Pakistan's First Endoscopy Atlas

EDITORS:
Prof. Dr.Lubna Kamani
Dr. Nonthalee Pausawasdi

1st Edition

CO-EDITORS
Dr. Nazish Butt
Dr. Jibran Umar Ayub Khan
Dr. Adeel ur Rehman

ENDORSED BY:
PAK GI & LIVER DISEASES SOCIETY (PGLDS)
WOMEN IN GASTROENTEROLOGY NETWORK ASIA PACIFIC (WIGNAP)

EDITOR

Prof. Dr. Lubna Kamani

As a President of Pak GI & Liver Diseases Society (PGLDS), I am delighted to share Pakistan's first Gastrointestinal Endoscopy Atlas. This atlas is packed with high quality endoscopic images that provide comprehensive visual insights of common and rare gastrointestinal pathologies. It will serve as an invaluable resource for gastroenterologists, endoscopists, surgeons, medical students and clinicians and will enhance reader's knowledge with greater understanding of GI diseases through endoscopy lens.

I would like to express my gratitude to Women in GI Network Asia Pacific (WIGNAP) for their valuable endorsement and women empowerment in gastrointestinal endoscopy (WEGE) for their collaboration. Additionally, I would like to thank my entire team and all the national and international endoscopy champions for their time, effort and contribution.

Lastly, I would like to acknowledge PharmEvo pharmaceuticals for their support in printing and publishing process.

Finally, I hope we all can learn and utilise this atlas for better patient care by making it part of our endoscopy suite.

Prof. Dr. Lubna Kamani
Director GI Residency Program,
Liaquat National Hospital, Karachi,
Consultant Aga Khan University Hospital, Karachi,
President Pak GI & Liver Diseases Society (PGLDS).

EDITOR

A/Prof. Nonthalee Pausawasdi

Congratulations to the Pakistan Gastroenterology and Liver Diseases Society on the launch of Pakistan's first Endoscopy Atlas!

This pioneering initiative is a testament to the dedication that drives advancements in gastroenterology. By providing a comprehensive visual reference, this atlas will enhance endoscopic education, improve diagnostic accuracy, and ultimatly elevate patient care. This achievement reflects Pakistan's growing contributions to the field and its commitment to excellence.

On behalf of Women in GI Network Asia Pacific (WIGNAP), we are pleased to be part of this pioneering initiative. This remarkable global collaboration will be a valuable resource for gastroenterologists and endoscopists. Moreover, supporting continuous learning for both trainees and experienced practitioners.

I wish great success to this remarkable project. May it inspire further innovation and international partnerships in the years to come!

Nonthalee Pausawasdi, MD., FJGES

Associate Professor of Medicine
Division of Gastroenterology
Department of Medicine
Faculty of Medicine Siriraj Hospital
Mahidol University, Bangkok, Thailand

CO-EDITOR

Dr. Nazish Butt

As Co-editor of this comprehensive Gastroenterology Endoscopy Atlas, it is our privilege to present a visual guide that show cases the latest advancements and best practices in endoscopic procedures. This atlas aims to provide a detailed and practicare source for gastroenterologists, endoscopists, and healthcare professionals, enhancing their understanding and skills in diagnosing and treating gastrointestinal disorders.

This collaborative effort brings together expertise from renowned professionals in the field, featuring high-quality images and concise descriptions of various endoscopic techniques and findings. We hope this atlas serves as a valuable reference, supporting the pursuit of excellence in patient care and advancing the field of gastroenterology.

Dr. Nazish Butt
Associate Professor
Head of Gastroenterology Department
Jinnah Postgraduate Medical Centre,
Karachi, Pakistan.

CO-EDITOR

Dr. Jibran Umar Ayub Khan

It is a distinct honor to serve as Co-Editor of the Atlas of Gastroenterology, a project that embodies the collaborative spirit and scientific rigor essential to advancing our field. This atlas aims to serve as a comprehensive visual guide, integrating high-quality endoscopic, radiologic, and histopathologic imagery with concise clinical insights to aid in the diagnosis and management of gastrointestinal diseases.

In curating this work, we have strived to create a resource that is not only clinically relevant but also educationally enriching for gastroenterologists, surgeons, physicians in training, and allied healthcare professionals. I extend my sincere gratitude to all contributors, reviewers, and collaborators whose expertise has shaped the content and quality of this atlas.

I hope this volume serves as a trusted companion in clinical practice and a source of inspiration for ongoing learning and research in gastroenterology.

Dr. Jibran Umar Ayub Khan
Associate Professor, Gastroenterology
Khyber Medical University Hospital and Research Center

CO-EDITOR

Dr. Adeel Ur Rehman

I would like to extend my heartfelt gratitude to all the contributors who have played a vital role in the creation of this endoscopy atlas. As a team our expertise, dedication, and invaluable insights will make this resource a comprehensive and invaluable tool for clinicians and trainees alike.

I am deeply thankful for the collaborative efforts of the authors, editors, and IT team, who meticulously crafted the atlas's content.

I am also grateful for the support provided by PGLDS for taking this great initiative.

This atlas serves as a testament to the collaborative spirit of our field of Gastroenterology and Endoscopy, and iam confident that it will contribute significantly to the advancement of endoscopic knowledge and practice.

I hope this atlas will become a valuable tool for years to come, enriching the understanding of endoscopy and improving patient care.

Dr. Adeel Ur Rehman
MRCP UK M-Med Singapore, FRCP UK
Advance Endoscopy Fellowship Singapore General Hospital
Faculty and Director of Endoscopy services
Aga Khan University Hospital

CONTRIBUTORS

Prof. Dr. Lubna Kamani

Director GI Residency Program,
Liaquat National Hospital
Consultant Aga Khan University Hospital
President Pak GI & Liver Diseases Society (PGLDS)

A/Prof. Nonthalee Pausawasdi

MD., FJGES
Associate Professor of Medicine
Division of Gastroenterology
Department of Medicine
Faculty of Medicine Siriraj Hospital
Mahidol University, Bangkok,
Thailand

Dr. Nazish Butt

Associate Professor, Head of Gastroenterology Department
Jinnah Postgraduate Medical Centre

Dr. Tan Meng Yew Damien

Associate Professor
Senior Consultant Gastroenterologist
Director Endoscopy Centre,
Director of Innovation
Singapore General Hospital
Clinical Associate Professor,
Duke NUS Singapore

Prof.Dr.Mehmet Cindoruk

Department of Gastroenterology,
Gazi University Faculty of Medicine
Ankara,Turkey

Dr.Guner Kilic

Department of Gastroenterology,
Gazi University Faculty of Medicine
Ankara,Turkey

CONTRIBUTORS

Prof. Hussein Okasha

Cairo, Egypt

Dr. Mingyan (Amy) Cai

MD, PhD, FASGE
Endoscopy Center, Zhongshan Hospital, Fudan University Shanghai, China

Uzma D. Siddiqui, MD

Center for Endoscopic Research and Therapeutics (CERT)
University of Chicago Medicine
USA

Grace E. Kim, MD

Center for Endoscopic Research and Therapeutics (CERT)
University of Chicago Medicine
USA

Dr. Jibran Umar Ayub Khan

Associate Professor, Gastroenterology
Khyber Medical University Hospital and Research Center, Pakistan

Dr. Adeel Ur Rehman

MRCP UK M-Med Singapore, FRCP UK
Advance Endoscopy Fellowship
Singapore General Hospital
Faculty and Director of Endoscopy services
Aga Khan University Hospital, Pakistan

CONTRIBUTORS

Dr. D.N Reddy

Chairman & Chief Gastroenterologist Asian Institute of Gastroenterology and AIG Hospitals, India

Dr. Sundeep Lakhatakia

Director of Endoscopy & EUS, Senior Consultant Gastroenterologist AIG Hospitals, India

Dr. Sonam Mathur

DM Gastroenterology, MD Med, FCPS, MBBS
Consultant Gastroenterologist,
Asian Institute of Gastroenterology (AIG) Hospitals Hyderabad, India

Dr. Azimuddin Haja,

Consultant Gastroenterologist,
AIG hospitals, India

Dr. Radhika Chavan

M.D. D.N.B, FISG, FASGE.
Assistant Professor, Bharati Vidyapeeth, Pune
Ex-consultant Gastroenterologist Ansh Clinic, Ahmedabad
Ex-Fellow & Consultant Gastroenterologist Asian Institute of Gastroenterology, Hyderabad India

Dr. Chaiti Gandhi

MD, DrNB Gastroenterologist
Ansh Clinic,
Ahmedabad, India

CONTRIBUTORS

Dr. Patricia Anne I. Cabral-Prodigalidad, MD

Section Chief, Advanced Therapeutic Endoscopy Institute of Digestive and Liver Diseases
St. Luke's Medical Center - Global City, Philippines

Dr. Carlos Francisco, MD

Consultant
Institute of Digestive and Liver Diseases
St. Luke's Medical Center – Global City, Philippines

Dr. Jonard T. Co, MD

Assistant Head, Institute of Digestive and Liver Diseases
St. Luke's Medical Center – Global City, Philippines

Dr. Marc Julius H. Navarro, MD

Consultant
St. Luke's Medical Center- Quezon City, Philippines

Dr. Nigar Aliyeva

MD, PhD. National Oncology Center of Azerbaijan

Dr. Tanyaporn Chantarojanasiri, MD

Assistant Professor
Division of Gastroenterology and Hepatology
Department of Medicine, Rajavithi Hospital, Ministry of Public Health College of Medicine, Rangsit University, Bangkok, Thailand

CONTRIBUTORS

Dr. Shahzad Riyaz

Consultant Gastroenterologist,
Shifa International Hospital,
Islamabad, Pakistan

Dr.Shifa Umar, MD

Assistant Professor of Medicine
Section of Gastroenterology and Hepatology
Baylor College of Medicine, Houston, TX, USA

Dr. Abbas Ali Tasneem

Associate Professor,
Department of Hepatogastroenterology,
SIUT, Pakistan

Dr. Usman Iqbal Aujla

FRCP(UK)
Chairman Gastroenterology and Hepatology Department.
Pakistan Kidney and Liver Institute, Lahore.

Dr. Nada El-Domiaty

MSc, MD, PhD
Consultant & lecturer of Gastroenterology, Hepatology,
GI Endoscopy and Infectious Diseases, Helwan University.
Associate clinical fellow & researcher, hepatobiliar center, Paul Brousse hospital, France

Dr. Chan Shannon Melissa

The Chinese University of Hong Kong
Assistant Professor and Head of Division of UGI & metabolic surgery
Hong Kong

CONTRIBUTORS

Dr. Mohammad Golam Azam MD

Associate Professor
Department of Gastrointestinal,
Hepatobiliary and Pancreatic Disorders (GHPD),
BIRDEM Academy, Shahbag, Dhaka-1000, Bangladesh

Dr. Mohamed Salah Shiha

Consultant Of Gastroenterology And
Advanced Endoscopy
Egyptair Hospital Cairo, Egypt

Dr. Sabir Ali

MBBS, FCPS (Gastro)
Consultant Gastroenterologist
Department of Gastroenterology,
Jinnah Postgraduate Medical Centre
Karachi, Pakistan

Dr. Sanjay Rajput

Ansh Clinic,
Ahmedabad, Gujrat,
India

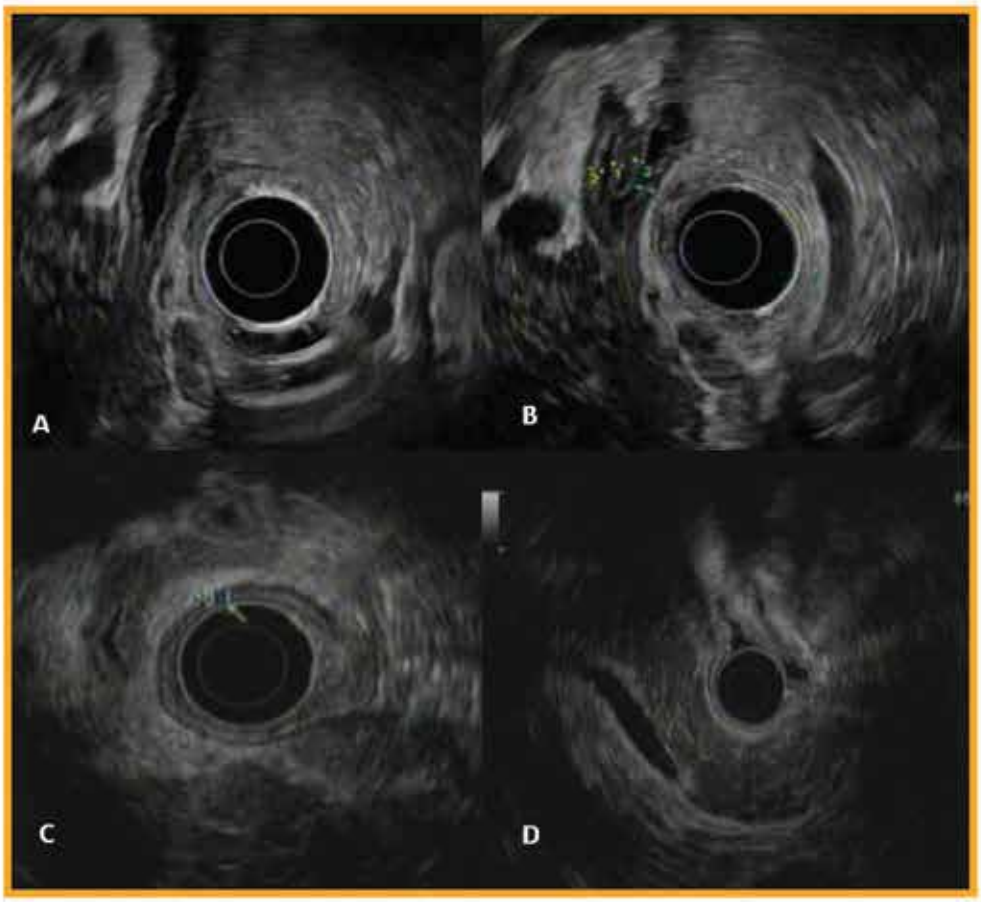
Prof. Dr. Lubna Kamani

Young man with obstructive jaundice. ERCP performed and cholangiogram showed banana shaped cystic duct with large size stone and hair like thin calibre CBD. Both these ducts have common opening at ampulla.

Middle aged lady with lower abdominal pain and several intact honeybees seen during colonoscopy.

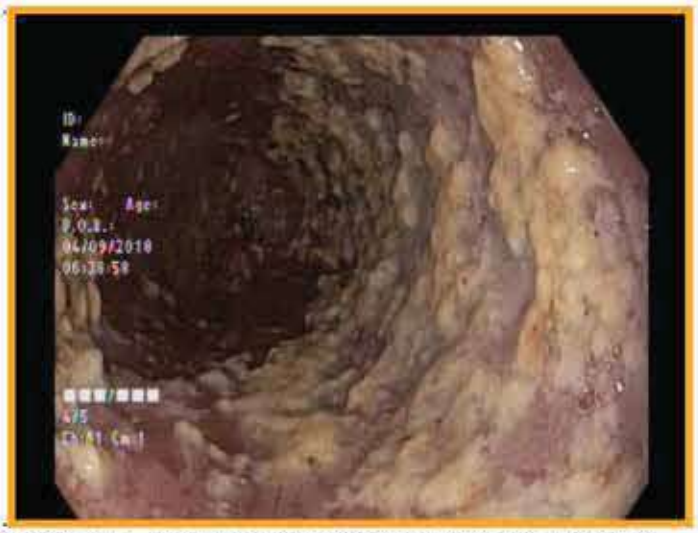
Dr. Nonthalee Pausawasdi, MD., FJGES

Endoscopic ultrasound (EUS) images of IgG4-associated sclerosing cholangitis (IgG4-SC)



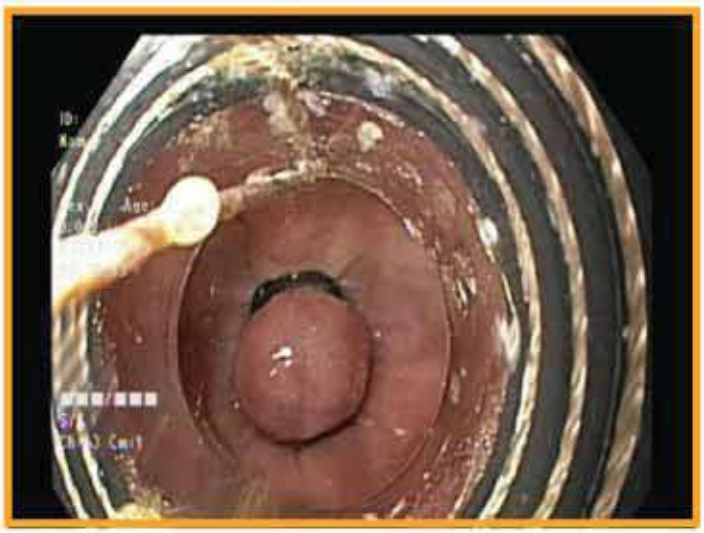
EUS images of a patient with IgG4-associated cholangiopathy (IgG4-SC) demonstrate diffuse or focal bile duct wall thickening. The extrahepatic and intrahepatic bile ducts may appear uniformly or segmentally thickened, often with hypoechoic walls on EUS, as depicted in A and B. The extent of wall thickness may involve the gallbladder, as shown in C. Many cases of IgG4-SC occur with autoimmune pancreatitis (AIP), leading to enlarged and diffuse or focal hypoechoic pancreas with diffuse or segmental pancreatic duct narrowing as shown in D. The usual pancreatic parenchymal texture is replaced by a homogenous, hypoechoic pattern. The entire pancreas may appear enlarged and hypoechoic, often with a "sausage-shaped" appearance in diffuse cases.

Dr. Nazish Butt



Confluent, nodular and elevated white patches in Esophagus. Esophageal candidiasis (KODSI Grade III).

Large Esophageal Varices with red wale marks.



Esophageal variceal band ligation.

Mucosal breaks in esophageal lumen consistent with Ulcerative esophagitis (LA Type B).

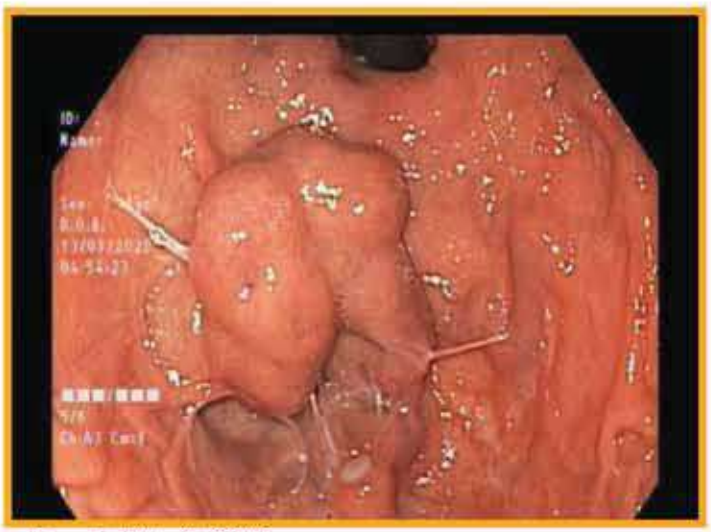
Dr. Nazish Butt

Esophagus

Esophageal Fistula.

Tracheoesophageal fistula.

Stomach



Fundal Varix IGV-1.

2. B Trichobezoar (Rapunzel Syndrome.)

Dr. Nazish Butt

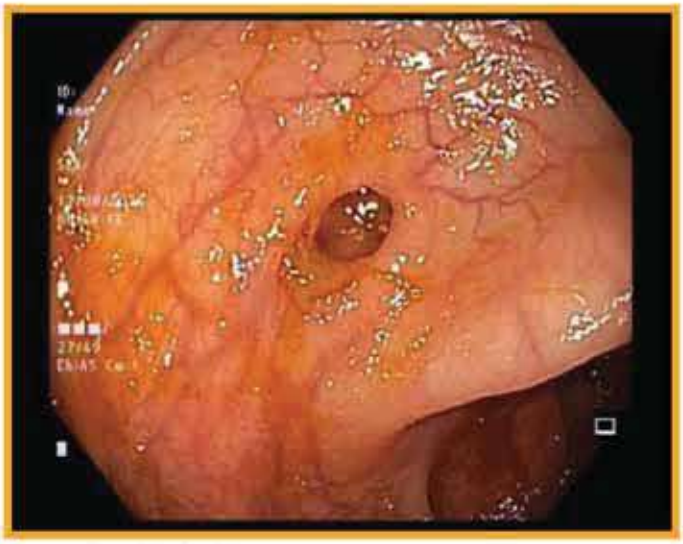
Duodenum

Duodenal Varix with bleeding spot.

Adrenaline Sclerotherapy of Duodenal ulcer.

Colon

1. A Outpouching of colonic mucosa consistent with diverticulum.

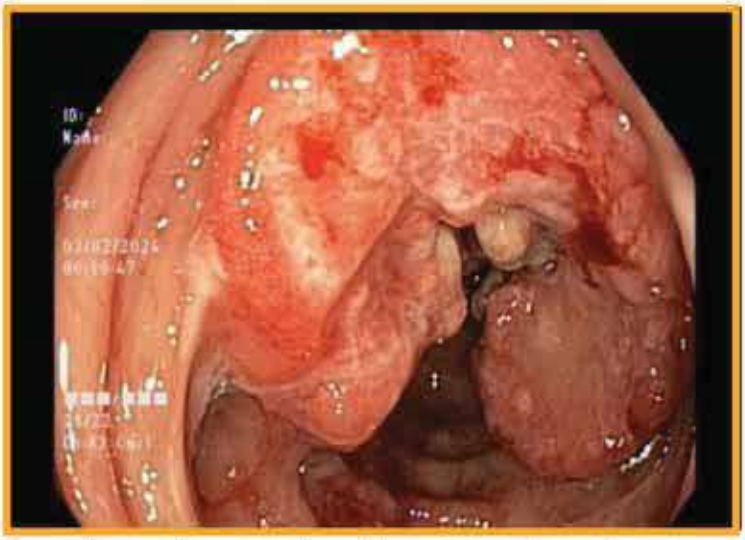


1. B Diverticulosis

Dr. Nazish Butt

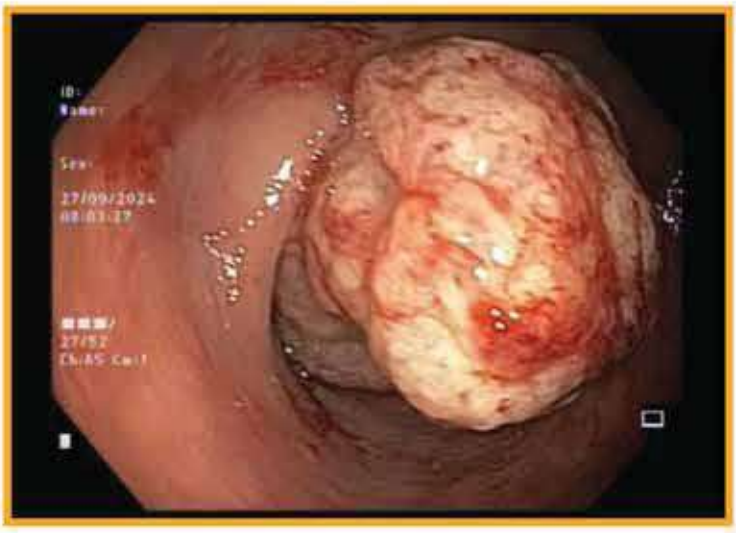
Colon

Large circumferential Ulcer consistent with Solitary rectal ulcer syndrome.



