JGES-Asian International Joint Symposium - with the 17th JGES-KSGE

Endoscopic palliative treatment: Established and emerging technologies

Session 1: Pancreaticobiliary endoscopy

Moderators:

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Session 2: GI endoscopy

Moderators:

Korea University College of Medicine, Korea       Hoon Jai Chun
Department of Endoscopy and Endoscopic Surgery, Graduate School of Medicine,
The University of Tokyo Hospital, Japan       Mitsuhiro Fujishiro
**IS3-1-1**  
**Endoscopic Ablation of Unresectable Biliary Tract Cancers**  
Department of Internal Medicine, Kosin University School of Medicine, Gospel Hospital, Busan, Korea  
Eun Taek Park

Hilar cholangiocarcinoma (CC) is an uncommon cancer and its overall incidence is on the increase. The majority of patients are found to have an unresectable tumor on presentation and their survival is approximately 3 months without intervention and 4-6 months with biliary Intervention. In patients with unresectable hilar CC, photodynamic therapy (PDT) with biliary stents is used for palliation of jaundice and improving survival. Most therapeutic effects are aimed at delaying bile duct obstruction rather than decreasing the tumor. Several reports have suggested that PDT offers a beneficial alternative for patients with unresectable bile duct cancer. PDT is an evolving therapy for treatment of cancers that are resistant to standard oncologic treatment. PDT involves the injection of an intravenous photosensitizing drug followed by endoscopic application of light to the tumor bed. For light distribution, flexible cylindrical diffuser probes mounted on 400-nm quartz fibers with an active distal tip length of 2 cm were used. The light source was a diode laser system with a maximum power output of 2 W and a wavelength of 633 nm. The power emitted by the diffuser tip was calibrated to 400 mW/cm before PDT was administered using an integrating sphere power meter. The interaction between light and the photogen causes death of cancer cells and tumor thrombosis by generating oxygen-free radicals. Neutraduvt PDT for CC revealed that the tumoricidal depth of PDT using photofrin is limited to 6-8 mm of tissue penetration, which cannot eradicate a primary tumor when invasion extends to a depth of 7 to 9 mm. In numerous uncontrolled studies, the combination of PDT and biliary drainage has shown promising results in patients with unresectable hilar CC. Bilirubin levels declined with no significant increase during the two monthly follow-ups. Quality of life indices improved dramatically and remained stable during follow-up. Thirty-one patients have been treated with PDT. Seven patients had stage I CC, 11 patients had stage II CC and 13 patients had stage III CC. The median survival time was 439 days. The authors concluded that PDT, given as an additional treatment, improves survival in patients with unresectable CC. The study was terminated prematurely, because PDT was so superior to simple stenting that it was unethical to compare them any longer. The results of this study indicate that PDT has a significant role in the management of unresectable hilar CC.

**IS3-1-2**  
**EUS-guided salvage technique for malignant biliary obstruction in case of difficult cannulation or difficult approach**  
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Therapeutic ERCP for management of malignant biliary obstruction is widely used as a reliable and less invasive procedure. Biliary deep cannulation is inevitable step for therapeutic ERCP; however, it is occasionally difficult even with application of advanced cannulation techniques such as precutting or double guidewire cannulation. Furthermore, there are cases in whom endoscopic approach itself to the biliary orifice is difficult typically in cases with surgically altered anatomy. Recently, EUS-guided approach has emerged as salvage for those cases with difficult cannulation or difficult approach. For difficult cannulation, EUS-guided rendezvous technique (EUS-RV) can have a good indication, since EUS-RV assists to obtain biliary deep cannulation using the EUS placed guidewire through the needle, biliary duct and biliary orifice. For difficult approach, EUS-guided antegrade technique (EUS-AG) can have a good indication, since EUS-AG treats the malignant biliary obstruction in antegrade fashion through a temporally created fistula under EUS-guidance between the intestine and the biliary system without the endoscope itself reaching the biliary orifice. Here, we want to review current situation of EUS-RV and EUS-AG and to show our effort to improve a safety and efficacy of these techniques.

