AUC of CRCFound for T, N, M, and overall TNM stage reached 0.889, 0.847, 0.830, and 0.774. In the MSI and CMS diagnosis tasks, it also showed good predictive performance (AUC 0.952 and 0.810, respectively). For prognosis prediction, CRCFound_CT was an independent risk factor for disease-free survival and overall survival . Feature visualization using the t-SNE algorithm demonstrated that CRCFound could effectively differentiate samples in multiple tasks. Visualization of the attention map indicates that CRCFound can focus more effectively on the critical areas of the tumor than traditional supervised learning models, thus providing more accurate predictions.

Conclusion: CRCFound addresses the challenge of insufficient annotated data and performs well in a wide range of downstream tasks, offering a promising solution for accurate diagnosis and personalized treatment of CRC patients.

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[E4-4] Deep learning in radiogenomics for enhanced risk prediction only from CT images in colorectal cancer

Feng Gao[1,2,3], Fengao Wang[4,5], Chuling Hu[1,2,3], Du Cai[1,2,3], Yibin Zhao[6], Daisuke Izumi[7], Haoning Qi[1,2,3], Baowen Gai[1,2,3], Junxiang Ding[4,5], Ruikun He[8], Junwei Liu[5], Yixue Li[4,5,9,10,11,12,13], Xiaojian Wu[1,2,3] (1.Department of General Surgery (Department of Colorectal Surgery), The Sixth Affiliated Hospital, Sun Yat–sen University, 2.Guangdong Provincial Key Laboratory of Colorectal and Pelvic Floor Diseases, The Sixth Affiliated Hospital, Sun Yat–sen University, 3.Biomedical Innovation Center, The Sixth Affiliated Hospital, Sun Yat–sen University, 4.Institute for Advanced Study, University of Chinese Academy of Sciences, 5.Guangzhou National Laboratory, 6.Department of Colorectal Surgery, Ningbo Medical Center Lihuili Hospital (Affiliated Lihuili Hospital of Ningbo University), 7.Izumi Gastroenterology & Surgery Clinic, 8.BYHEALTH Institute of Nutrition & Health, 9.GZMU–GIBH Joint School of Life Sciences, The Guangdong–Hong Kong–Macau Joint Laboratory for Cell Fate Regulation and Diseases, Guangzhou Medical University, 10.School of Life Sciences and Biotechnology, Shanghai Jiao Tong University, 11.Shanghai Institute of Nutrition and Health, Chinese Academy of Sciences, 12.Collaborative Innovation Center for Genetics and Development, Fudan University, 13.Shanghai Institute for Biomedical and Pharmaceutical Technologies)

Background: Accurate prognosis prediction in colorectal cancer (CRC) patients is clinically essential. While the efficiency of radio-genomics multimodal learning in prognosis prediction, its clinical implementation is high costs and difficult. We aimed to develop a deep learning model to integrate radio-genomics datasets and enable prognosis prediction using only CT images.
Methods: Our retrospective study involved two CRC cohorts from the Sixth Affiliated Hospital of Sun Yat-sen University, who had paired radio-genomic data (n=486) or only CT images (n=3004). We developed a Cross-Infer Survival Multimodal (CISM) model that predicts overall survival in CRC patients trained with radio-genomic data and is capable of prognosis prediction with only CT images. We evaluated the performance improvement of our model in prognosis prediction with only CT images and characterized the important multi-omics features in patient survival.
Results: With the prospective training cohort consisting of paired CT images and genomic data, the CISM model can predict the overall survival of CRC patients with multimodal inputs (C-index 0.701), only CT images input (C-index 0.658), and surpassing the CT image model (C-index 0.619). In the validation cohort with only CT images, the CISM model demonstrated higher performance in stratifying CRC patients into high-risk and low-risk groups (HR 2.06) compared to CT image model (HR 1.37). We explored the genomic and CT image features related to the prognosis of CRC patients and found the optimal image lesion focuses with the CISM model.
Conclusions: The CISM model shows superior performance in prognosis prediction with only CT images, suggesting that cross-modal interactions benefit clinical decision-making with limited clinical resources.

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[E4-5] Vancomycin boosts immunotherapy in MSS CRC via gut microbiota modulation

Bo Shi, Songbing He (The First Affiliated Hospital of Soochow University)

Although immune checkpoint blockade agents have achieved significant progress in the treatment of colorectal cancer (CRC), patients with microsatellite stable (MSS) CRC generally exhibit treatment resistance. Given the critical role of the gut microbiota in modulating the tumor immune microenvironment, this study focuses on vancomycin, an antibiotic with gut-specific effects. Oral administration of vancomycin can selectively deplete Gram-positive bacterial populations, and in this study, we aim to investigate whether the combination of vancomycin and anti-PD-1 can sensitize immunotherapy by modulating the gut microbiota. This study evaluates the anti-tumor effects of vancomycin combined with anti-PD-1 therapy through the establishment of a subcutaneous xenograft model of MSS CRC. By integrating transcriptomic sequencing, metagenomics, and metabolomics technologies, we comprehensively analyze the regulatory characteristics of the tumor immune microenvironment, gut microbiota, and metabolic networks during the treatment process. We observed that the combination of vancomycin and anti-PD-1 significantly enhanced anti-tumor responses compared to monotherapy groups. Integrated gut microbiome-metabolome analysis further demonstrated that the combination treatment specifically enriched Clostridium scindens and significantly upregulated isoLCA levels. IsoLCA promotes DC maturation by activating the TGR5/ZAP70 succinylation signaling axis, thereby enhancing tumor antigen cross-presentation and sensitizing immune checkpoint blockade therapy in MSS CRC. These findings indicate that vancomycin enhances the antigen-presenting capacity of DCs in tumor-draining lymph nodes by modulating the gut microbiota and their metabolites, thereby sensitizing immune checkpoint blockade therapy.

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[E4-6] Clinical Impact of 1L Therapeutic Strategies in BRAF V600E-Mutant Metastatic Colorectal Cancer

Shihwei Chiang[1,2], Chia-Chang Yeh[1], Feng-Fan Chiang[1,3] (1.Taichung Veterans General Hospital, 2.Department of Nutrition, Chung Shan Medical University, 3.College of Humanities and Social Sciences, Providence University)

*BRAF*V600E-mutant metastatic colorectal cancer (mCRC) is aggressive and shows poor response to standard therapy. While targeted treatments show promise in trials, real-world data are limited. This retrospective study included 36 patients treated at Taichung Veterans General Hospital between 2018 and 2024. Patients received either chemotherapy alone, chemotherapy with anti-VEGF, or chemotherapy with *BRAF*/*EGFR* plus or minus *MEK* inhibitors. Primary endpoints were overall survival (OS) and progression-free survival (PFS), while secondary endpoints included objective response rate (ORR) and disease control rate (DCR). The chemo plus anti-VEGF group showed the longest OS at 21.2 months and PFS at 10.5 months. The highest ORR at 53.8% and DCR at 76.9% were seen in the *BRAF*-targeted group. Liver metastasis and ECOG performance status ^{2} or above were poor prognostic factors. Right-sided tumors were unexpectedly associated with better survival (hazard ratio 0.20, $p<0.028$). Use of later-line *BRAF*-targeted therapy may have contributed to prolonged OS.