Large fungating mass involving ascending colon.

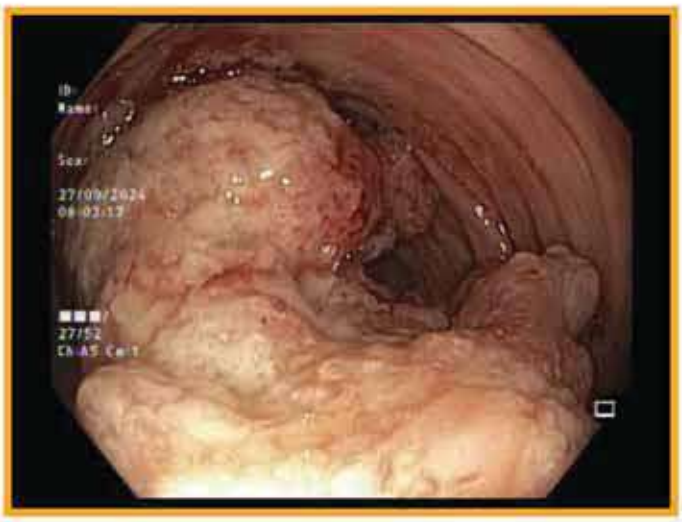
Circumferential mass involving descending colon.



Large polypoidal mass involving descending colon.

Dr. Nazish Butt

Colon



Large polypoidal mass involving sigmoid colon.

Melanosis Coli.

Dr. Tan Meng Yew Damien

Cholangioscopy image of TB of the bile duct

54 year old man presents with jaundice and a hilar stricture. Previous ERCP had negative brushing and biopsies. Repeat ERCP with Olympus CHF-B260 video cholangioscope showed deep ulcers at the stricture. Histology showed granulomatous inflammation with TB positive bile culture.

Cholangioscopy image of biliary papilloma

70 year old female presented with CBD polypoidal lesion picked on CT urogram for hematuria. ERCP with Olympus CHF-B260 video cholangioscope showed biliary papilloma. Histology showed polypoid adenoma with low grade dysplasia.

• Prof. Dr. Mehmet Cindoruk
• Dr. Guner Kilic

Endosonographic view of the aortapulmonary window in mediastinal examination with radial endoscopic ultrasonography.

Endosonographic view of the pancreatic body superior to the splenic artery and splenic vein in the gastric corpus with radial endoscopic ultrasonography.

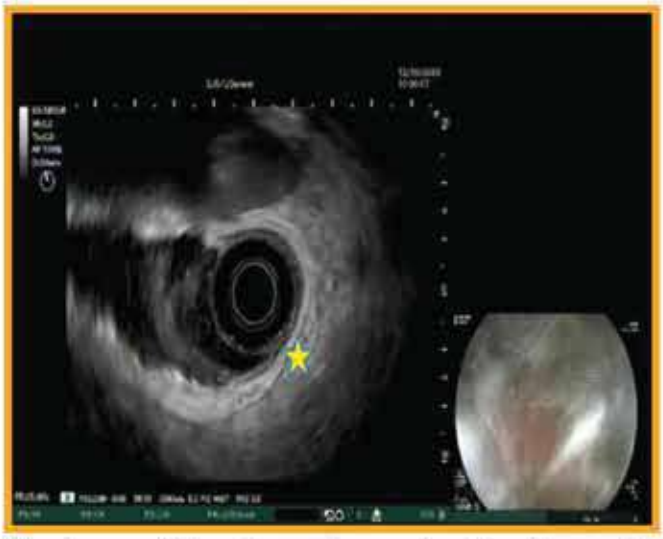
Endosonographic appearance of the choledochal duct on examination with radial EUS performed from the bulbus.

Radial endosonography showing the stone in the ww ww pancreatic duct.

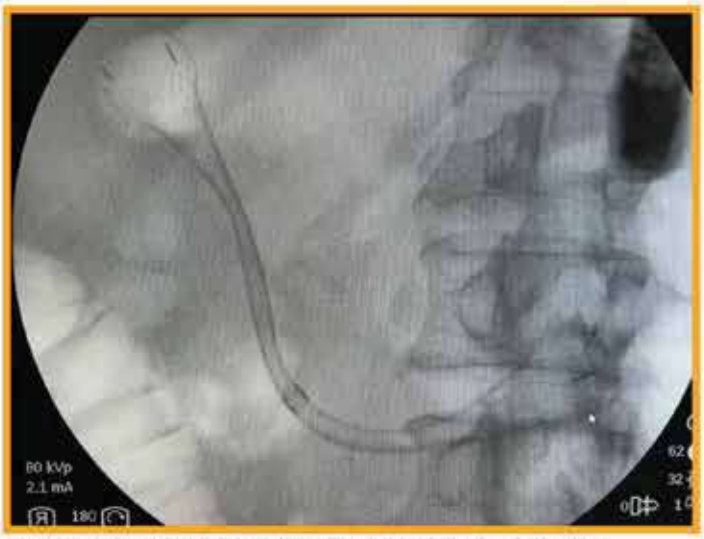
- Prof. Dr. Mehmet Cindoruk
- Dr. Guner Kilic

Thickening of the choledochal wall and appearance of the stent in the choledochal wall by radial endosonography.

Gallbladder view with radial endosonography. The wall and diameter of the gallbladder appear normal.



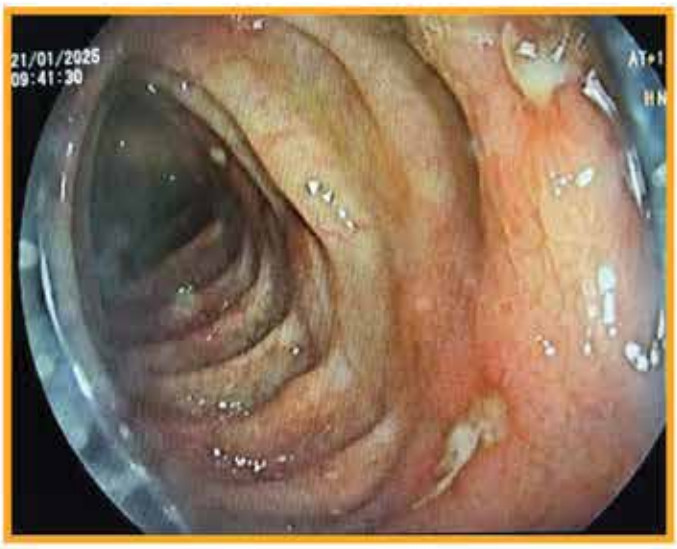
The layers of the stomach are visualized by underwater examination with radial endosonography.



Fluoroscopic view of a 90-year-old inoperable pancreatic cancer patient with metallic stent implanted for palliative purposes because the duodenum was infiltrated.

- Superficial mucosa (hyperechoic)
- Lamina Propria (Hypoechoic)
- Submucosa (Hyperechoic)
- Muscularis propria (Hypoechoic)
- Serosa (Hyperechoic)

- **Prof. Dr. Mehmet Cindoruk**
- **Dr. Guner Kilic**



40-year-old male patient with Crohn's disease with colon involvement. Appearance of skipped aphthous ulcers in the colon.

Choledochal calculi when swept with balloon during endoscopic retrograde cholangiography.

48-year-old male patient endoscopic appearance of GIST located in the stomach.

- Prof. Dr. Mehmet Cindoruk
- Dr. Guner Kilic

Coagulation of angiodysplasia in the jejunum with APC

Prof. Hussein Okasha

A 35 years old male with recurrent acute pancreatitis and significantly dilated main pancreatic duct. Duodenoscopic examination showed opened major papilla with extrusion of mucinous material, giving the classic Fish-mouth appearance of Main duct IPMN.

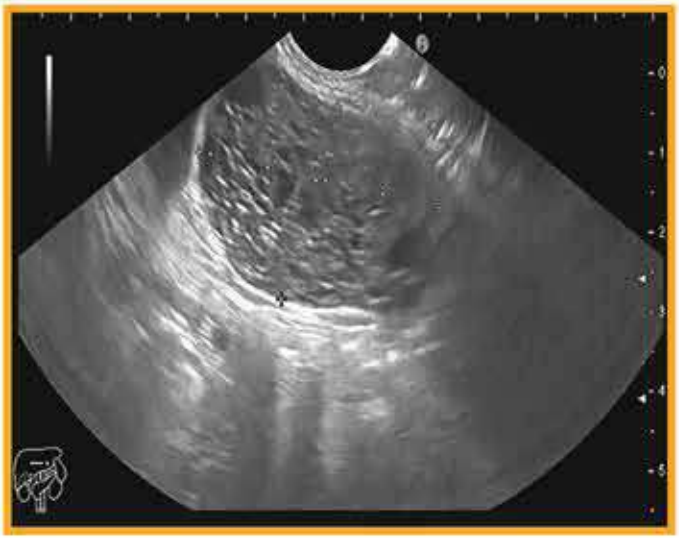


Figure 2:
A 70 year-old female with dull-aching epigastric pain, EUS revealed a pancreatic body complex cystic lesion with classic honey-comb appearance of microcystic serous cystadenoma.

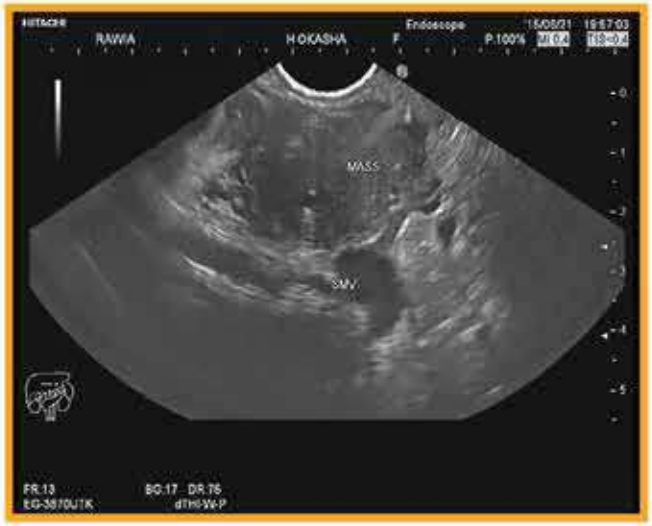


Figure 3:
Borderline resectable malignant pancreatic head ductal adenocarcinoma abutting less than half of the circumference of SMV with a clear line of interface for a distance of 5mm.

Dr. Mingyan (Amy) Cai Dr. Tianyin Chen

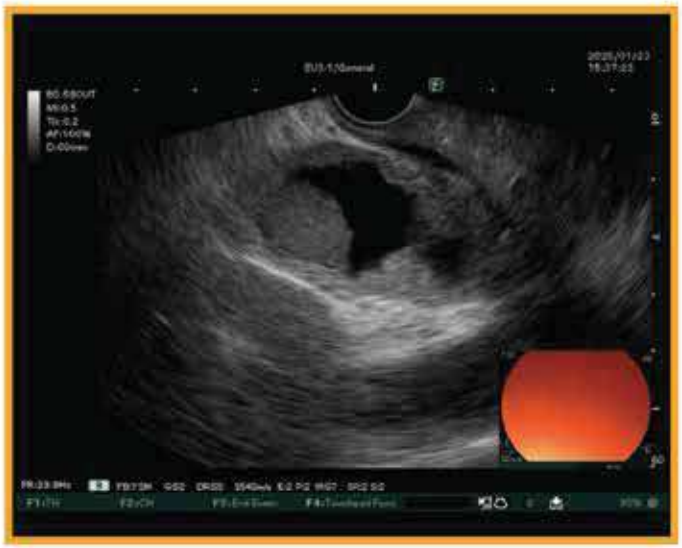


Figure 1a

Figure 1b

A 68-year-old male patient presented with intermittent abdominal distention. Endoscopic ultrasound (EUS) revealed irregular thickness and stiffness of the gallbladder wall (Figure 1a) and a solid hypoechoic lesion near the common bile duct (Figure 1b), which was confirmed as metastatic adenosquamous carcinoma by EUS-guided fine needle aspiration (EUS-FNA).

Figure 2a

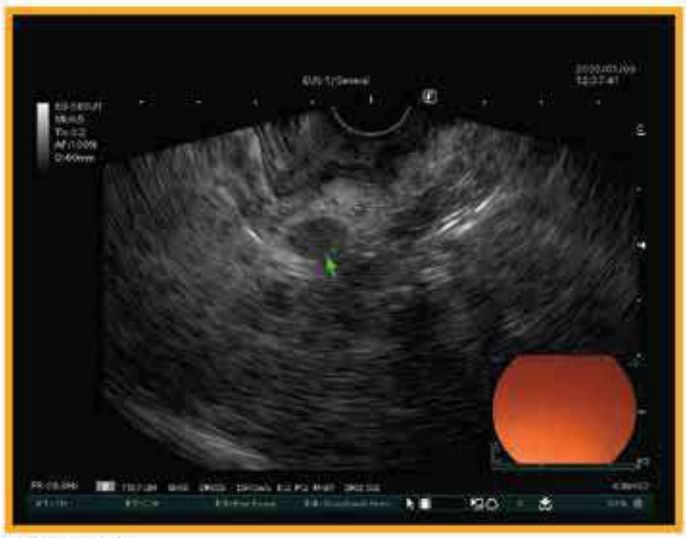


Figure 2b

A 45-year-old male patient presented with recurrent duodenal ulcers and a concerning ampullary lesion. Endoscopic ultrasound (EUS) showed multiple round, hypoechoic lesions with well-defined margins in the pancreas. EUS-guided fine needle aspiration (EUS-FNA) confirmed pancreatic MALT lymphoma and the patient received chemotherapy.

Dr. Mingyan (Amy) Cai Dr. Tianyin Chen

Figure 3a

Figure 3b

A 62-year-old female presented with obstructive jaundice and a dilated common bile duct, along with a dilated main pancreatic duct. EUS revealed a jumpy, heterogeneous, hypoechoic lesion in the common bile duct with unclear margins invading the pancreatic head. A hyperechoic choledocholithiasis was detected between the jumpy strictures of the CBD.

Figure 4a

Figure 4b

Rectal endometriosis
Under white light endoscopy, the lesion appears as a submucosal protrusion with a smooth surface. On endoscopic ultrasound, a mixed hypoechoic mass is observed in the submucosal and muscularis propria layers, with unclear boundaries to the extraluminal area.

Dr. Mingyan (Amy) Cai Dr. Tianyin Chen

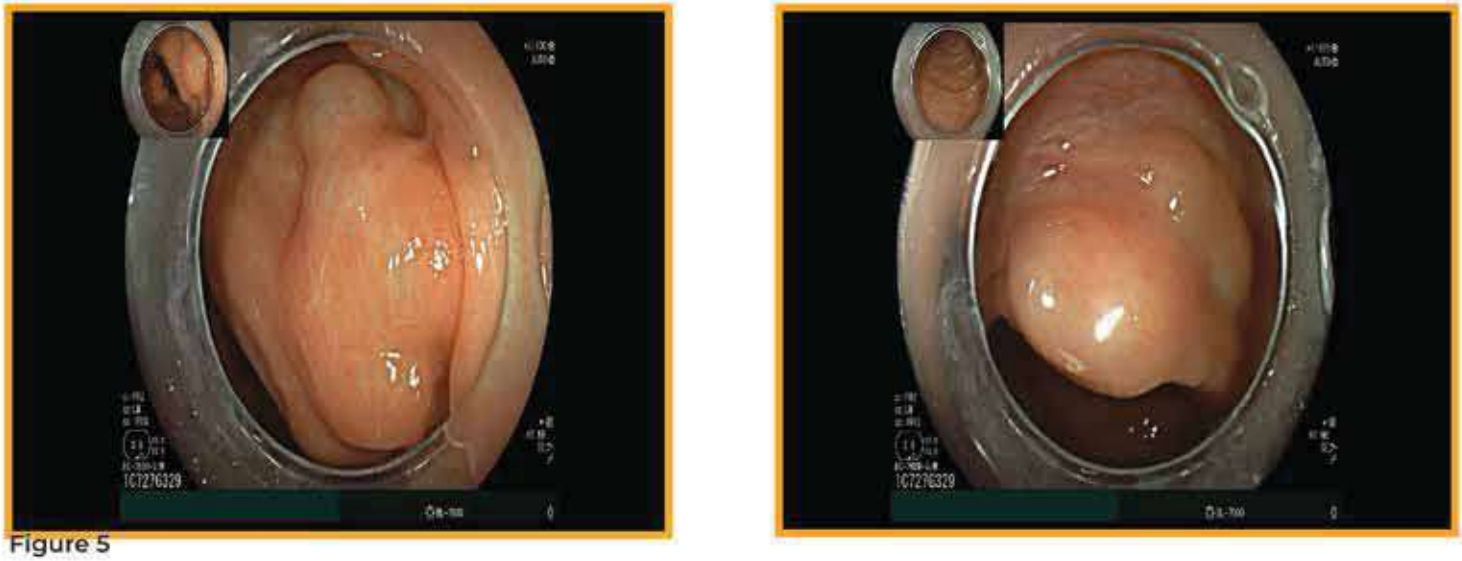
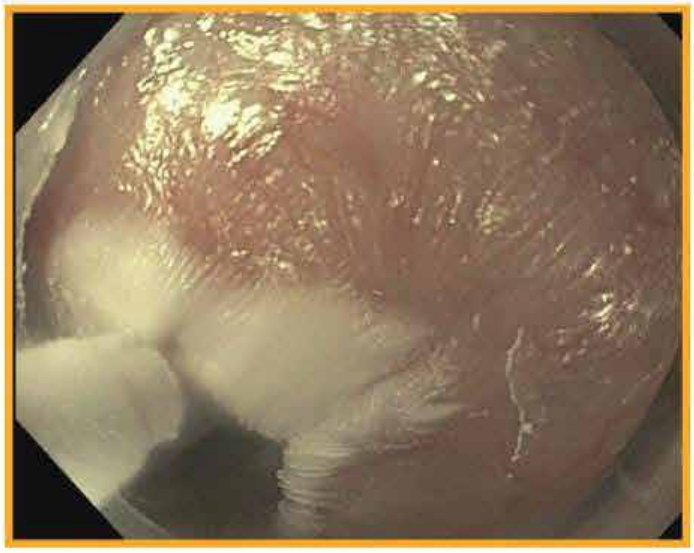


Figure 5

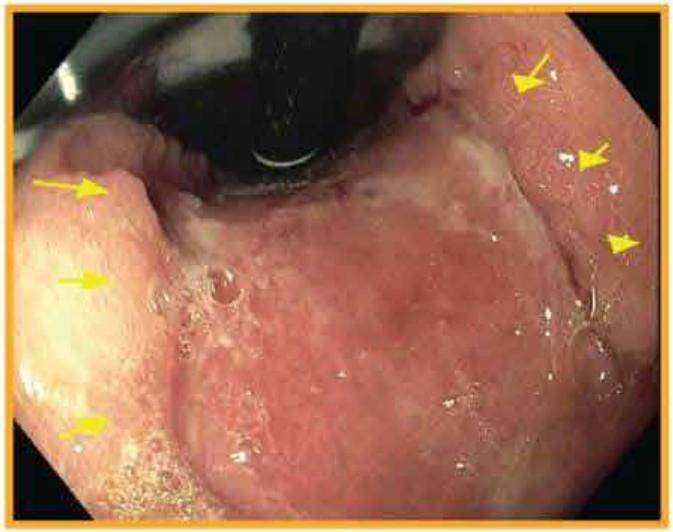
Colonic pneumatosis cystoides intestinalis (PCI) Multiple, round or oval, gas-filled cysts are seen beneath the mucosal surface.

Dr. Grace E. Kim, MD
Dr. Uzma Siddiqui, MD

Endoscopy (Upper GI Gastroscopy Colonoscopy/Small Bowel



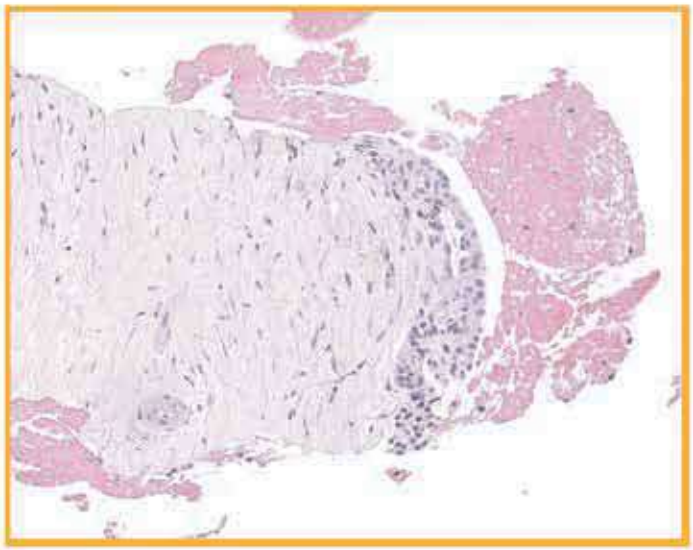
This is an endoscopic image of a spray cryotherapy. This uses a liquid nitrogen that quickly converts into gas and freezes to destroy tissue. This is used in both malignant and benign diseases such as an anastomotic stricture.



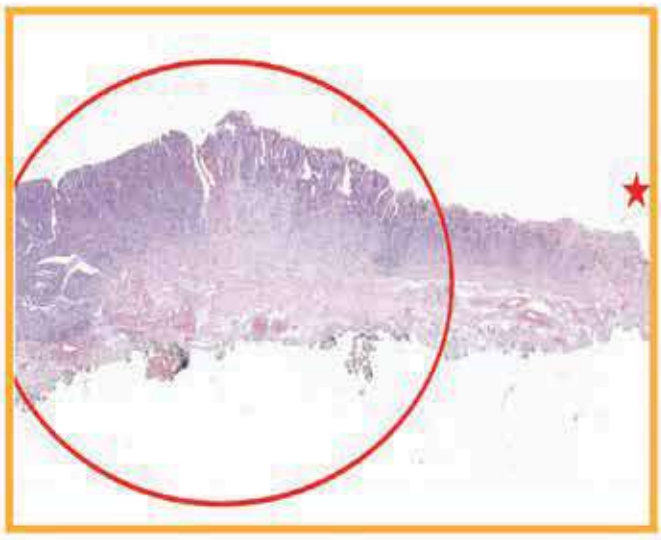
This is a gastric adenocarcinoma. Malignant gastric ulcers have heaped up edges with uneven base as depicted on these images.Gastric ulcers located in the fundus, cardia, or incisura (as was in this case) have a higher likelihood of malignancy compared to those located in the antrum or the body.