**IS3-1-3**  
**New paradigm for biliary stents: New design and function for better palliation of malignant obstruction**  
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Jong Kyun Lee

Self-expandable metal stents (SEMS) show better patency rate than plastic stent so that they are used commonly for unresectable malignant biliary obstruction. Since 1980, many advancements have been made in biliary stenting to prolong stent patency including improvements in mesh cell openings, covering materials, antimigrating, antireflux devices and drug-eluting stents (DES). Also many trials have been made to reduce SEMS-related adverse effects such as stent dysfunction, tumor ingrowth and overgrowth, sludge, cholangitis, migration, cholecystitis and pancreatitis. Hilar stent designs have continued to evolve to improve technical success rates by stent-in-stent deployment technique with central opening or large cell mesh or simultaneous side-by-side small caliber (6F) stent. Drug eluting stents may improve stent patency and provide a method for local delivery of chemotherapeutic agents. Paclitaxel and gemcitabine-eluting stents have been safe in animal model and human subjects. However, there was no significant difference between DES and conventional stents in terms of stent patency and survival. Currently, there is no definite evidence showing an advantage for DES, but this is an area with tremendous potential. The development of SiO2 or holmium-166 incorporated stents for local brachytherapy has been reported to be safe and need further study.

Metal stents with antireflux designs may theoretically reduce the incidence of cholangitis and potentially prolong stent patency. However, more studies are needed to confirm the effectiveness of these stents.

Although plastic stents have less patency duration than metal stent, they have some merits such as easy removability and multiple reintervention. Main causes of plastic stent clogging are bacterial biofilm and biliary sludge along with duodeno-biliary reflux and intrahepatic biliary infection. Many methods to prevent plastic stents occlusion have been tried such as stent design, composition, antimigrating and antireflux devices and drug-eluting stents (DES). Self-expandable metal stent was reported to resist antimigrating, antireflux devices and drug-eluting stents (DES). Bioabsorbable stents have been studied for multiple potential use such as patient and radiation therapy. Little non-EUS-guided devices are obstacles in clinical use for malignant obstruction. All stents in biliary system, whether atheroemobilized or not, have a disadvantage to begin the process of tissue proliferation, which continues to evolve to improve stent patency, patient’s survival and reduce complications, which ultimately guide the future clinical practice.

**IS3-1-4**  
**EUS-RFA for malignant solid pancreatic lesions**  
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Malignant solid pancreatic lesions (SPL) include pancreatic ductal adenocarcinoma (PDAC), pancreatic neuroendocrine tumor (PNET) and others. Majority of patients present in an advanced stage which are beyond curative resection. Current mainstay treatment for this group of patients is systemic chemotherapy. Local ablative therapy is not practically used. Recently, EUS-guided radiofrequency ablation (EUS-RFA) for malignant SPLs is possible. Existing devices are developed by 4 companies. Three companies used monopolar circuit. Internal cooling systems are used in 2 companies. Results of EUS-RFA for malignant SPLs were reported in 30 patients: PNET (n=7), 2 metastatic cancer (n=2), and PDAC (n=26). Unfortunately, survival rate was not compared with standard treatment. All reported adverse events are mild. Complete ablation of PNET was reported in 2 patients. In our center, EUS-RFA has been applied for management of malignant SPLs for a while. Preliminary results showed no serious adverse event. In this review, clinical results of our practice will be summarized and presented to audience. As well, the outcomes will be compared with results from other studies.
Endoscopic vacuum therapy for postoperative esophageal leak

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After esophagectomy several anastomotic complications often occur. Among them esophageal leak is the most common and serious one. As the optimal treatment of anastomotic leak remains controversial, several surgical or non-surgical therapies have been applied according to the patients’ condition and institutional preference. The essential points of esophageal leak treatment include stopping leak and drain any collection at anastomosis to control infection. The endoscopic vacuum-assisted closure (EVAC) is based on controlled negative pressure applied to the wound with a sponge, and has advantages of effective drain of the infected fluid and accelerating would healing by inducing the formation of granulation tissue over fully covered self-expanding metal stent (SEMS) treatment. We evaluated the efficacy and safety of EVAC for esophageal anastomotic leak following esophagectomy for cancer and to identify factors associated with poor outcome of EVAC treatment. We retrospectively analyzed 21 esophageal cancer patients who underwent EVAC for esophageal leak after esophagectomy between January 2015 and December 2017 at the Samsung Medical Center. Treatment failure was defined as a need for another intervention due to uncontrolled leak or infection, death occurring as a consequence of leak, or development of serious EVAC related complications. All 21 patients were men and received esophagectomy for squamous cell carcinoma. Of them, 11 patients (52.4%) received neoadjuvant treatment. No serious EVAC-related complications occurred. Treatment success was achieved in 20 patients (95.2%). One patient (4.8%) died from uncontrolled infection. No independent risk factor for treatment failure was identified. EVAC treatment can be applied as a non-surgical treatment option in anastomotic leak following esophagectomy.