Dr. Grace E. Kim, MD Dr. Uzma Siddiqui, MD

Histopathology



This is a histopathological slide of a pancreatic serous cystadenoma (SCA) showing a flat cuboidal lining of microcysts.Surgical pathology of SCA can be obtained via endoscopic ultrasound guided fine needle biopsy. SCAs are benign pancreatic cysts with a negligible risk of malignant transformation.



This patient underwent an en-bloc, curative endoscopic submucosal dissection (ESD) of an EBV-associated gastric adenocarcinoma (circle). This histopathology clearly depicts a negative deep margin and widely free negative peripheral margin (star).

Dr. Grace E. Kim, MD Dr. Uzma Siddiqui, MD

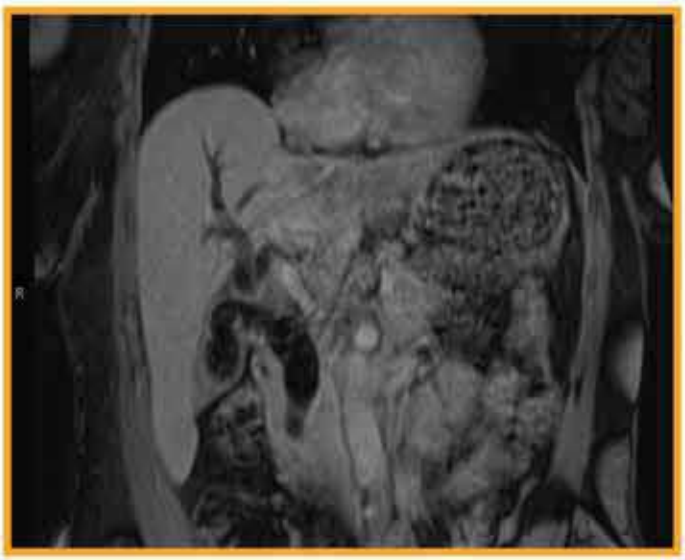
EUS

This is a sonographic image of a gastrointestinal stromal tumor (GIST) getting sampled via endoscopic ultrasound (EUS)-guided fineneedle biopsy (FNB). EUS FNB is an efficient method to obtain samples for lesions that are difficult to reach via traditional endoscopy, including the pancreas, liver, and lymph nodes.

This is an EUS image of a cyst in the pancreas. Cysts are fluid-filled thus appears anechoic (i.e., black) on ultrasound. Like solid lesions,cysts can also be sampled via fine needle aspiration (FNA) using EUS to send for fluid studies such as CEA, amylase, and cytology.

Dr. Grace E. Kim, MD Dr. Uzma Siddiqui, MD

Radiology

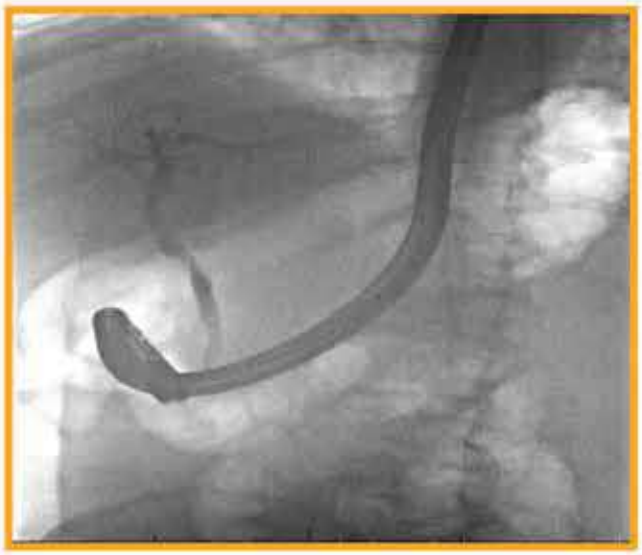


This is an MRCP showing intraphepatic biliary dilations with large amount of choledochocholithiasis depicted by multiple large filling defects along the common bile duct. The largest of these filling defects measuring 2 cm, which required this patient to get multiple procedures to remove the stones and clear the duct.

This CT image shows a cirrhotic liver with evidence of portal hypertension. There is a large amount ascites surrounding the liver as well as enlarged esophageal varices. The variceal collaterals are best seen just distal to the nasogastric tube.

Dr. Grace E. Kim, MD Dr. Uzma Siddiqui, MD

Fluoroscopy

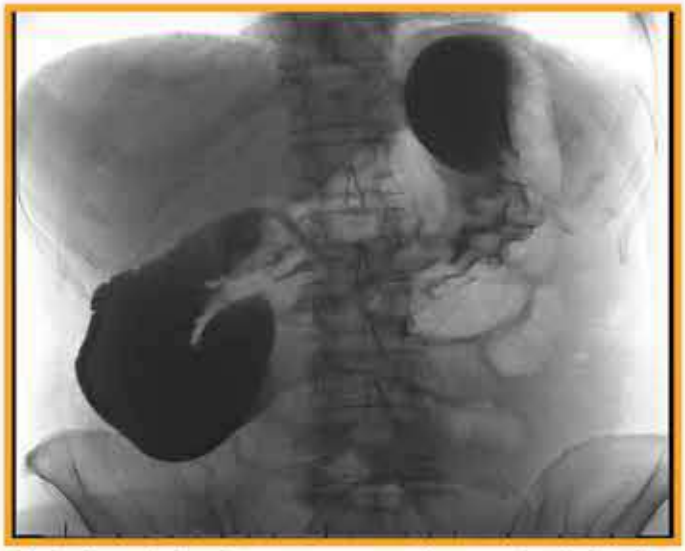


This is a fluoroscopic image of an anastomotic stricture after a liver transplant. Patients typically present with jaundice or abnormal liver function tests (i.e., elevated bilirubin and alkaline phosphatase). Once imaging supports anastomotic stricture, ERCP can be performed to dilate and place stents through the stricture to open the stricture.

This fluoroscopic image shows a high-grade bile leak in the right intrahepatic ducts, as depicted by a blush of contrast extravasation.Bile leaks can be treated with a large-caliber stent in the main bile duct to promote path of least resistance for bile flow.

Dr. Grace E. Kim, MD Dr. Uzma Siddiqui, MD

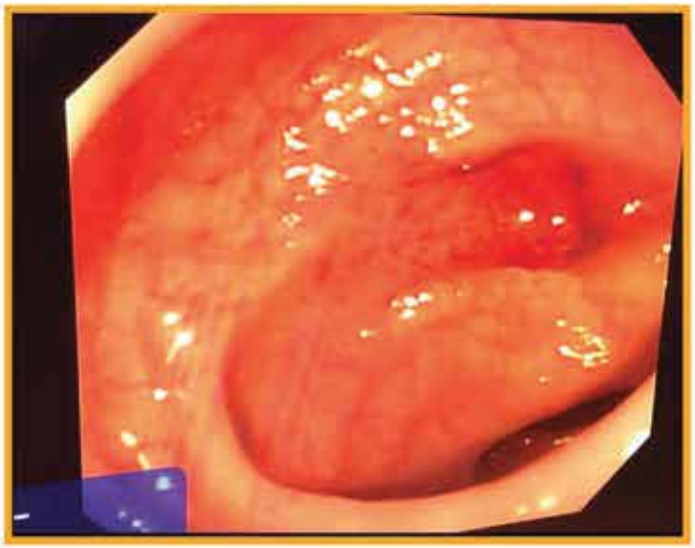
Barium Studies



This patient presented with abdominal pain, nausea, and emesis. The barium swallow shows a marked obstruction at the third duodenum (D3) with contrast unable to pass through this point at one hour mark. There are multiple distal dilated loops of small bowel suggestive of multifocal obstruction distal to D3 point.

This esophagram shows a classic corkscrew esophagus which is seen in diffuse esophageal spasm and also can be seen in achalasia.Patients often present with dysphagia, and further studies such as a high-resolution manometry can facilitate a diagnosis.

Dr. Jibran Umar Ayub Khan



This colonoscopy image demonstrates an inflamed, erythematous segment of colonic mucosa with a raised lesion exhibiting hyperemia and irregular margins. The surrounding mucosa appears congested, with increased vascularity and mild mucosal friability. Such findings are indicative of a pathological process, potentially representing inflammatory bowel disease (e.g., Crohn's disease or ulcerative colitis infectious colitis, ischemic colitis, or neoplastic transformation. The lesion's irregularity warrants further histopathological evaluation to confirm the diagnosis and determine appropriate management. The presence of mucosal friability suggests active inflammation, which may correlate with clinical symptoms such as diarrhea, abdominal pain, and hematochezia.Colonoscopic findings such as these play a crucial role in guiding further diagnostic and therapeutic interventions.

This endoscopic image depicts severe inflammatory changes within the colonic mucosa, characterized by diffuse erythema, friability and multiple ulcerations. The presence of mucosal edema and loss of normal vascular pattern suggests active colitis, which could be indicative of inflammatory bowel disease (IBD) such as ulcerative colitis or Crohn's colitis. The presence of exudates and increased granularity further highlights the ongoing inflammatory response. A biopsy and further histopathological evaluation would be required to establish a definitive diagnosis and guide appropriate management strategies.

Dr. Adeel Ur Rehman

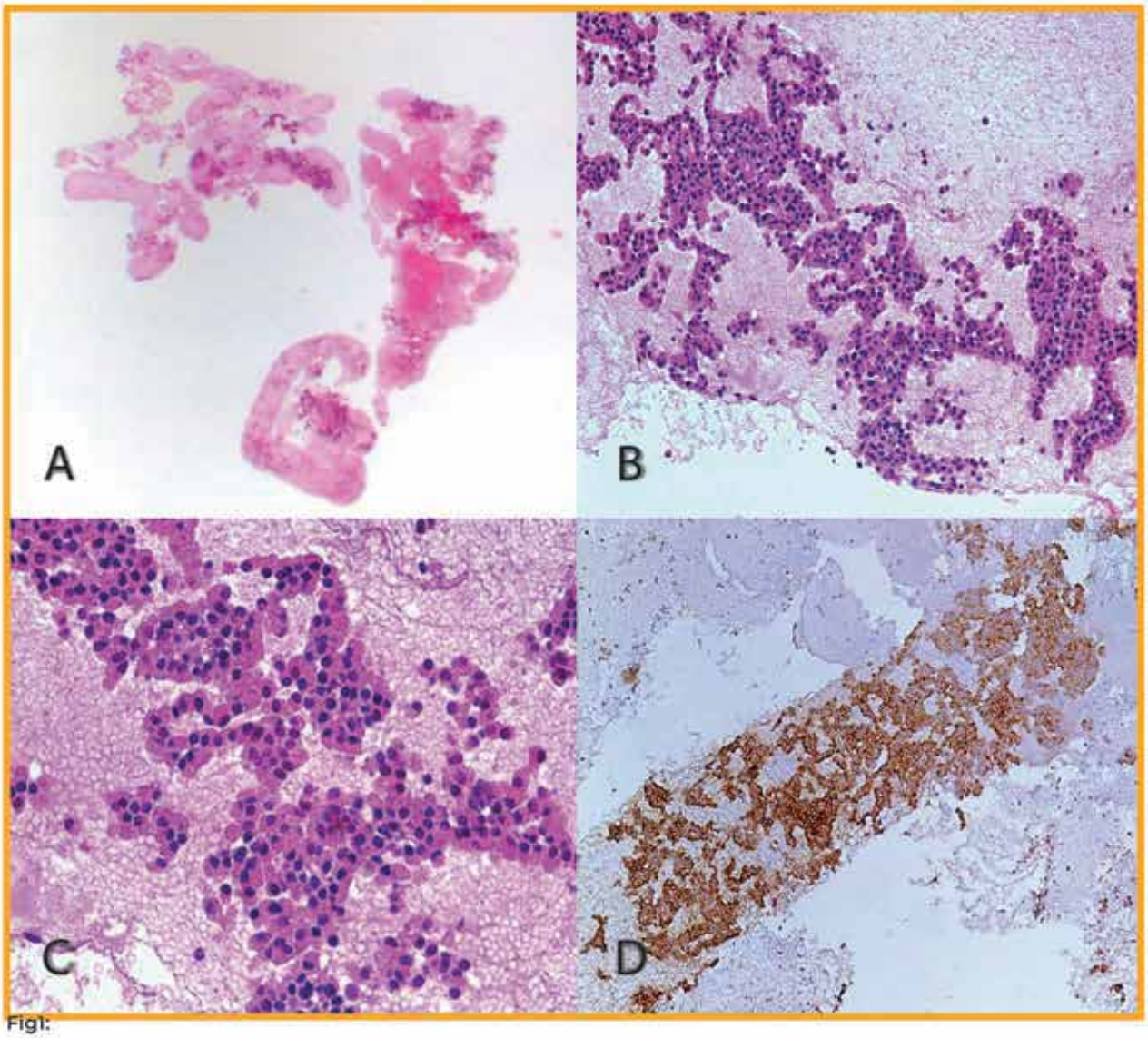
EUS Image Pancreatic Mass.

Porta Hepatis Mass.

Mediastinal Mass.

Liver Lesions.

Dr. Adeel Ur Rehman



Figl:

Photomicrographs of one of the Neuroendorcine Tumors. A & B are showing low and intermediate power views of the EUS guided biopsy sample showing a tumor composed of epithelial cells arranged in nests and trabeculae. C shows tumor cells with monotonous round nuclei with hyperchromasia without significant atypia or mitoses. These morphological findings with immunohistochemical expression of neuroendocrine marker synaptophysin (D) along with epithelial marker Cytokeratin and Ki-67 proliferative index of <2%, are consistent with Well Differentiated Neuroendocrine Tumor, WHO grade I. (H&E 4X,10X, 20X & Immunohistochemistry).

Dr. D.N Reddy Dr. Azimuddin Haja
Dr. Sonam Mathur Dr. Sundeep Lakhatakia

Image.1 Grade B Reflux Esophagitis.
According to Los Angeles Classification of Reflux Esophagitis one or more mucosal break >5 mm that does not extend between the tops of two mucosal folds.

.

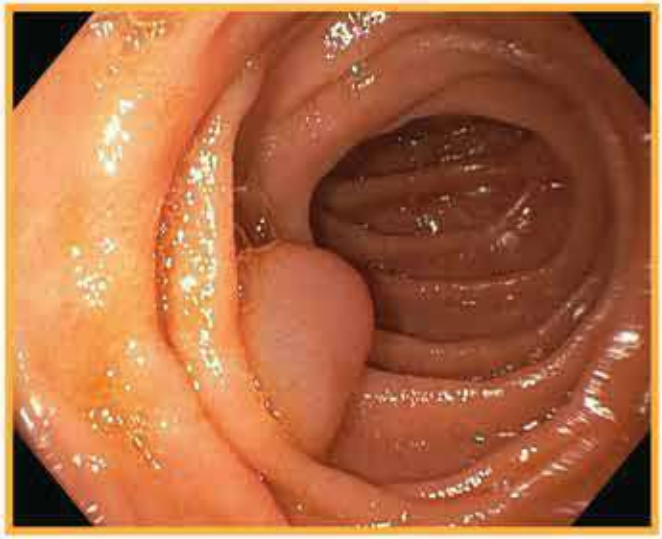


Image .2 Duodenal Subepithelial Lesion
On Endoscopy Duodenal Sub epithelial Lesion of size 1cm is visualized. Pillow sign negative.

Dr. D.N Reddy Dr. Azimuddin Haja
Dr. Sonam Mathur Dr. Sundeep Lakhatakia

Image .3 Duodenal Duplication Cyst

On Endoscopic Ultrasound anechoic cyst with no solid component containing all 5 layers of gut wall (Gut Signature) seen, suggestive of duodenal duplication cyst.

Dr. Chaiti Gandhi

Ampullary adenoma on EUS

A Polypoidal Lesion in Duodenum(D2)

B Pedunculated polyp noted on EUS at ampulla.

C Feeder vessel noted running through the stalk.

On sideview scopy, large adenomatous polyp noted in D2 causing luminal narrowing, involvement of ampulla could not be appreciated.

EUS showed pedunculated polyp (10mm, stalk) arising from ampulla with no MP invasion.

Feeder vessel could be appreciated running through the stalk.

CBD opening at ampulla could be seen.

Incomplete pancreatic divisum noted with accessory duct opening at minor papilla.

Dr. Patricia Anne I. Cabral-Prodigalidad, MD
Dr. Carlos Paolo D. Francisco, MD
Dr. Jonard T. Co, MD

This is the case of a 64-year-old presenting with recurrent epigastric pain. On endoscopy [Fig. 1], there was a solitary, elevated lesion with an irregular surface with ulceration and firm consistency located in the lesser curvature of the stomach. The lesion was effectively removed through endoscopic submucosal dissection. On histopathology [Fig. 2A, Fig. 2B], the mass was characterized by a mixture of two malignant components – moderately-differentiated gastric adenocarcinoma (yellow arrows)and well-differentiated neuroendocrine tumor (red arrow heads). Mixed neuroendocrine–non-neuroendocrine neoplasms(MiNEN) are rare malignant tumors that can occur in the gastrointestinal tract with an incidence of 1 in 10,000,000 cases per annum.[1]

Fig. 1

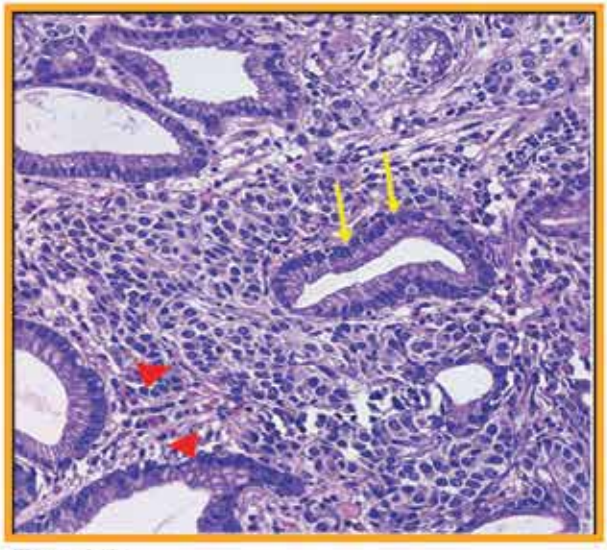


Fig. 2A

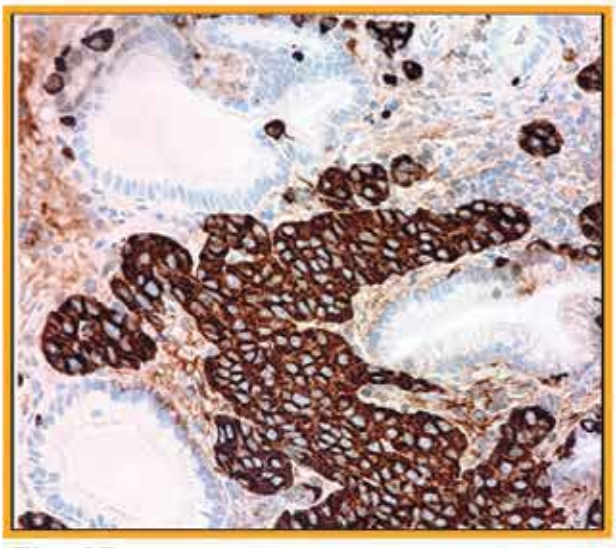
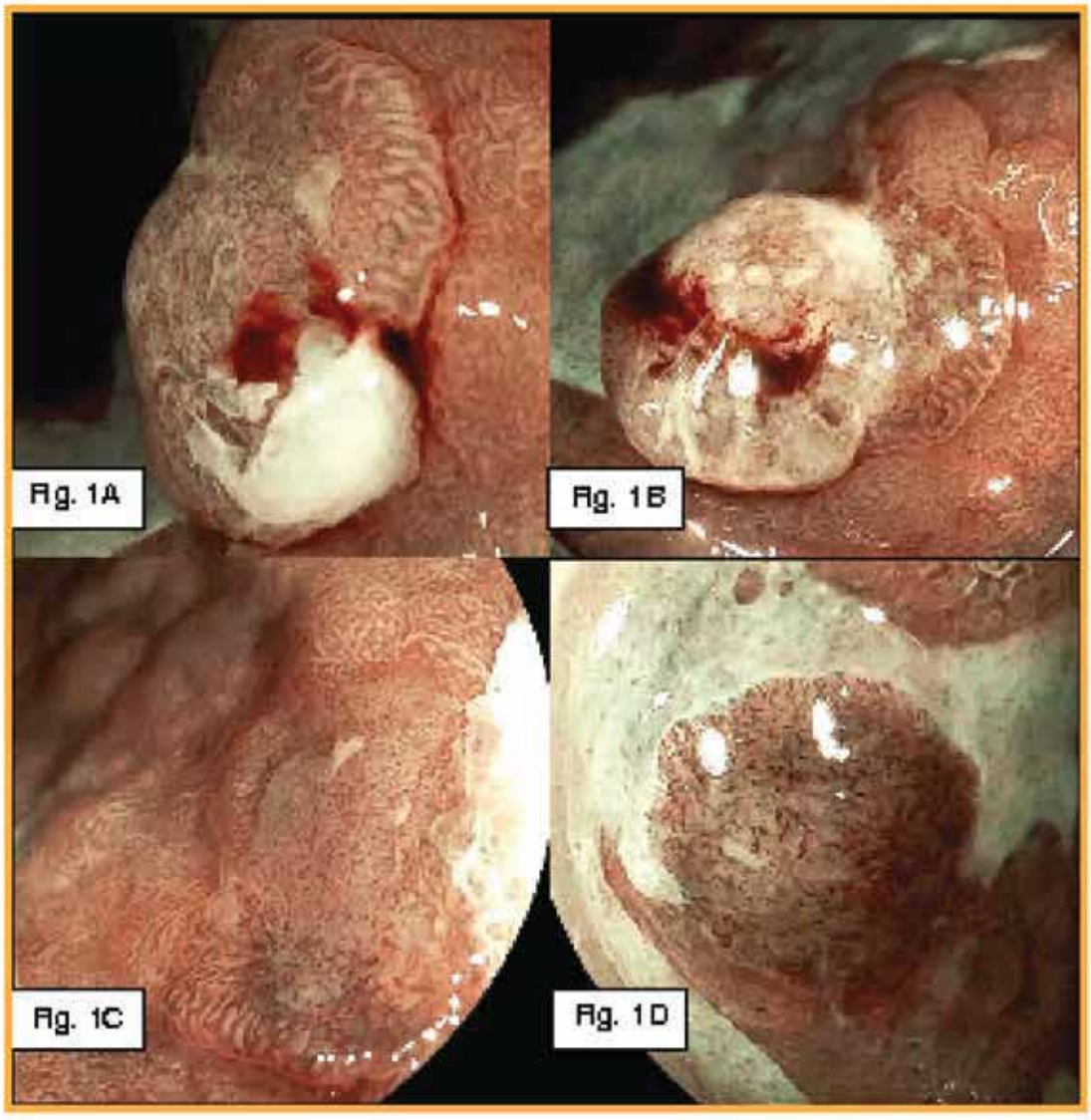


Fig. 3B

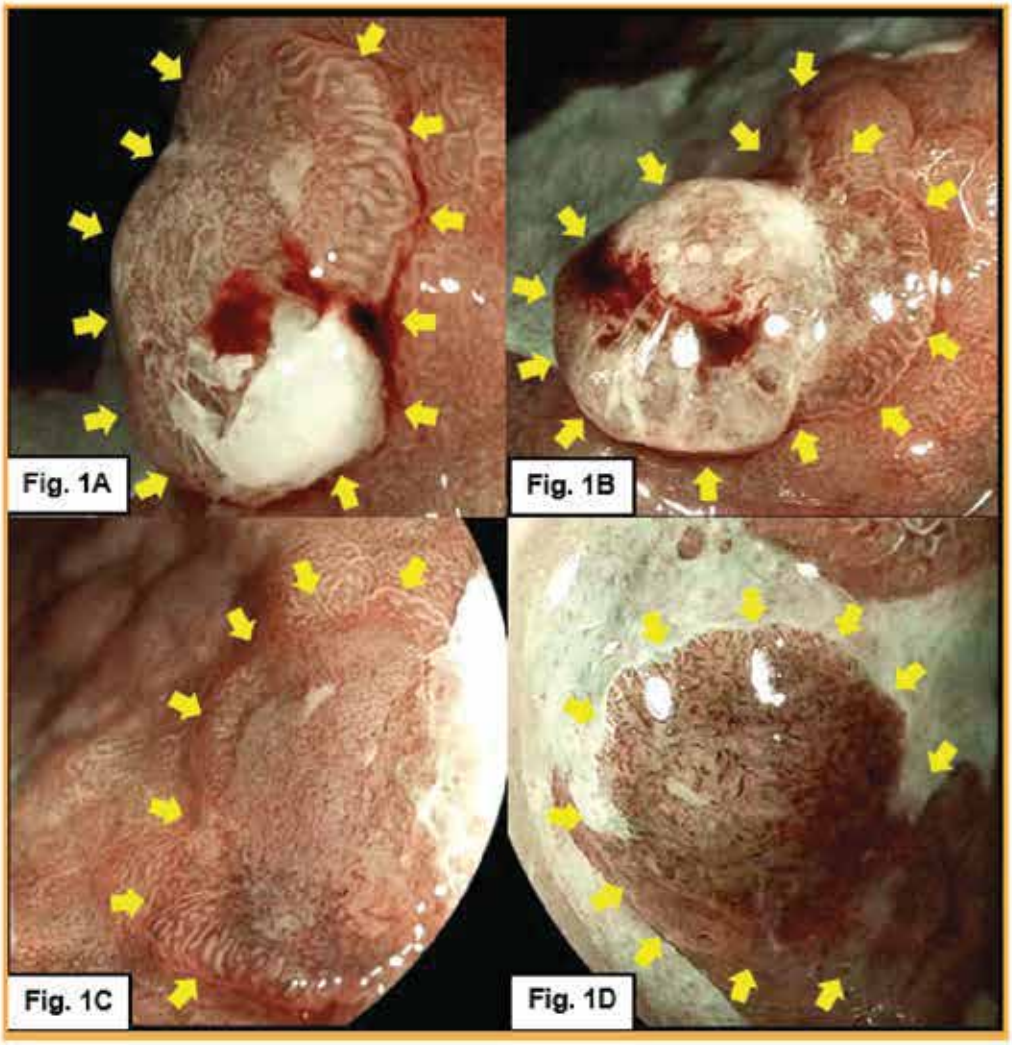
Reference:
1. Mixed neuroendocrine non-neuroendocrine neoplasms: a systematic review of a controversial and underestimated diagnosis J. Clin. Med., 9 (1) (2020), p. 273

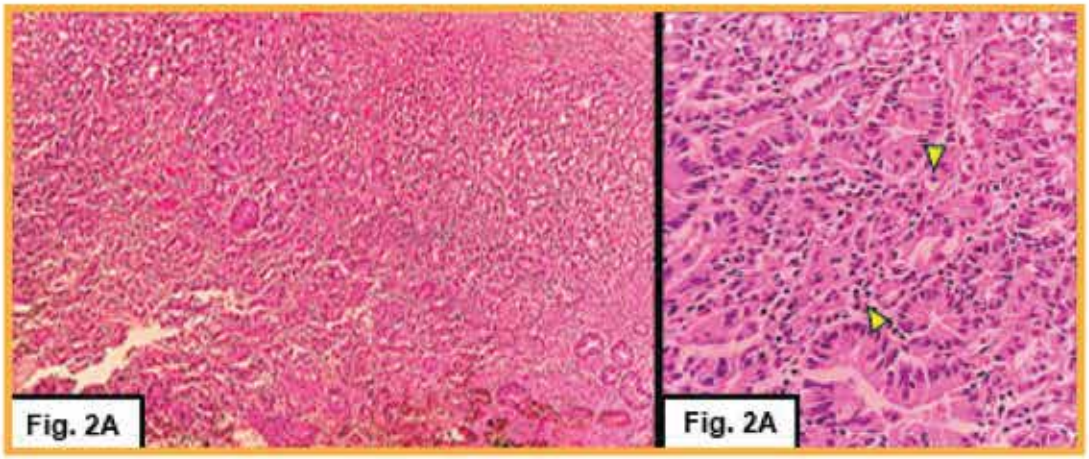
Dr. Marc Julius H. Navarro, MD
Dr. Patricia Anne I. Cabral-Prodigalidad, MD

This is a case of a 57-year-old male presenting with recurrent acid regurgitation associated with heartburn and occasional epigastric pain for more than 5 years. Upper gastrointestinal endoscopy (Figure 1A-D) revealed several nodular and raised areas, some of which displayed features suspicious for dysplasia. These features included depressed regions with clear demarcation from the surrounding mucosa, an irregular and amor phous mucosal surface pattern, and areas with absent vascularity within the middle to distal portion of the esophagus. En bloc resection was performed through endoscopic submucosal tunnel dissection. Histopatho logical examination (Figure 2A and Figure 2B) showed a poorly differentiated intramucosal adenocarcinoma with signet ring cell features (yellow arrowhead) in a background of Barrett esophagus. The tumor invaded the muscularis mucosae. No definite lymphovascular or perineural invasion was identified. The cauterized radial margin and base were negative for carcinoma, with a clearance of 4 mm.



Dr. Marc Julius H. Navarro, MD
Dr. Patricia Anne I. Cabral-Prodigalidad, MD





Dr. Nigar Aliyeva, MD PhD

Barret esophagus.-C2M2.

The biopsy were taken according to Seattle protocol. No displasia were found

Dr. Nigar Aliyeva, MD PhD

Carcinoid tumors of stomach.

Pathomorphology-Carcinoid Grade 2, Kiproliferation index 8-10%

Dr. Tanyaporn Chantarojanasiri, MD

A case of 35 years old woman with underlying of poorly controlled type 1 diabetes presented with vomiting and weight loss.She underwent computed tomography of the upper abdomen which showed narrowing of 3rd part duodenum caused by superior mesenteric artery compression against abdominal aorta.

Dr. Shahzad Riyaz

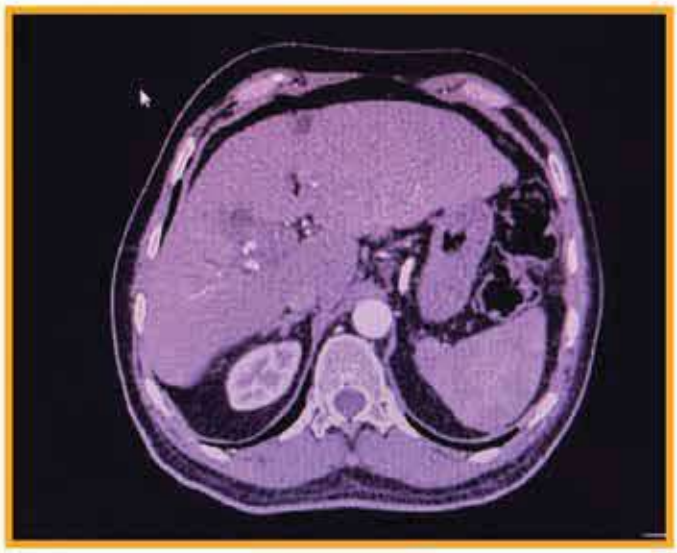
A 36-year-old woman with recurrent hypoglycemia and biochemical evidence of insulinoma was evaluated. CT and PET scans were normal. EUS detected a 1.3 cm pancreatic lesion, confirmed as a neuroendocrine tumor on biopsy.EUS-guided RFA with a 19-10E EURSA electrode was performed, resolving hypoglycemia.

Pre EUS-RFA

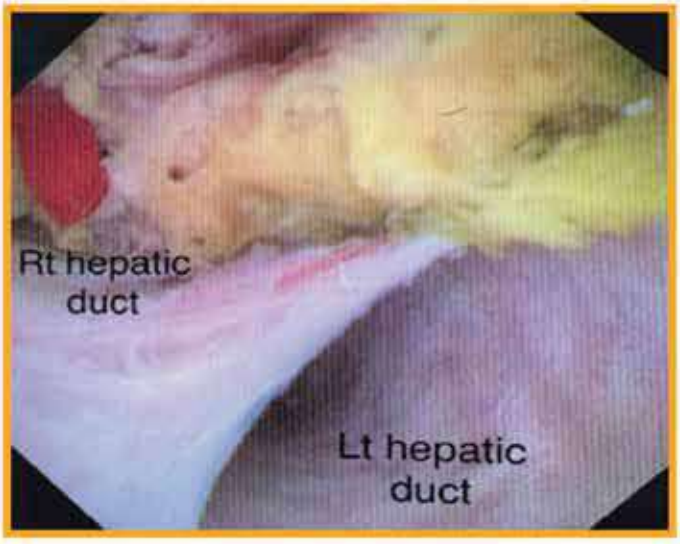
Post EUS-RFA

Dr. Shahzad Riyaz

A 62-year-old man with HCV was evaluated for obstructive jaundice and weight loss. CT showed right hepatic lobe atrophy, ductal dilation, and an enhancing segment 8 lesion. Cholangioscopy (eyeMAX) revealed a soft, polypoidal, vascular mass in the right hepatic duct. Biopsy confirmed intraductal extension of hepatocellular carcinoma.



CT



Cholangioscopy

Dr. Shifa Umar, MD

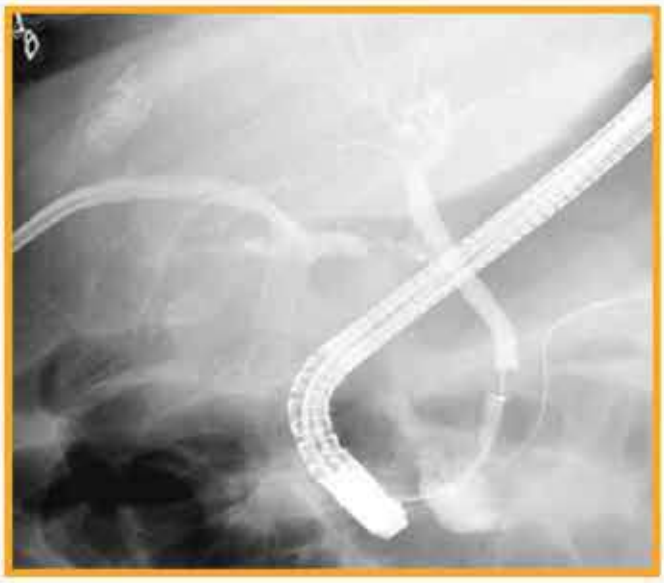


Figure 1

The cholangiogram demonstrates contrast extravasation from the cystic duct consistent with a bile leak. Some of the most commonly encountered complications with laparoscopic cholecystectomy include biliary injuries and bile leak. Biliary injuries during cholecystectomy occur because of the inability to avoid the biliary tract and its blood supply during surgical dissection.

Figure 2.

Pancreatic heterotopia, also known as a pancreatic rest, ectopic pancreas, and aberrant pancreas, is defined as pancreatic tissue without vascular or anatomic communication with the main body of the pancreas. Pancreatic rests have classic endoscopic appearance with umbilicated surface corresponding to a draining duct .These lesions are generally benign and do not require surveillance.

Dr. Shifa Umar, MD

Endosonographic view of pancreas cyst communicating with nondilated pancreas duct

Dr. Abbas Ali Tasneem

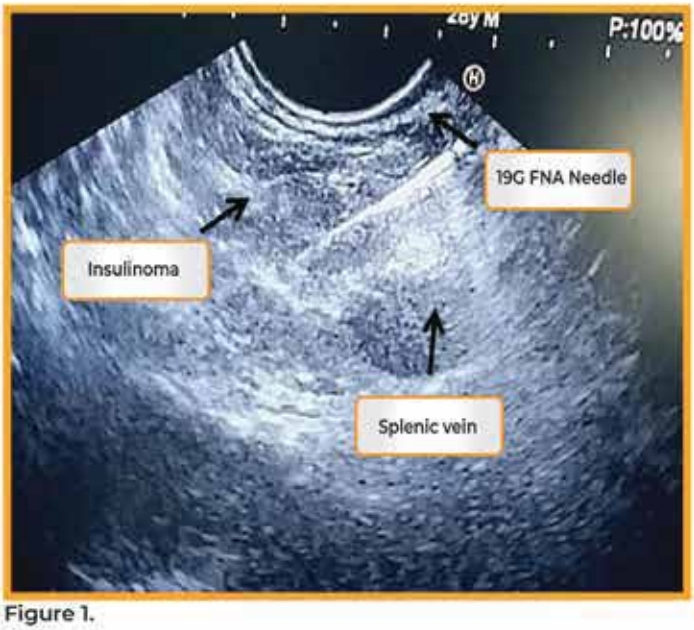


Figure 1.
Endoscopic ultrasound (scope: linear,postion: body of stomach) image showing a 19G FNA needle placed into insulinoma in tail of pancreas for ablation with absolute alcohol.

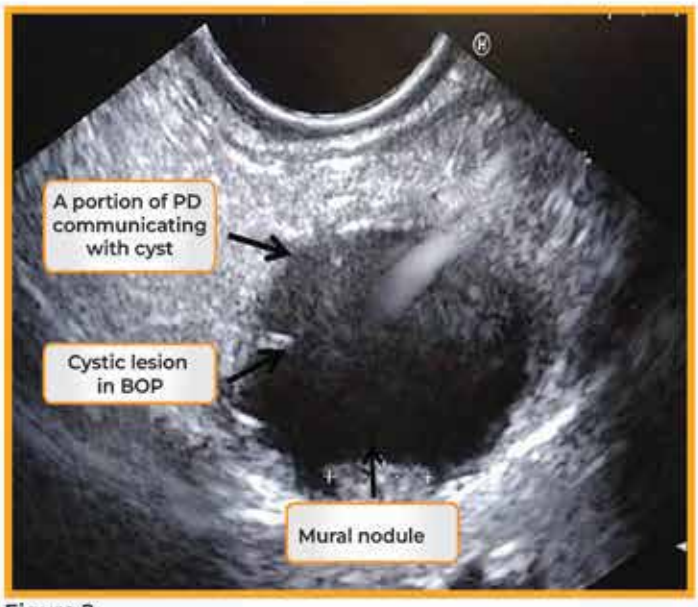


Figure 2.
EUS (linear, body of stomach) showing a cystic lesion in the body of pancreas communicating with pancreatic duct (PD) and demonstrating a mural nodule, suggestive of main duct - intraductal papillary mucinous neoplasm(MD-IPMN).

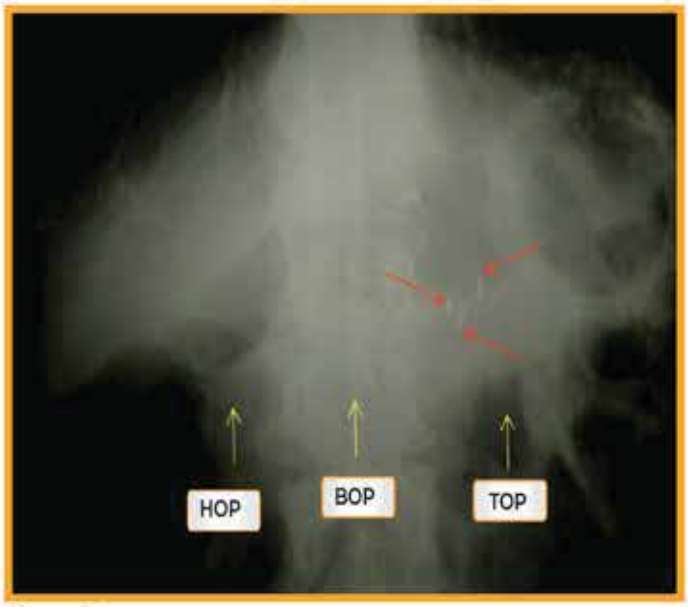


Figure 3.
Abdominal radiograph showing previously placed gold fiducial markers (red arrows) placed in pancreatic tail (yellow arrow) mass lesion (biopsy proven adenocarcinoma) under guidance of endoscopic ultrasound for later stereotactic radiotherapy. (HOP = head of pancreas; BOP = body of pancreas; TOP = tail of pancreas).

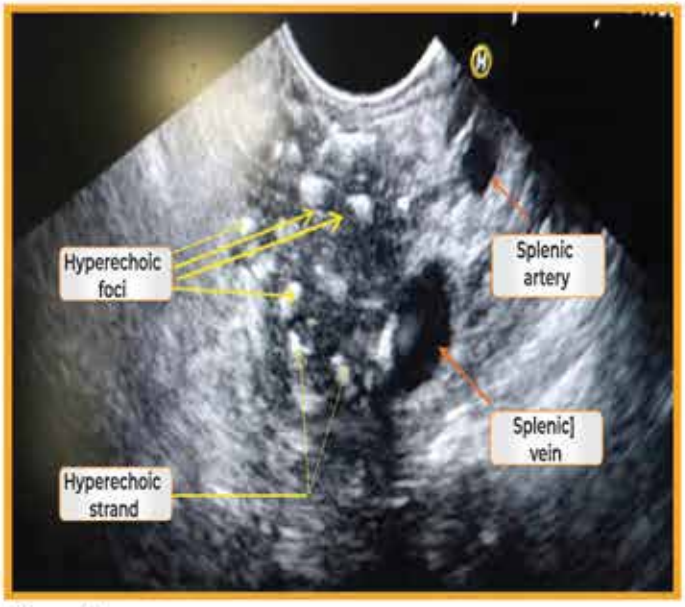


Figure 4.
Endoscopic ultrasound (linear, body of stomach) image of pancreatic body showing multiple hyperechoic foci without shadowing and hyperechoic stranding in a patient with chronic pancreatitis.

Dr. Abbas Ali Tasneem

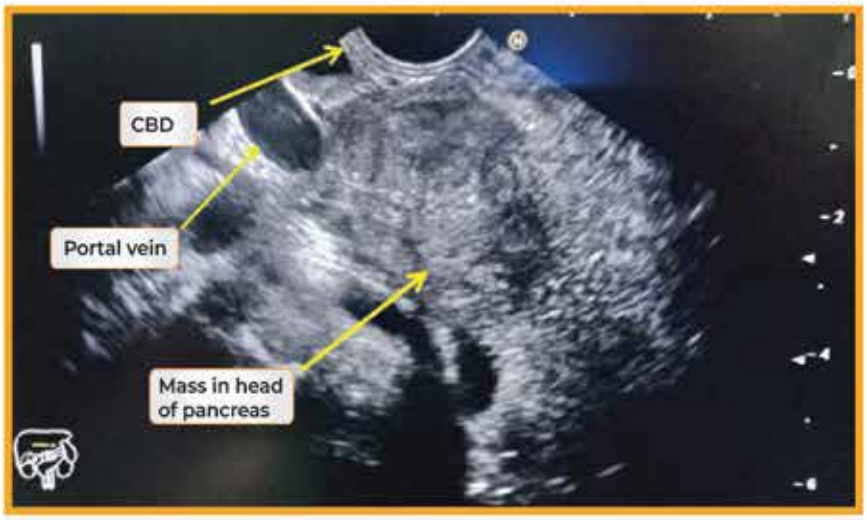


Figure 5.

Endoscopic ultrasound (scope: linear, position: duodenal bulb) showing a hypoechoic mass in head of pancreas with surrounding common bile duct (CBD) and infiltrated portal vein (PV).

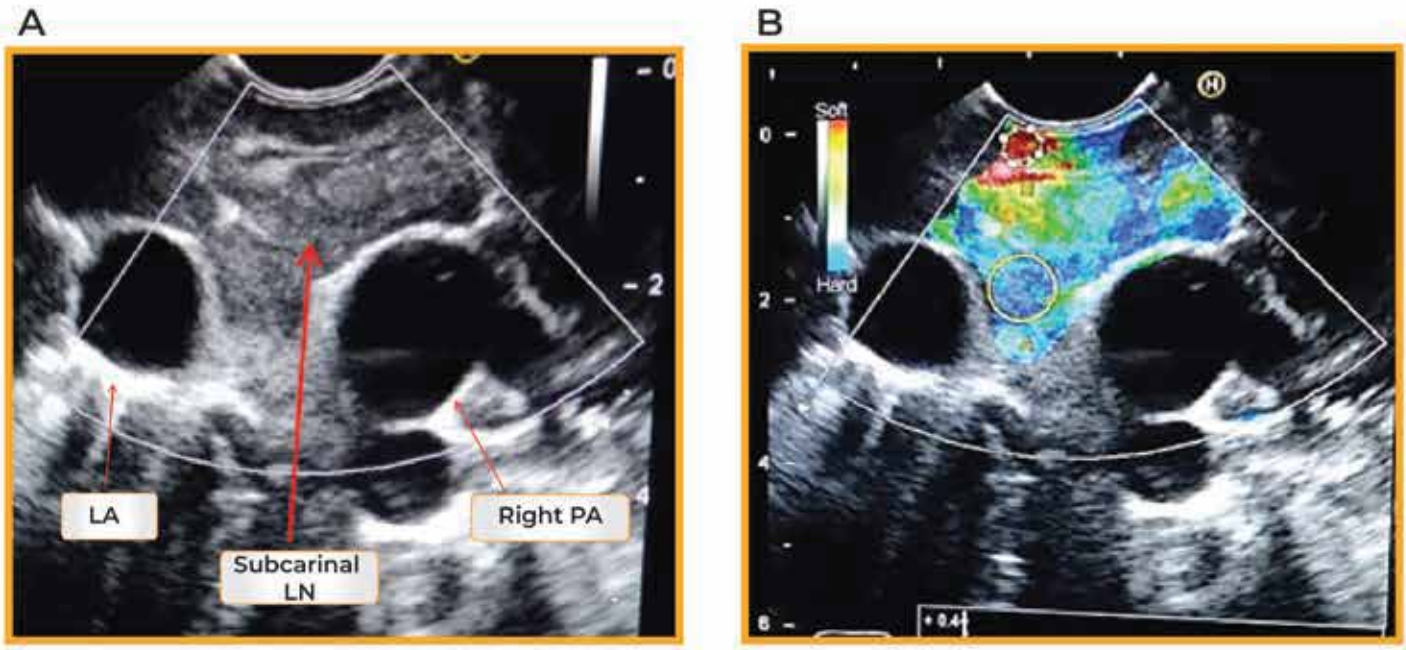


Figure. 6

A) EUS (scope: linear, position: esophagus) image of subcarinal (mediastinal) lymph node lying between the left atrium (LA) and right pulmonary artery (PA) 6B) Elastography of the lymph node performed to calculate the strain ratio.