GI stent: present and future from Japanese perspective

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Malignant GI obstruction can be associated with intolerance of oral intake and deterioration of quality of life. Stents now play a significant role in relieving obstruction and improving quality of life for these patients. Progress in enteral stenting is mainly due to the development of technology for esophageal stenting; however, Japan lagged behind other countries in the use of gastro-duodenal endoprosthesis. The ESGE guideline strongly recommends the use of stent for malignant obstruction in patients with inoperable gastrointestinal tract cancer, and these patients not candidates for curative surgical treatment due to the presence of advanced or metastatic disease or a high surgical risk.

Since the introduction of Self-expanding metal stents (SEMS) to palliation of malignant obstruction in patients with inoperable gastrointestinal tract cancer, many centers have to use two types of stent placement owing to faster symptom relief. It is also used for sealing of esophagorespiratory fistula. Although success rate is relatively high, varied adverse events (AEs) can occur. There are two specific methodological conditions requiring consideration: proximal esophagus and GE-junction. The former relates risk of intolerable pain. A study in Japan revealed SEMSs with smaller diameter was helpful in preventing pain. The latter is associated with GER, which can be avoided by the use of anti-reflux medication.

As the optimal treatment of anastomotic leak remains controversial, several surgical or non-surgical therapies have been applied according to the patients’ condition and institutional preference. The essential points of esophageal leak treatment include stopping leak and drain any collection at anastomosis to control infection. The endoscopic vacuum-assisted closure (EVAC) is based on controlled negative pressure applied to the wound with a sponge, and has advantages of effective drain of the infected fluid and accelerating would healing by inducing the formation of granulation tissue over fully covered self-expanding metal stent (SEMS) treatment. We evaluated the efficacy and safety of EVAC for esophageal anastomotic leak following esophagectomy for cancer and to identify factors associated with poor outcome of EVAC treatment. We retrospectively analyzed 21 esophageal cancer patients who underwent EVAC for esophageal leak after esophagectomy between January 2015 and December 2017 at the Samsung Medical Center. Treatment failure was defined as a need for another intervention due to uncontrolled leak or infection, death occurring as a consequence of leak, or development of serious EVAC related complications. All 21 patients were men and received esophagectomy for squamous cell carcinoma. Of them, 11 patients (52.4%) received neoadjuvant treatment. No serious EVAC-related complications occurred. Treatment success was achieved in 20 patients (95.2%). One patient (4.8%) died from uncontrolled infection. No independent risk factor for treatment failure was identified. EVAC treatment can be applied as a non-surgical treatment option in anastomotic leak following esophagectomy.

GI stent: present and future from Asian perspective

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With the introduction of self-expanding metal stents in the early 1990s, endoscopic stenting, primarily used to palliate symptoms of malignant obstruction in patients with inoperable gastrointestinal tract cancer, have been developed over the past two decades successively. Nowadays, GI stents have emerged as an effective, safe, and less invasive alternative for the treatment of malignant GI obstruction and as the optimal treatment of patients with inoperable gastrointestinal tract cancer. The European Society of Gastrointestinal Endoscopy (ESGE) recommends the use of stent placement if a patient is being treated or managed esophagectomy for squamous cell carcinoma. Of them, 11 patients (52.4%) received neoadjuvant treatment. No serious EVAC-related complications occurred. Treatment success was achieved in 20 patients (95.2%). One patient (4.8%) died from uncontrolled infection. No independent risk factor for treatment failure was identified. EVAC treatment can be applied as a non-surgical treatment option in anastomotic leak following esophagectomy.

Palliative stenting of malignant colorectal obstruction: Present & future

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Large-bowel obstruction caused by colorectal cancer (CRC) is the most common cause of emergent colorectal surgery. Up to 30% of patients with CRC develop colorectal obstruction, however, and these patients not candidates for curative surgical treatment due to the presence of advanced or metastatic disease or a high surgical risk.

Gastroenterological Endoscopy