Dr. Abbas Ali Tasneem

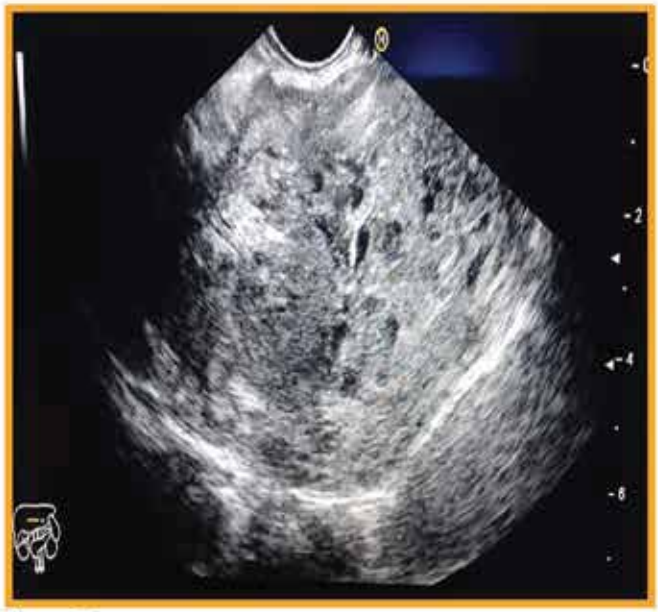


Figure 7.
EUS (linear, duodenal bulb) image showing a microcystic serous cystadenoma in the head of pancreas.

Figure 8.
EUS guided biopsy specimen showing a long core of tissue that demonstrates satisfactory macroscopic onsite evaluation (MOSE) and indicating adequacy for histopathologic analysis.

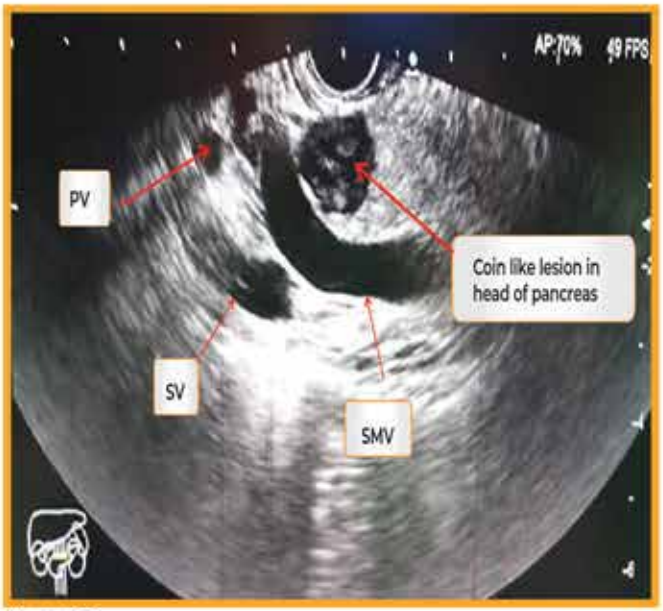


Figure 9.
EUS (linear, duodenal bulb) image showing a coin like hypoechoic lesion in the head of pancreas, adjacent to but distinct from the superior mesenteric vein (SMV). Biopsy of the lesion demonstrated neuroendocrine tumor WHO grade I.

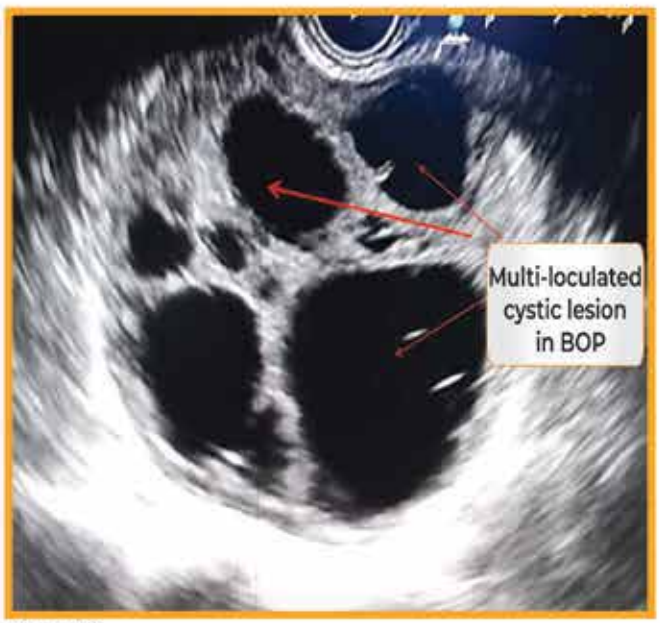


Figure 10.
EUS (linear, body of stomach) image showing a multi-loculated cystic lesion in the body of pancreas (BOP) suggestive of mucinous cystadenoma.

Dr. Abbas Ali Tasneem

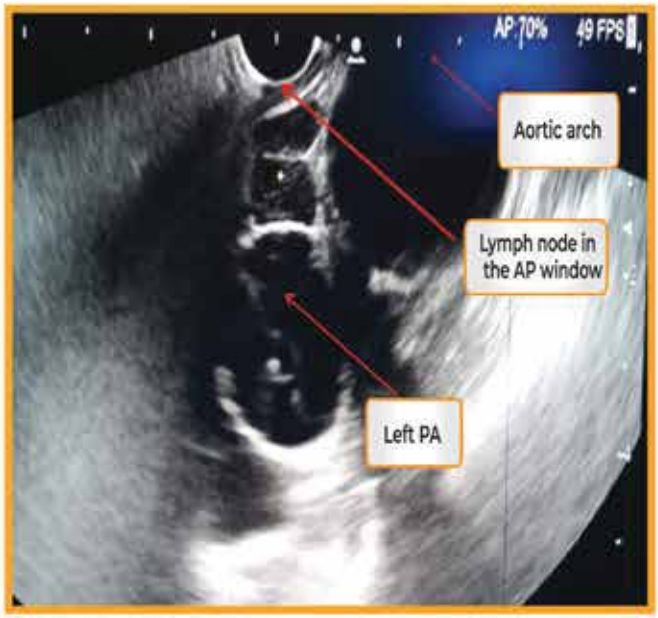


Figure 11.
EUS (linear, esophagus) image showing a lymph node in the aortopulmonary (AP) window in the posterior mediastinum.

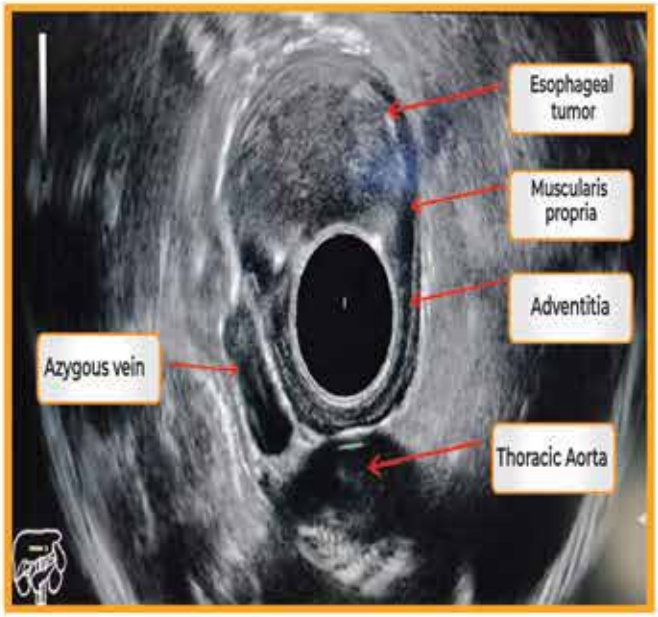


Figure 12.
EUS (radial, esophagus) image taken for T staging of esophageal squamous cell carcinoma in the mid-esophagus. The image shows the lesion extending from the mucosa to the adventitia but not invading the surrounding structures like the aorta or azygous vein.

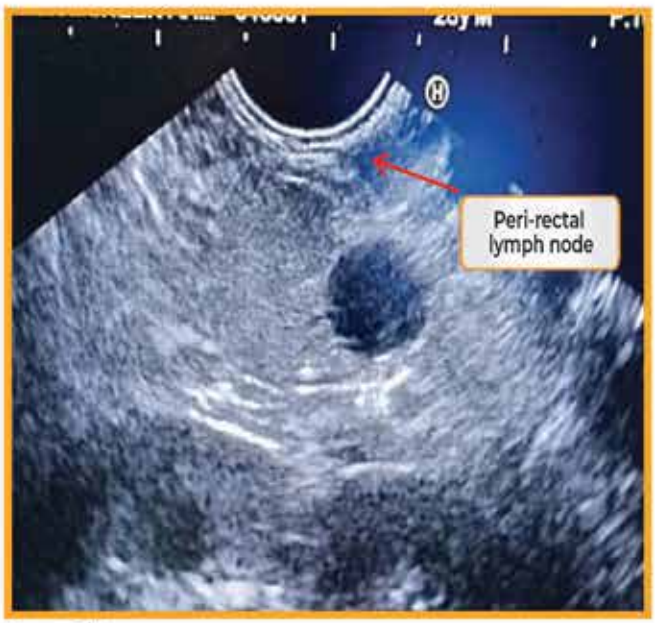


Figure 13.
EUS (linear, rectum) image of a hypoechoic lymph node present in the peri-rectal area. Biopsy obtained from the lymph node showed caseating granulomas suggestive of tuberculosis.

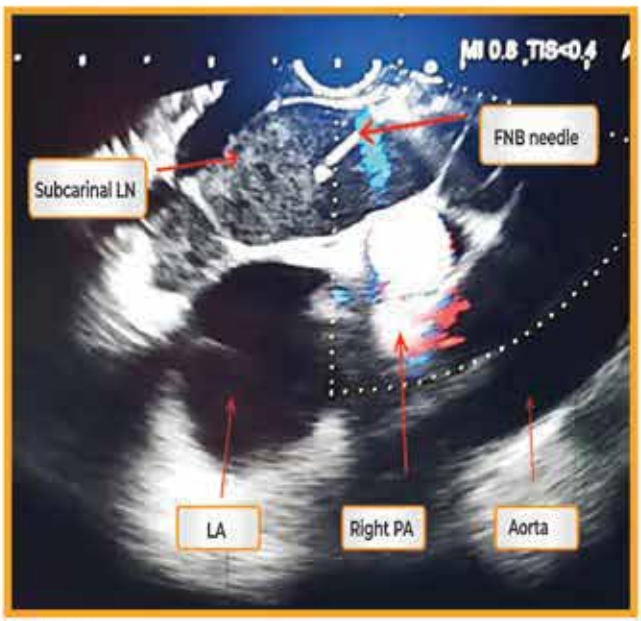
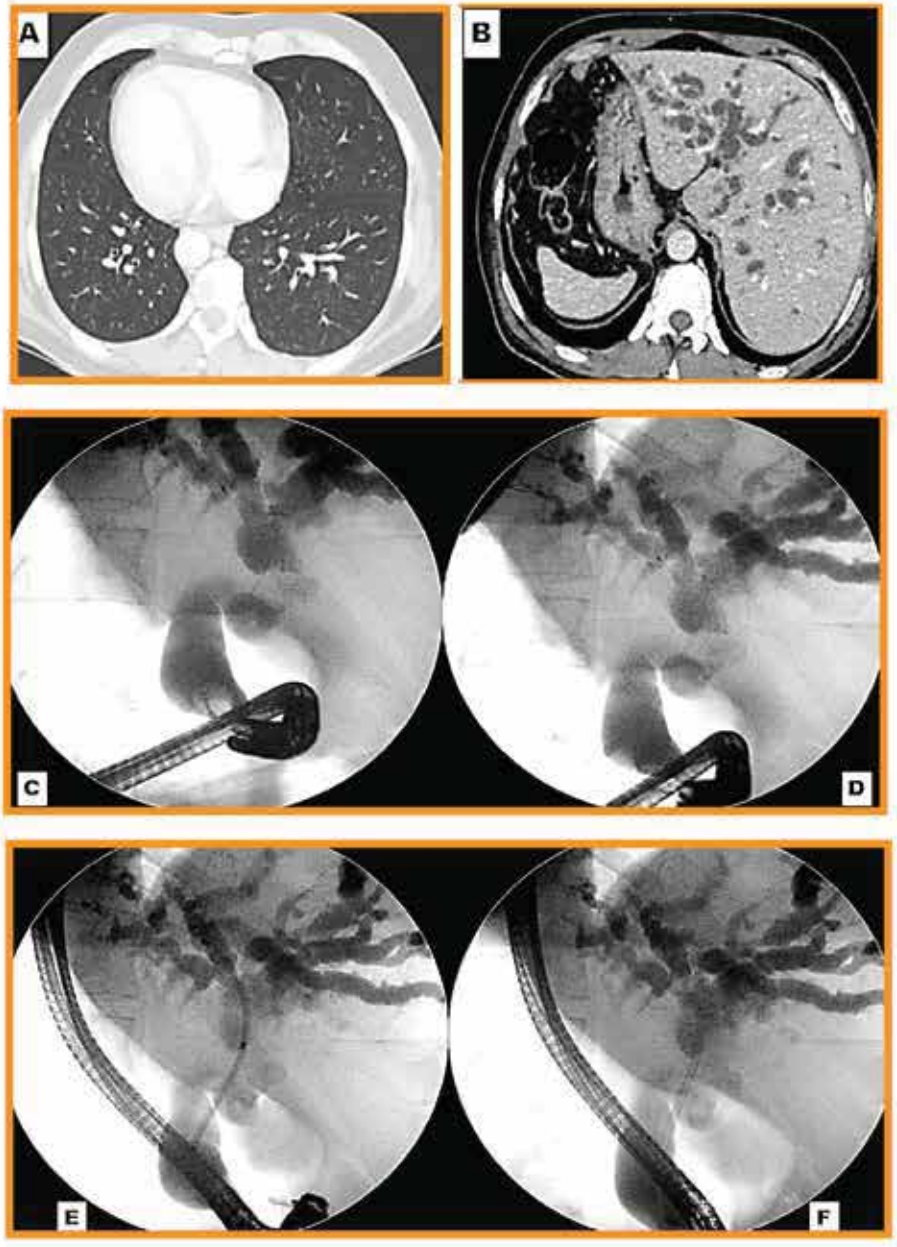


Figure 14.
EUS (linear, esophagus) showing a large hypoechoic subcarinal lymph node. Tissue acquisition is being attempted with 22G FNB needle. (LA = left atrium; PA = pulmonary artery; LN = lymph node).

Dr. Usman Aujla

Distal Cholangiocarcinoma in Situs Inversus Totalis



A: Dextrocardia

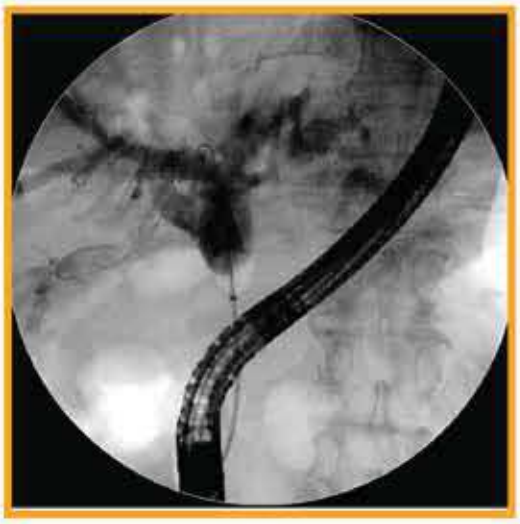
B: Opposite rotation(Mirror imaging) of abdominal Viscera.

C&D: Extreme angulation of duodenoscope to locate the ampulla and cannulate it to obtain cholangiograms in moderately
dilated biliary system due to distal CBD narrowing resulting from cholangiocarcinoma of distal CBD

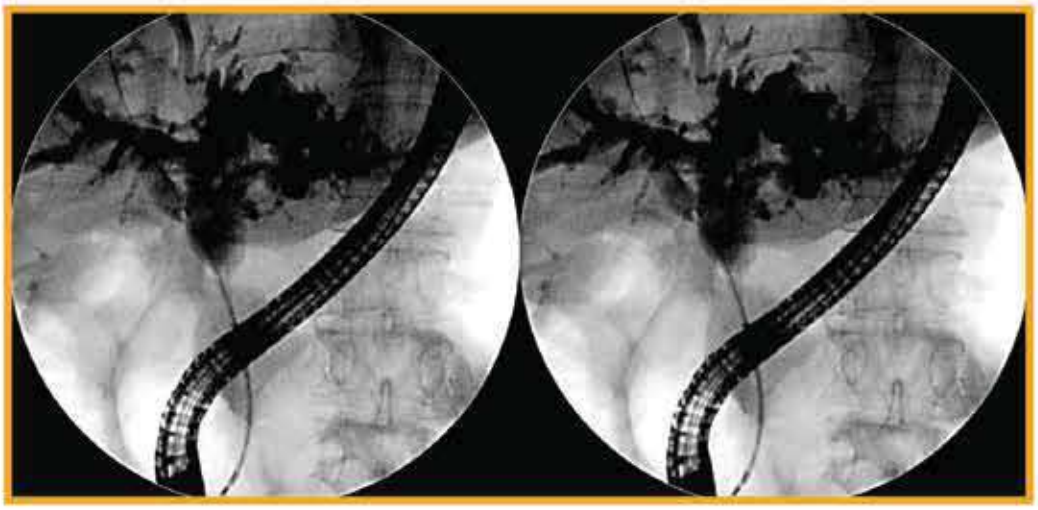
E&F: Successful placement of plastic biliary stent across the distal stricture.

Dr. Usman Aujla

Metastatic Gall Bladder Mass with Bile duct involvement

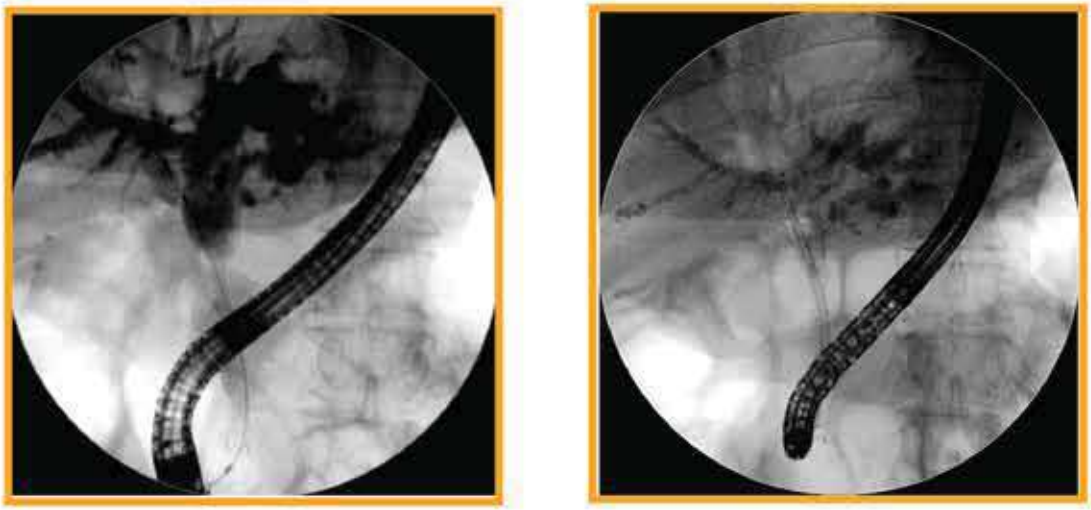


Occlusion cholangiogram showing a CHD & proximal CBD stricture with moderate upstream biliary dilatation.



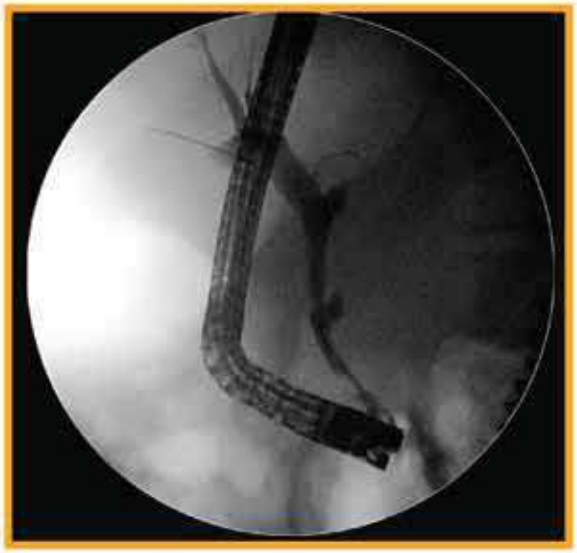
Cholangiogram showing placement of an uncovered metallic stent for decompression in the setting of metastatic disease.

Dr. Usman Aujla



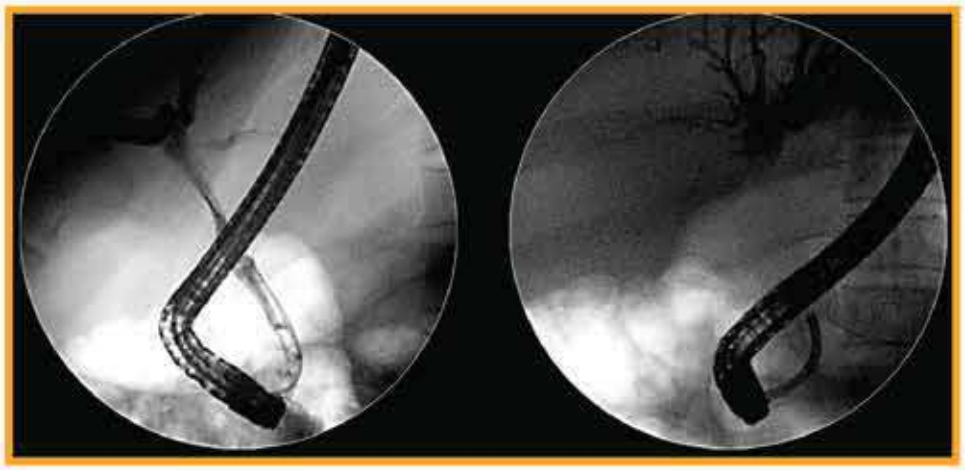
Cholangiogram demonstrating the placement of a plastic biliary stent within a previously deployed metallic stent, with adequate contrast drainage indicating effective biliary decompression.

IMPACTED CYSTIC DUCT STONE



Cholangiogram reveals a stone (white arrow) in the common bile duct

Dr. Usman Aujla



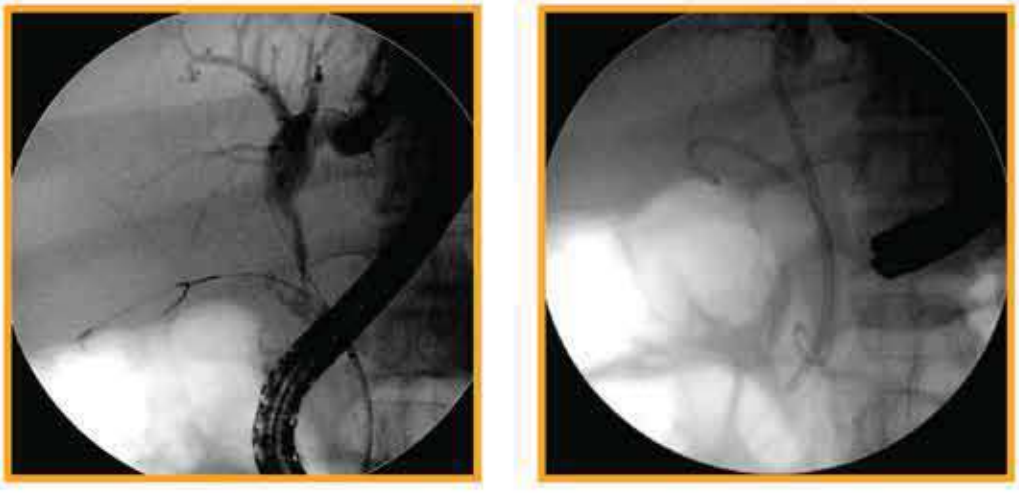
Retained stone in the common bile duct could not be retrieved, prompting cholangioscope introduction for further evaluation.

A B C

A: Cholangioscopy + Electrohydraulic lithotripsy was performed for an impacted stone in a low rising cystic duct.

B: Stone fragments

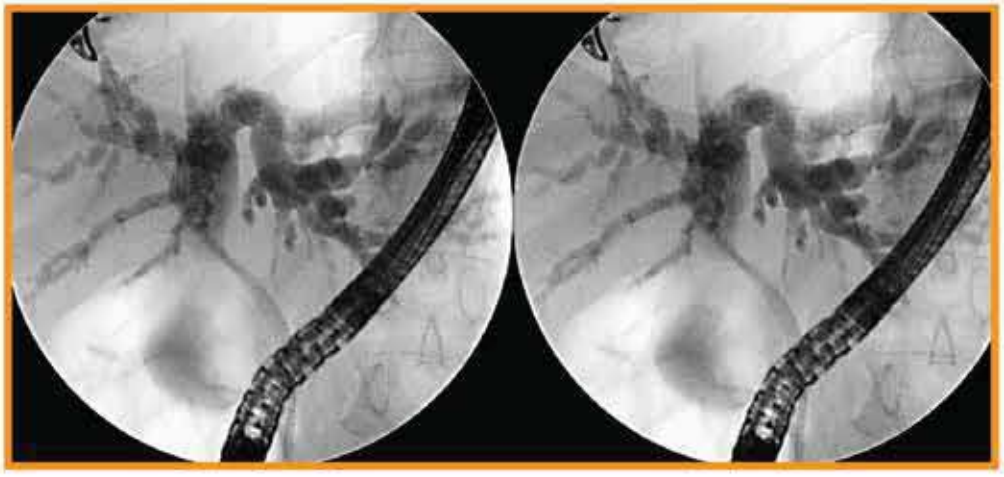
C: Frank Pus noted following lithotripsy



Guidewires were placed in the gallbladder and common bile duct. Stone fragments were retrieved along with passage of frank pus followed by the deployment of plastic biliary stents to ensure effective drainage in the setting of cholecystitis.

Dr. Usman Aujla

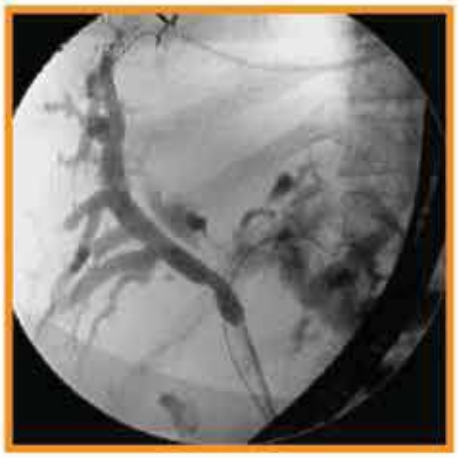
Cholangiocarcinoma



Dr. Usman Aujla

Cholangiocarcinoma involving Confluence + Right & Left hepatic ducts

Cholangiocarcinoma involving Confluence + Right & Left hepatic ducts



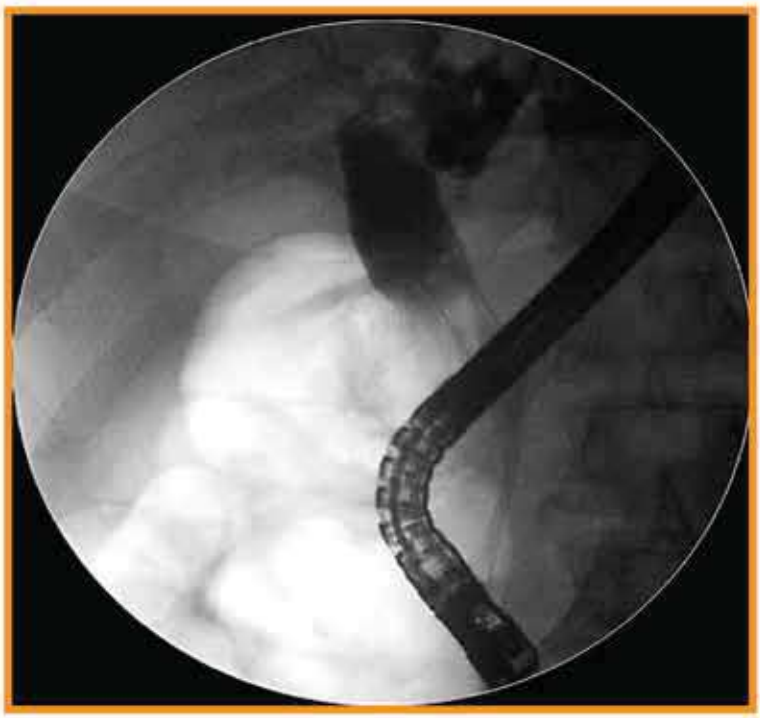
Both the right and left hepatic ducts dilated with CRE Balloon

Bilateral plastic biliary stenting done successfully

Dr. Usman Aujla

Metallic Stenting in Distal CBD Stricture (Metastatic)

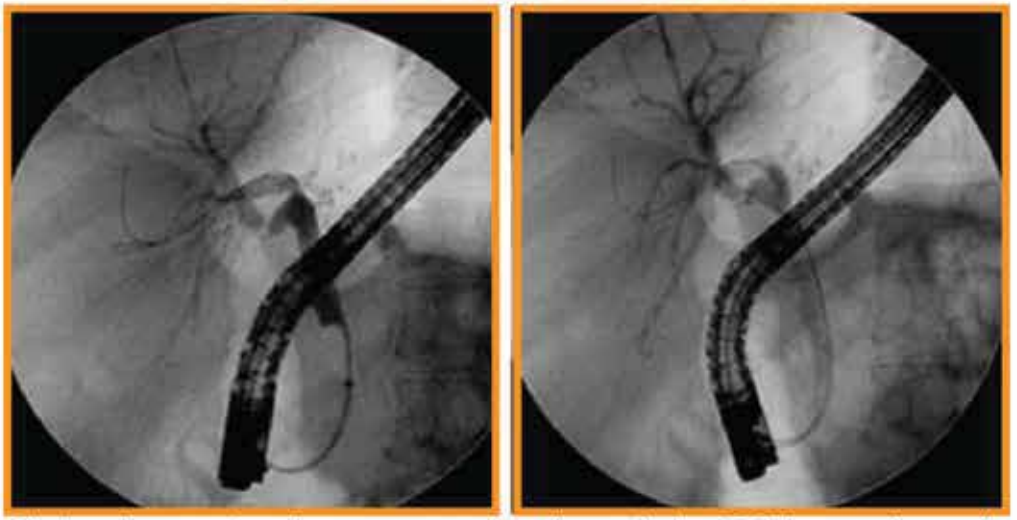
Tight and a long distal CBD stricture



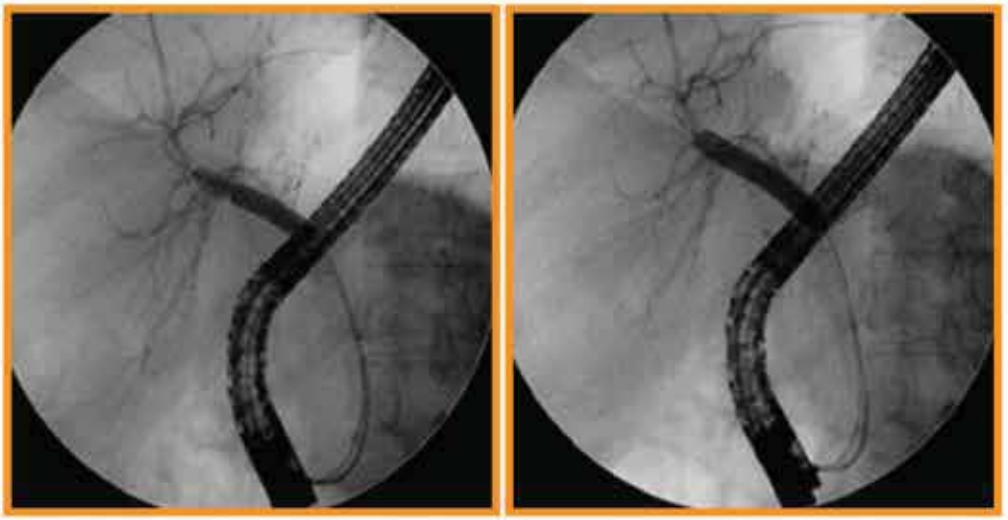
Successful placement of uncovered SEMS

Dr. Usman Aujla

Post Liver Transplant Biliary Anastomotic Stricture in 2 Ducts Anastomosis



Cholangiogram showing anastomotic stricture in both Right anterior and posterior hepatic ducts



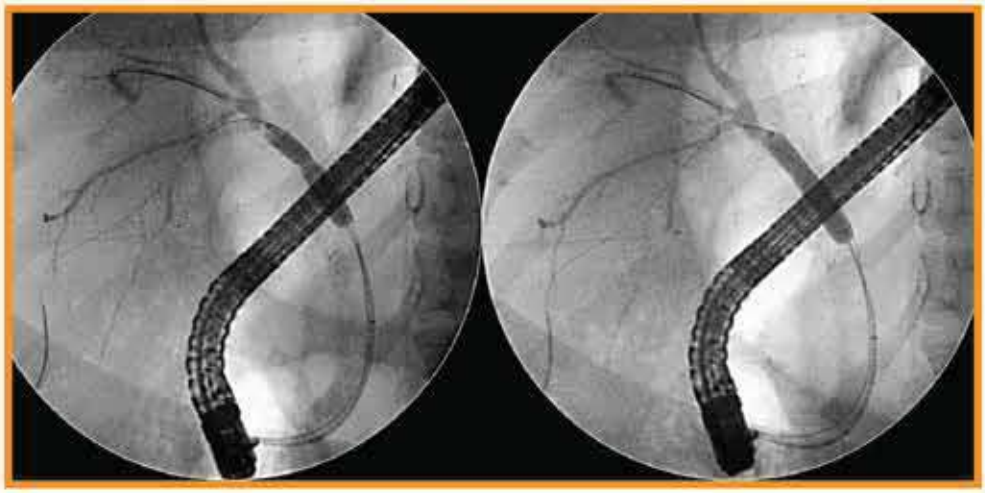
Cholangiogram showing balloon dilatation being performed for the biliary anastomotic stricture

Plastic Biliary Stenting done for both ducts

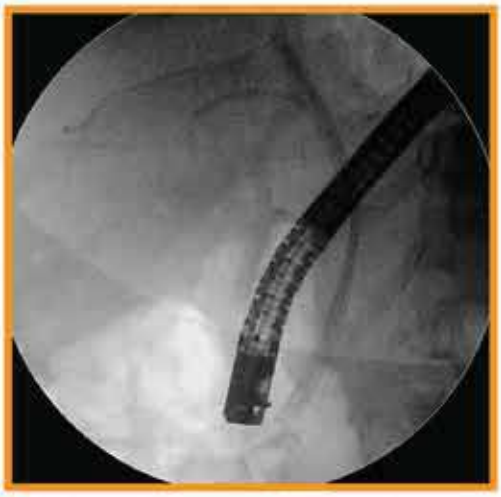
Dr. Usman Aujla

Post Liver Transplant Anastomotic Strictures in Single Anastomosis

Cholangiogram showing Anastomotic site stricture



Stricture dilatation being performed with CRE balloon

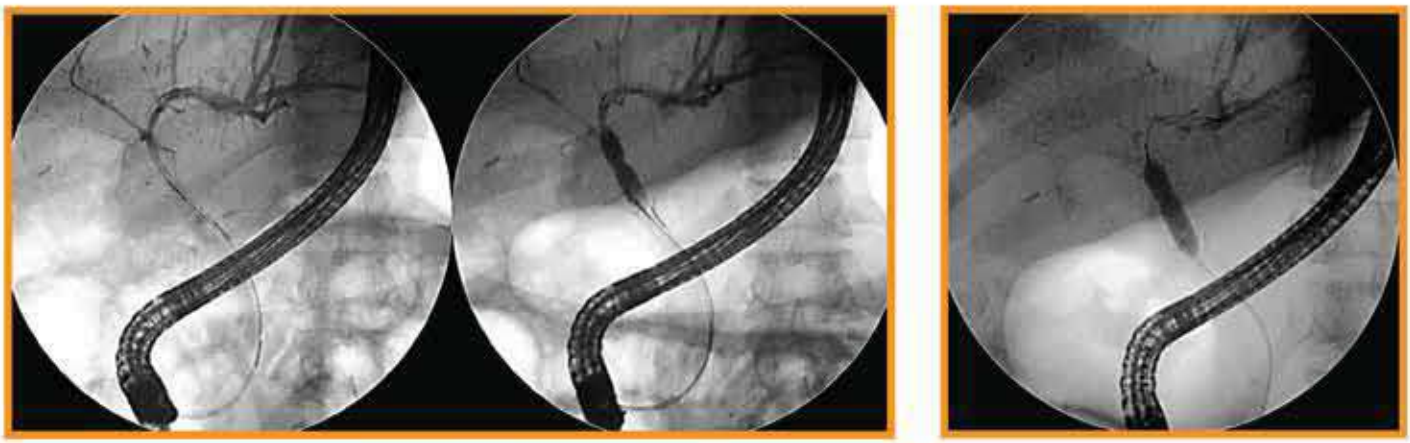


Successful plastic biliary stent placed across the stricture

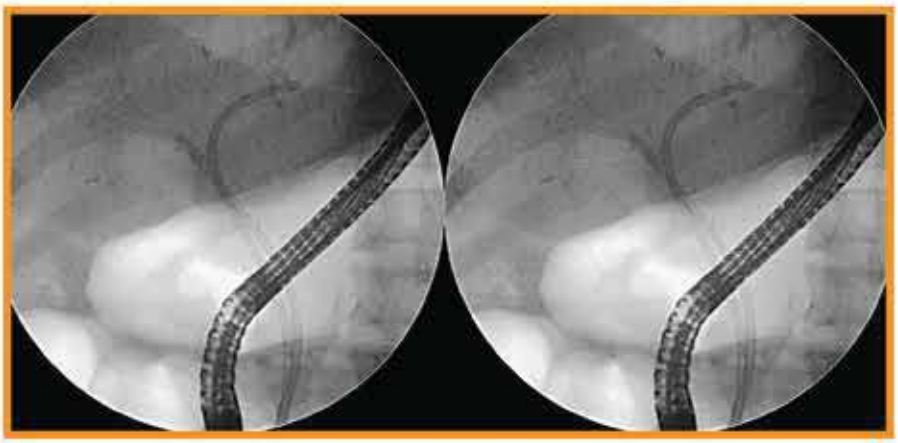
Dr. Usman Aujla

Post LDLT Left Lobe Graft with Anastomotic Stricture

Left lobe graft with Anastomotic Stricture



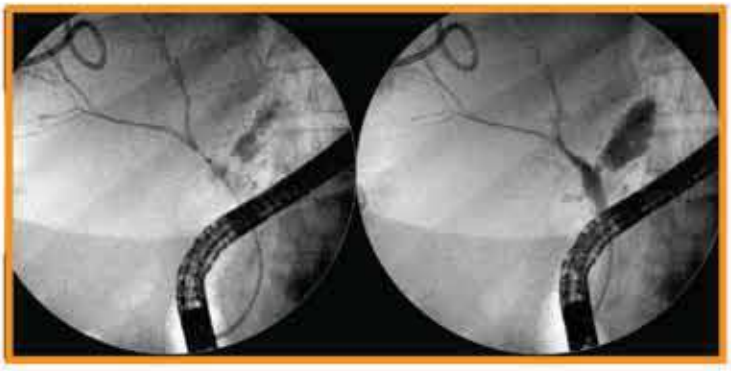
Stricture dilatation with the CRE balloon



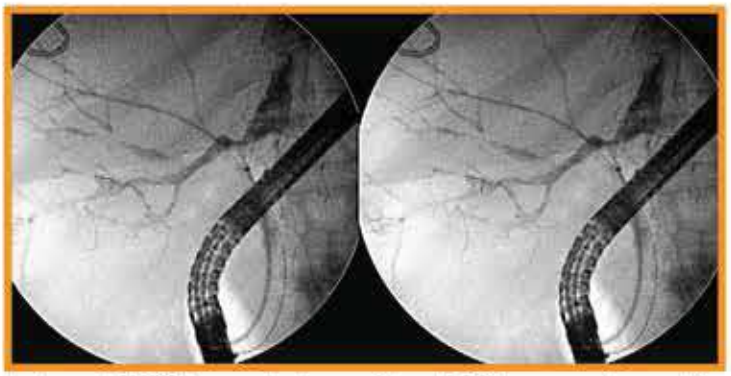
Bilateral Plastic Biliary Stent placement

Dr. Usman Aujla

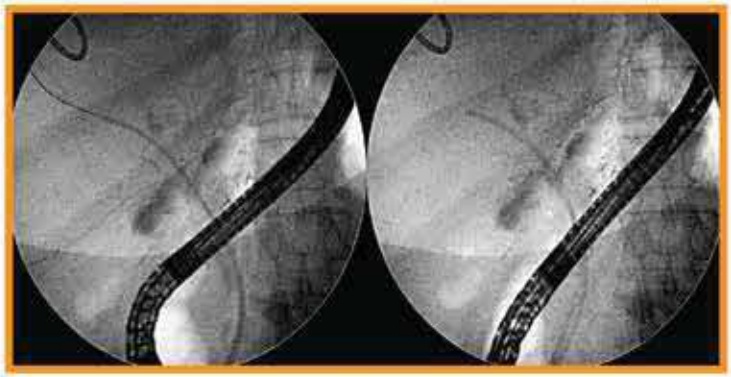
Post LDLT Leak + Kafe stent placement



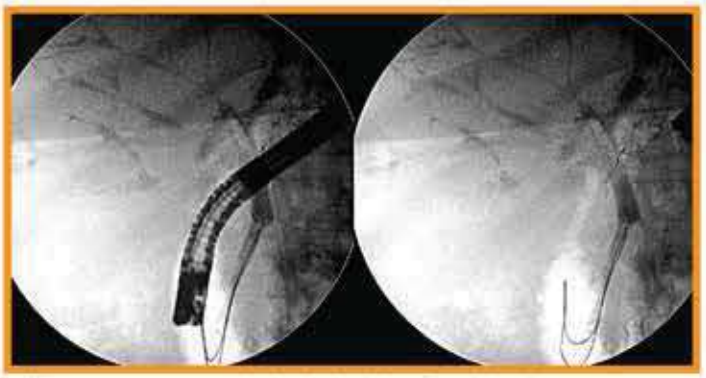
Biliary anastomotic leak post liver transplant



Interval ERCP revealed persistent Biliary anastomotic leak



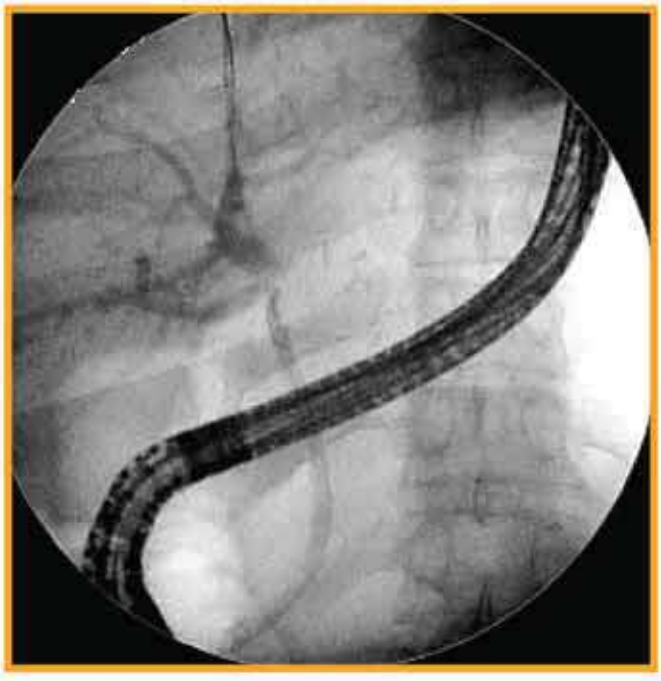
Biliary anastomotic leak bridged with plastic biliary stent



Biliary anastomotic leak bridged with short SEMS (Kafe stent)

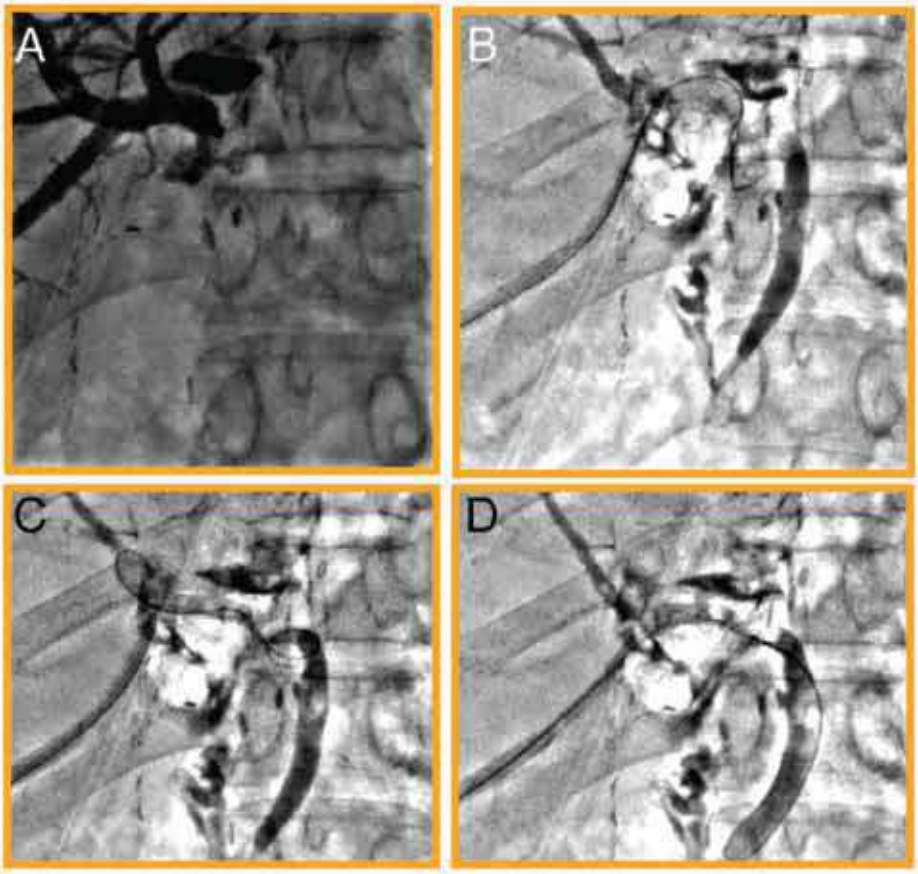
Dr. Usman Aujla

Cholangioscopy-Assisted Negotiation of Post-Liver Transplant Biliary Anastomotic Stricture



Dr. Usman Aujla

Percutaneous Transhepatic Sphincterotome–Guided Management of Post–Living Donor Liver Transplant Biliary Anastomotic Stricture

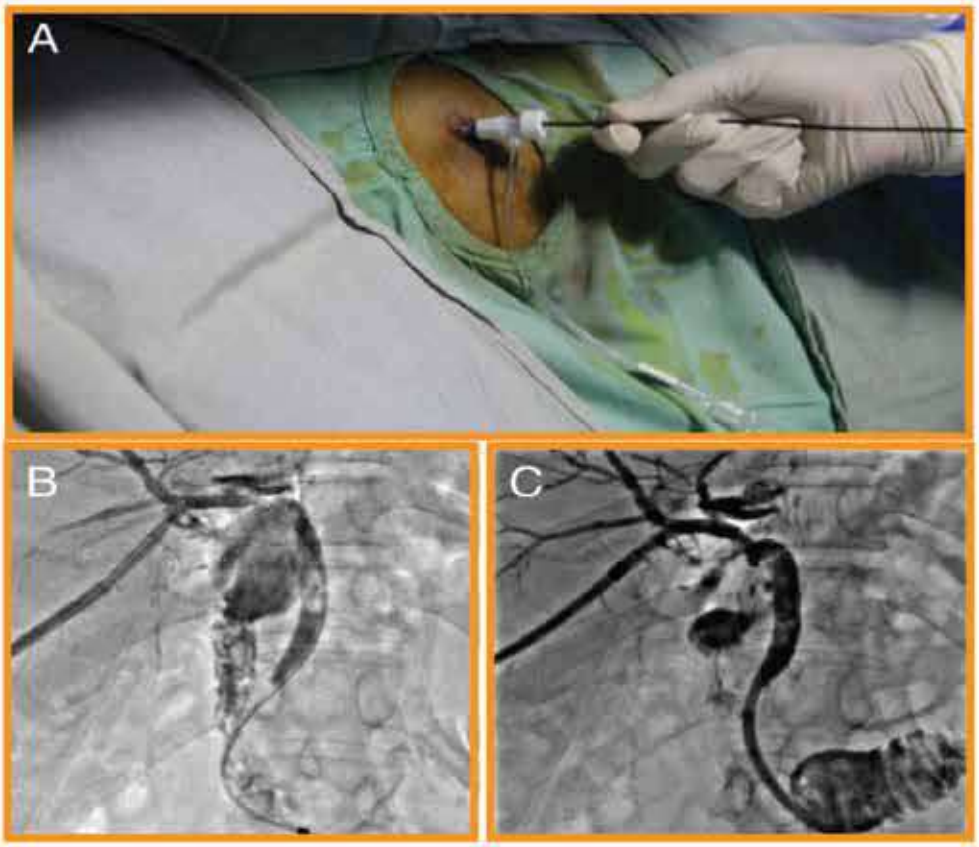


A) Percutaneous transhepatic cholangiography showing anastomotic stricture.

(B) Anastomotic stricture successfully traversed by manual introduction of sphincterotome via the percutaneous route.

(C and D) The guide wire is adeptly threaded through the tight and angled stricture, successfully reaching the common bile duct through a series of precise 360° rotating maneuvers manually performed with the sphincterotome.

Dr. Usman Aujla



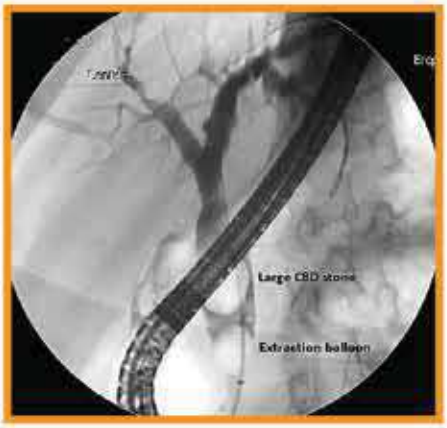
(A) Introduction of a 7 French biliary dilation catheter through a percutaneous transhepatic route to dilate the stricture.

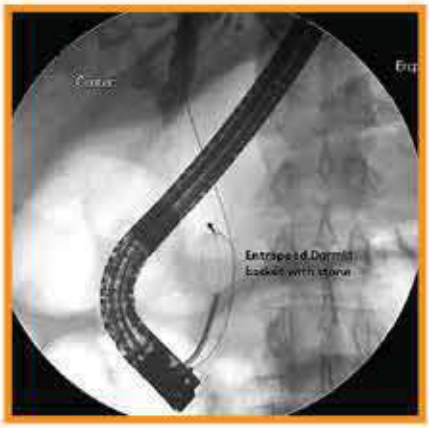
(B) Cholangiogram showing stricture dilatation being performed using a 7 French biliary dilation catheter.

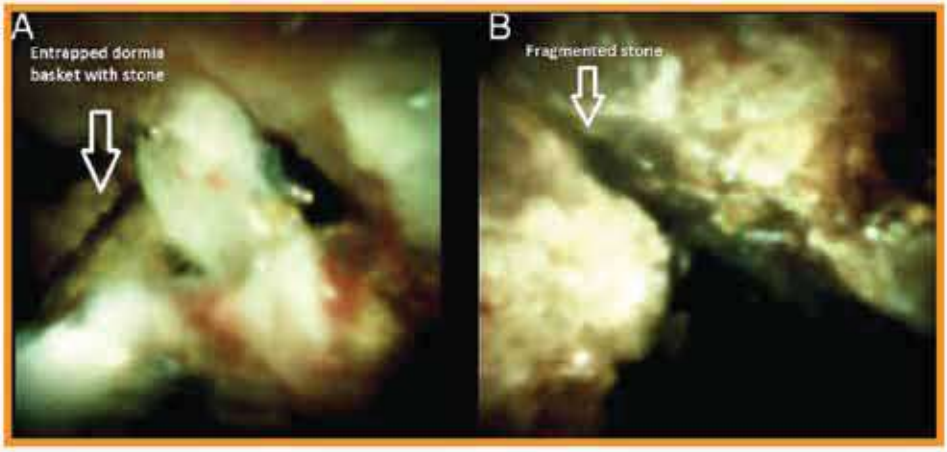
(C) Placement of percutaneous transhepatic biliary drainage catheter.

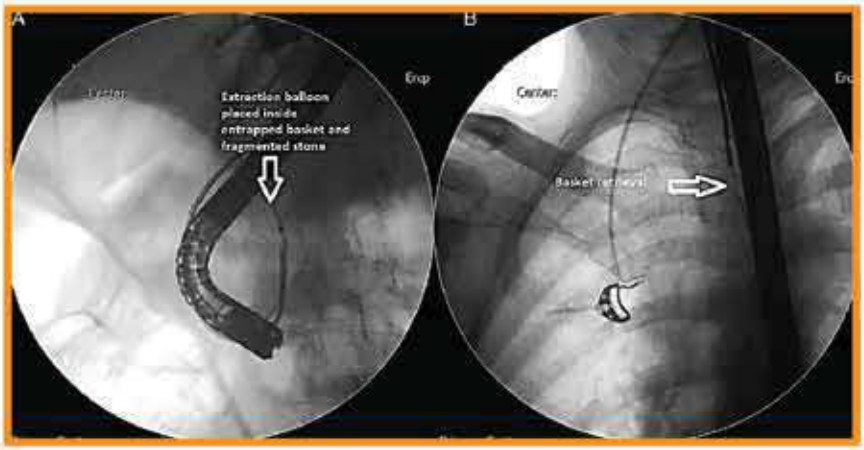
Dr. Usman Aujla

Impacted Dormia Basket with Large Stone



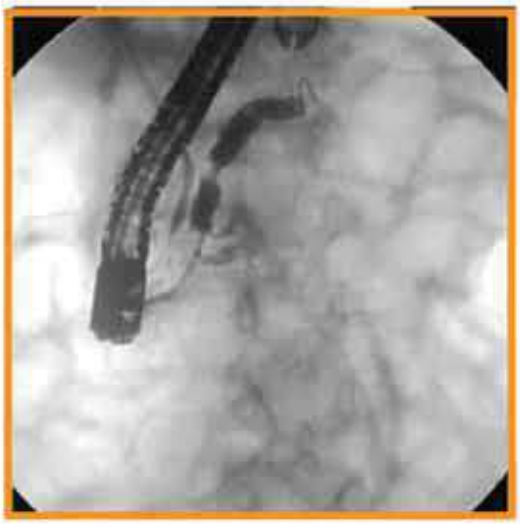




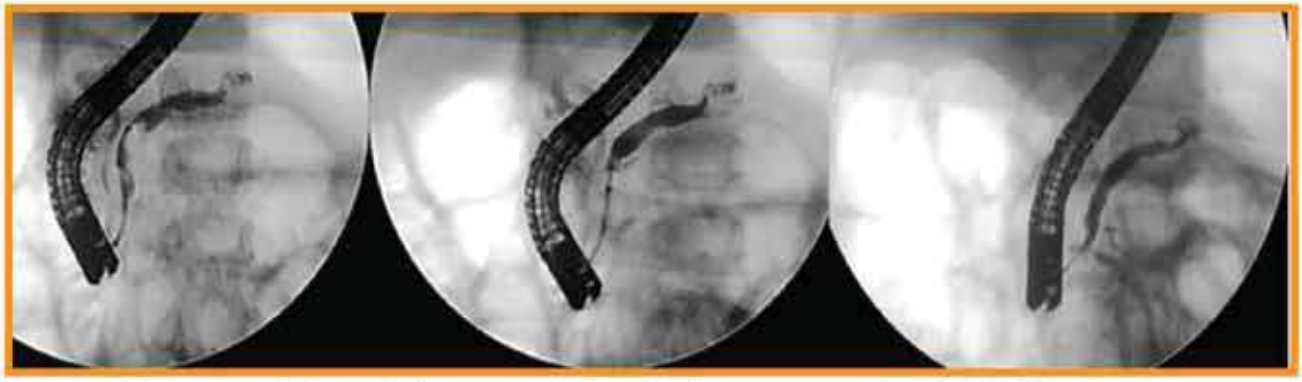


Dr. Usman Aujla

Pancreatic Duct Stone in Pediatric Patient



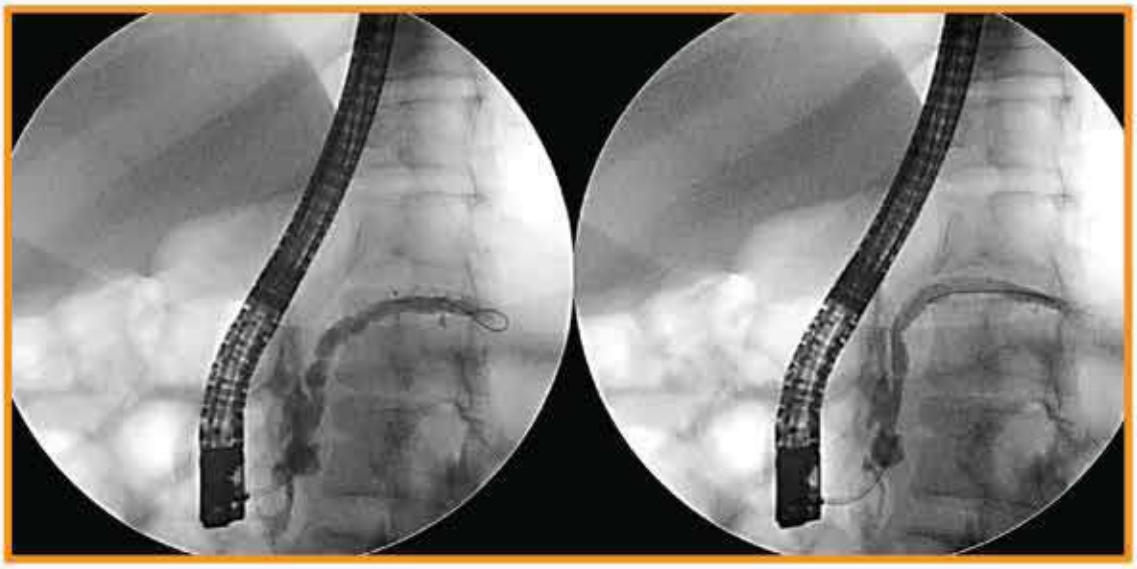
Pancreatic Duct with filling defect,suggestive of intraductal calculi



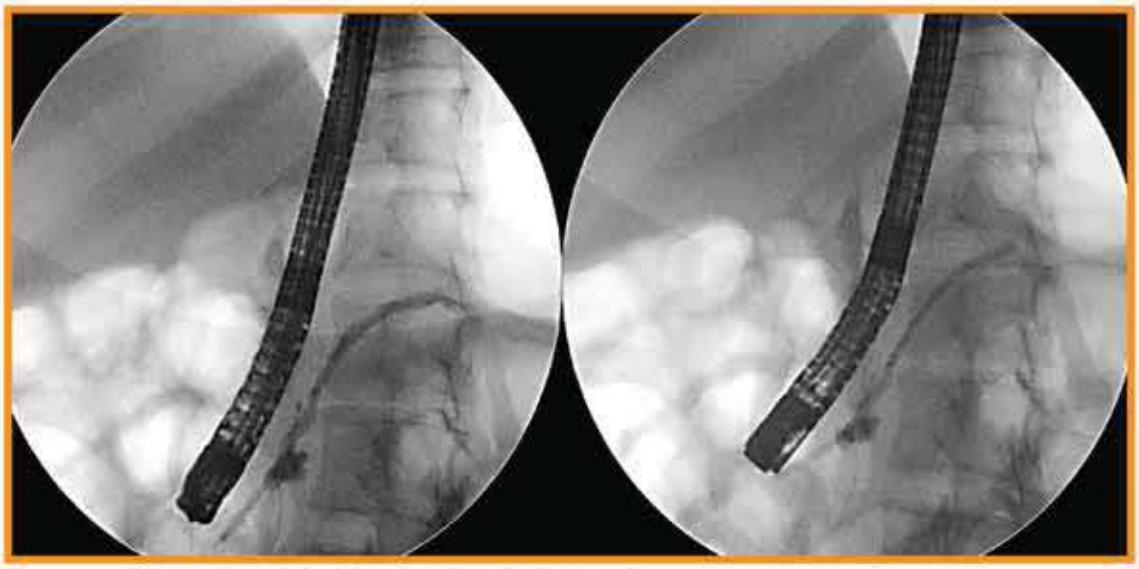
Successful pancreatic ductal clearance achieved using a stone extraction balloon

Dr. Usman Aujla

Pancreatic Duct Leak Management



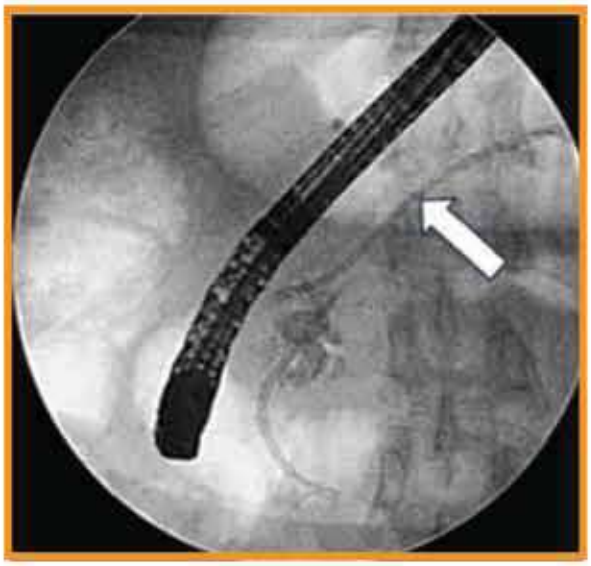
Pancreatogram showing disrupted Pancreatic Duct



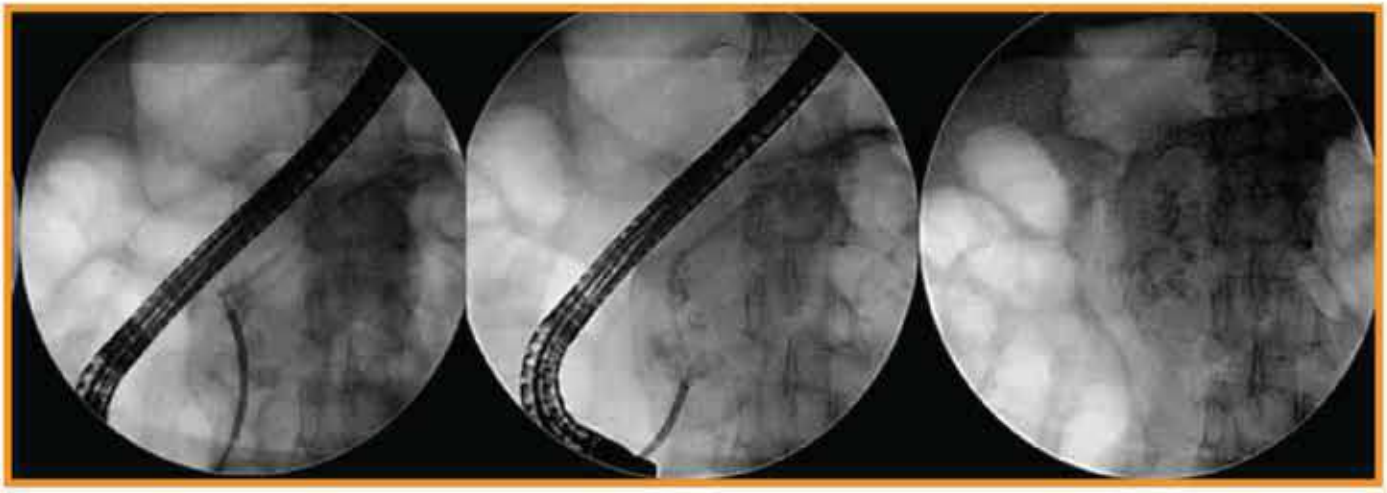
Pancreatic Duct Leak bridged with plastic stent

Dr. Usman Aujla

Migrated PD Stent Retrieval Using Spyglass



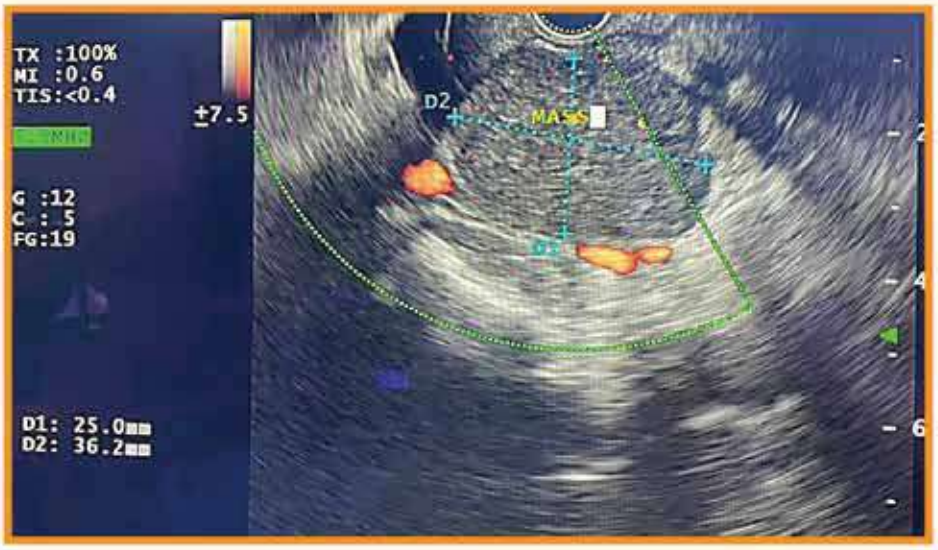
Migrated pancreatic Duct stent (White Arrow)

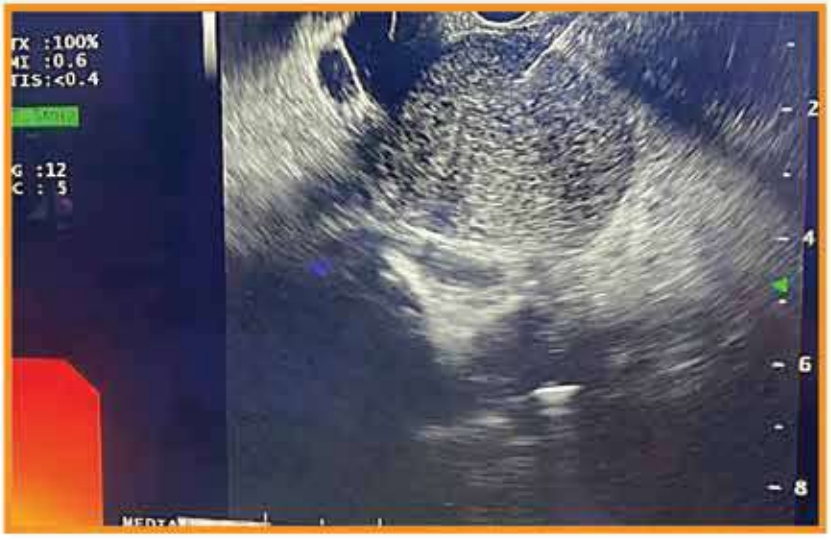


Migrated stent grasped with the forceps using spyglass cholangioscope and successfully retrieved

Dr. Usman Aujla

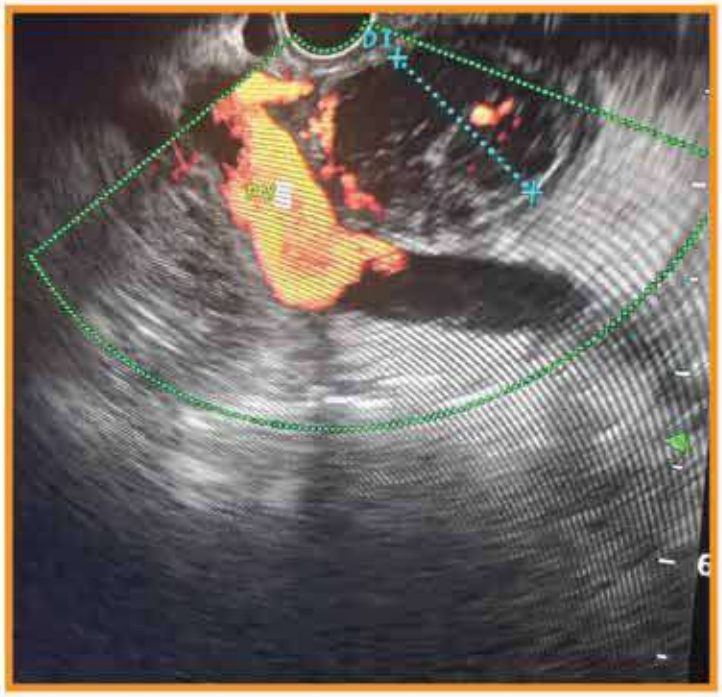
EUS-FNB for a Pancreatic Head Mass





Dr. Usman Aujla

EUS-FNA of a Pancreatic Cystic Lesion

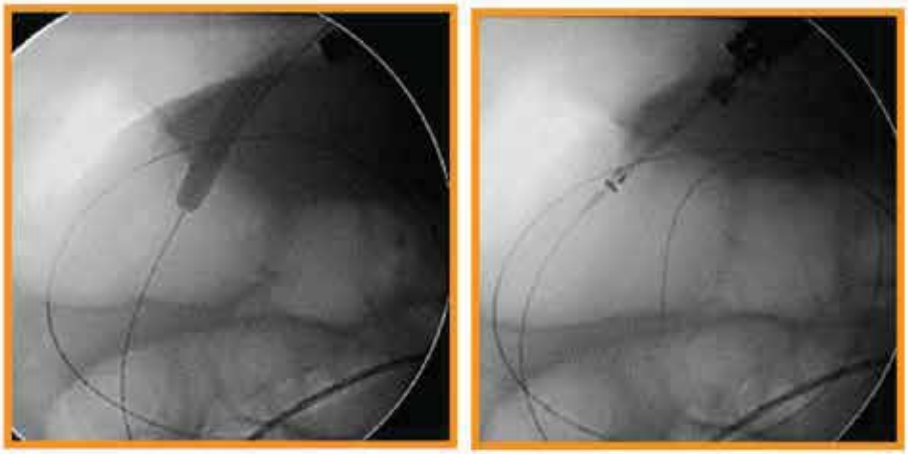


Dr. Usman Aujla

EUS guided Pancreatic Pseudocyst Drainage

Large Pancreatic Pseudocyst

Pancreatic Pseudocyst Punctured

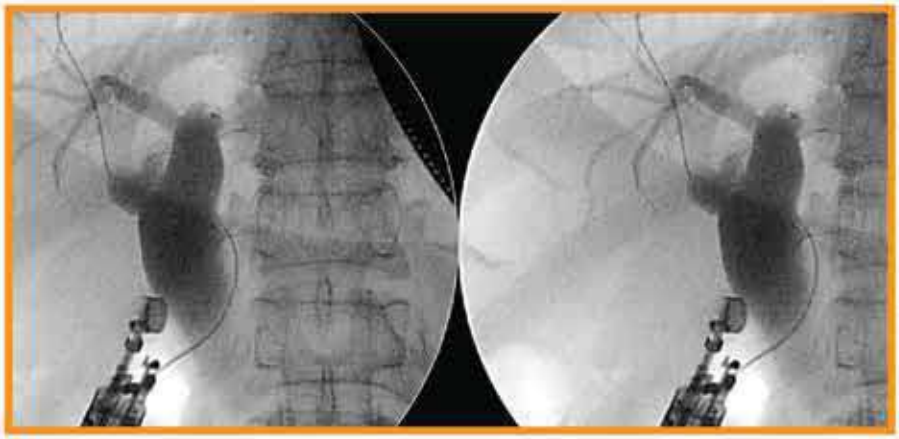


Guidewire placed within the pseudocyst and tract dilated

2 Double pigtail plastic stents placed for drainage

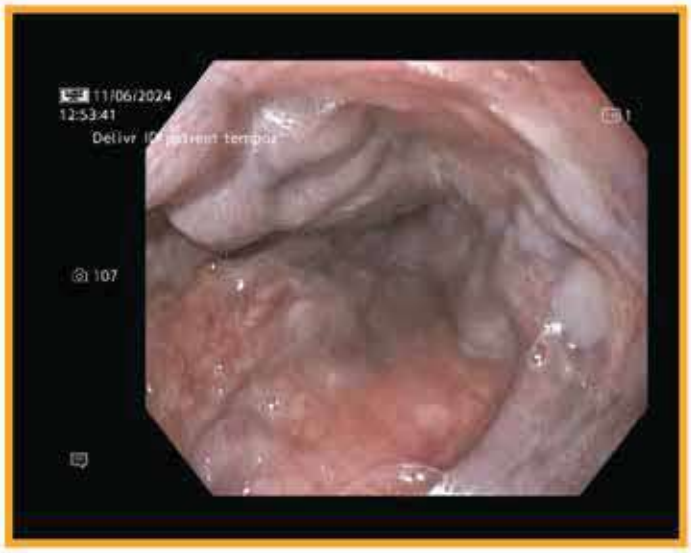
Dr. Usman Aujla

EUS Guided Biliary Drainage



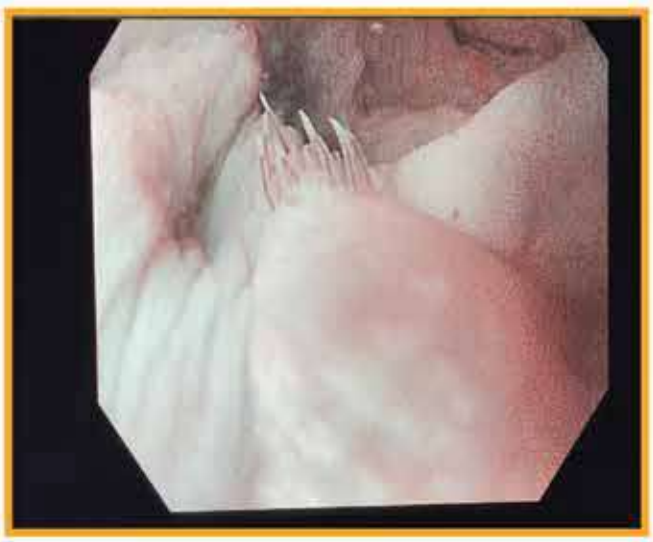
Nada El-Domiaty, MSc, MD, PhD

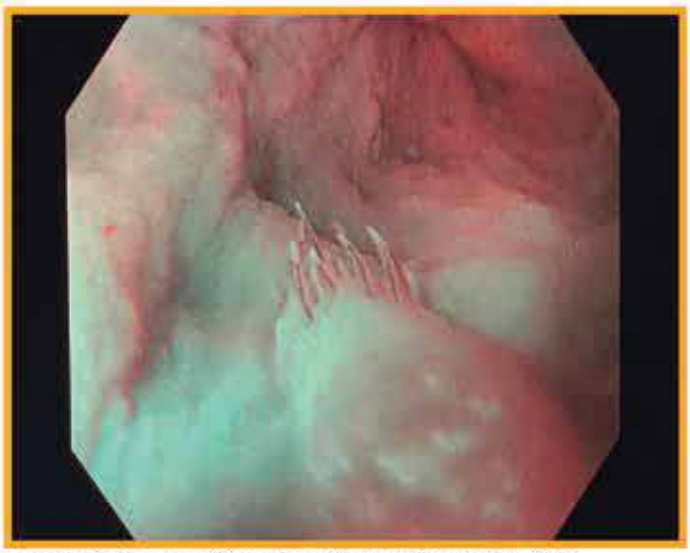
Colonoscopy



The colonoscopy showed dilated tortuous veins throughout the rectum and sigmoid in a cirrhotic patientwith portal hypertension.

Upper Endoscopy

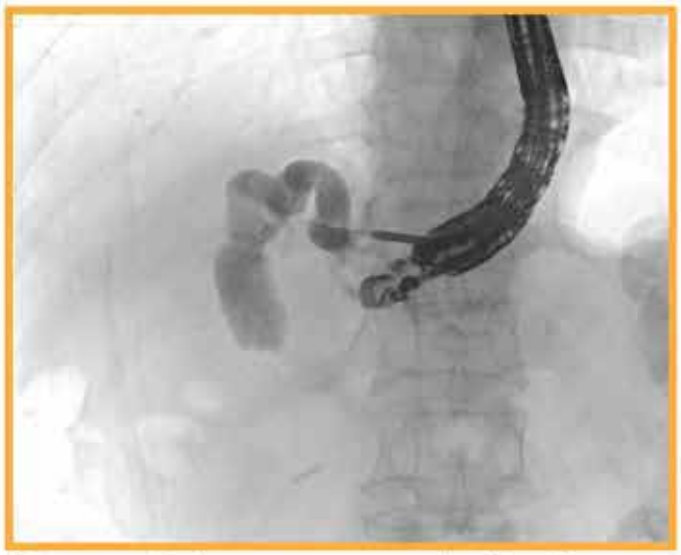




Esophagogastroduodenoscopy showed scattered lesions of Paris classification 0-IIa with hairy like projections throughout the oesophagus. The histopathological examination revealed oesophageal papillomatosis (a very rare condition characterized by well-defined and exophytic circumferential projections, with friable mucosa diffusely spread through the oesophagus).

Dr. Chan Shanon Melissa

EUS-guided Hepaticogastrostomy



1. Segment 3 ducts are punctured with a 19g ez shot needle. Bile was aspirated to confirm position. Then contrast injection showing a distal cbd obstruction

2. 0.025 curved tip guidewire was advanced to distal CBD. a cautery-enhanced Giobor stent was being advanced

3. The radioopaque cross wires at the medial end of the stent represents the uncovered portion of the stent. This is used to prevent stent migration. The rest of the stent is fully covered to prevent bile leakage.

4. The gastric portion of the stent was being deployed inside the stomach. Satisfactory bile drainage was obtained.

Dr. Chan Shanon Melissa

Spyglass assisted biopsy of hilar stricture after EUS-guided hepaticogastrostomy

5. This patient has a history of gastric cancer with distal gastrectomy with roux-en-y reconstruction done. She developed idiopathichilar stricture one year later.Eus-guided hepaticogastrostomy was performed. However, liver function was only partially improved. Therefore a spyglass was inserted via the previous hgsstent to obtain biopsy from the hilar stricture. Spyglass revealed a smooth stricture. Biopsy was fibrotic tissue only.

Spyglass assisted right IHD cannulation after EUS-guided hepaticogastrostomy for hilar stricture

6. After biopsy was obtained, spyglass was used to assist the cannulation of the right-sided ihd. Another uncovered self-expandable metal stent was inserted through the hilar stricture.

Muhammad Golam Azam MD

Case: A 36-year-old lady presented with fresh per rectal bleeding with mild lower abdominal pain. She had a history of "Copper T" insertion 10 years back for contraception purpose. Colonoscopy revealed the Cu T at the rectum which was removed.

Endoscopic Procedure Report






Dr. Radhika Chavan Dr. Sanjay Rajput

Pancreas divisum is the most common congenital anomaly of the pancreas, reported in 10e% of general population. Endoscopic ultrasound (EUS) is safe and effective alternative to endoscopic retrograde pancreatography for diagnosing pancreas divisum. "Absence of stack sign" and "cross duct sign" from the duodenal bulb favors the diagnosis of pancreas divisum on EUS.

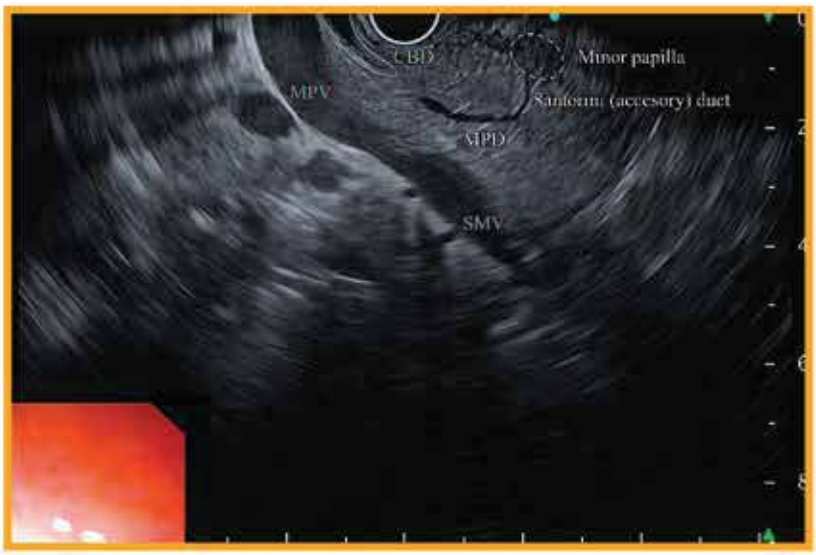


Figure 1:

Examination of pancreas divisum from the stomach: Duct of Santorini seen joining the minor papilla, and the duct of Wirsung to the major papilla along with common bile duct. This is a case of partial pancreas divisum. (CBD; common bile duct).

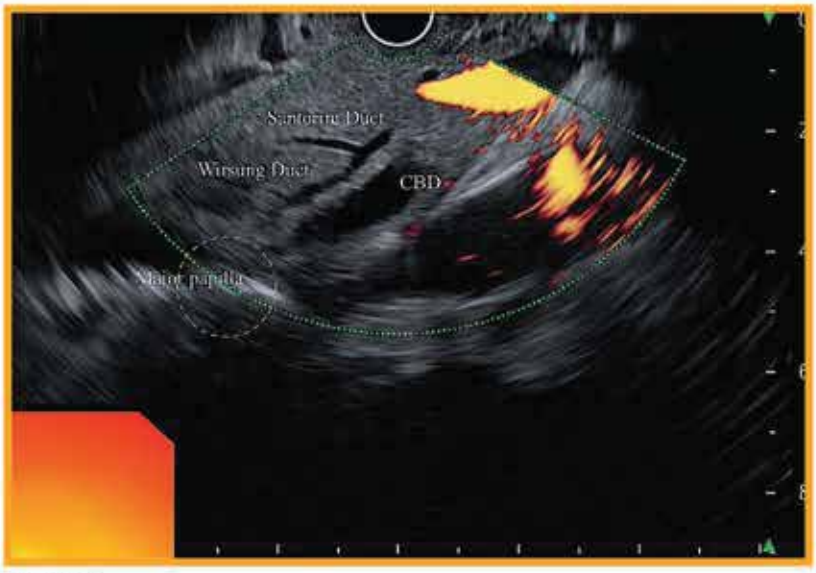
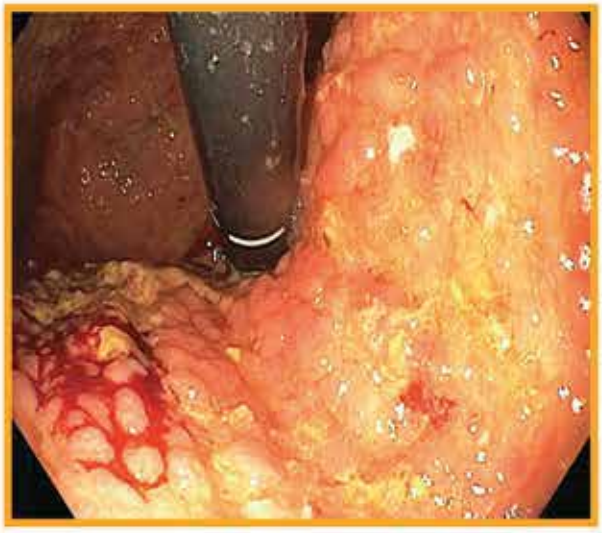


Figure 2:

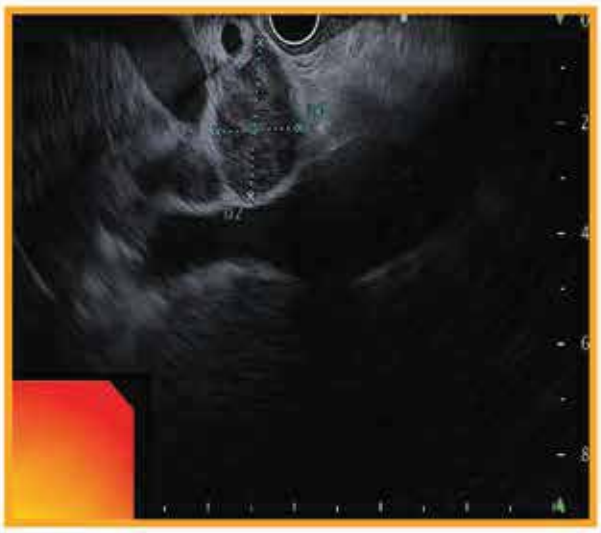
Examination of pancreas divisum from the duodenal bulb: "Cross duct sign" is feature of pancreas divisum. Duct of Santorini seen to be crossing the bile duct. (CBD; common bile duct, MPD; major pancreatic duct, MPV; Main portal vein, and SMV; Superior mesenteric vein).

Dr. Radhika Chavan Dr. Sanjay Rajput

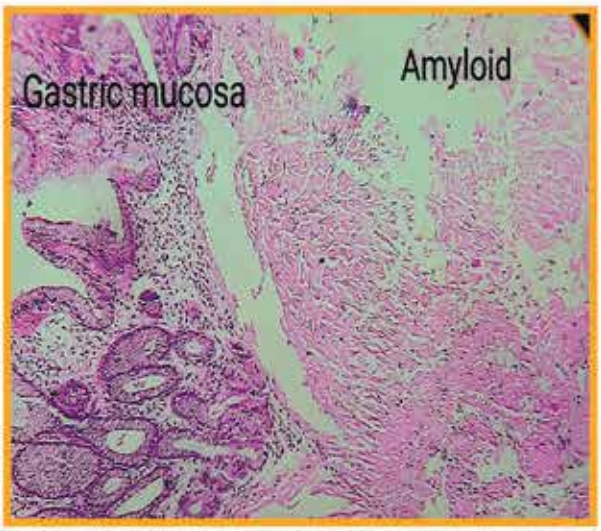
A 54-year-female presented with dyspepsia and weight loss of 4 kg in 3 months.



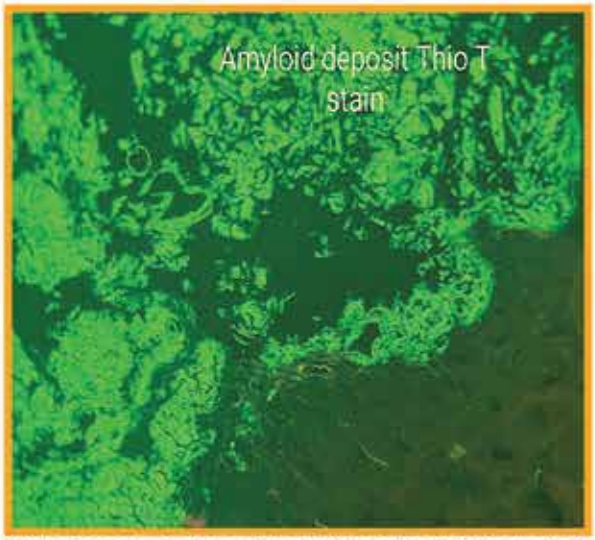
(Figure 1)
Gastroscopy revealed nodularity of the gastric mucosa.



(Figure 2)
Endoscopic ultrasound (EUS) showed peri-portal l ymphadenopathy.



EUS guided fine needle biopsy was taken from lymphnode.Histopathological examination from both were positive for amyloidosis.

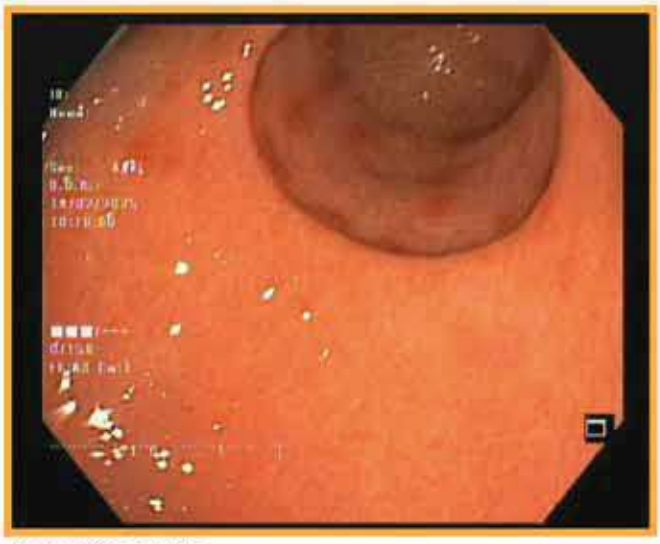


Fluorescence imaging with Thioflavin T stain showed amyloid fibers.

Dr. Mohammad Salah Shiha

Achalasia

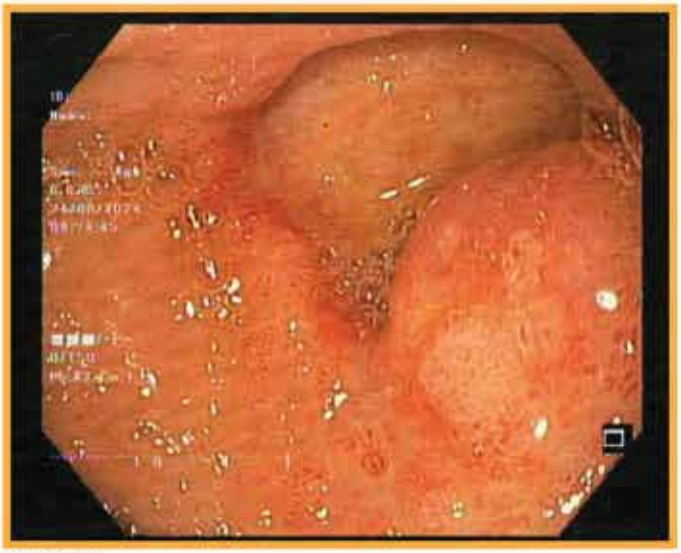
Adenomatous duodenal polyps (FAP)



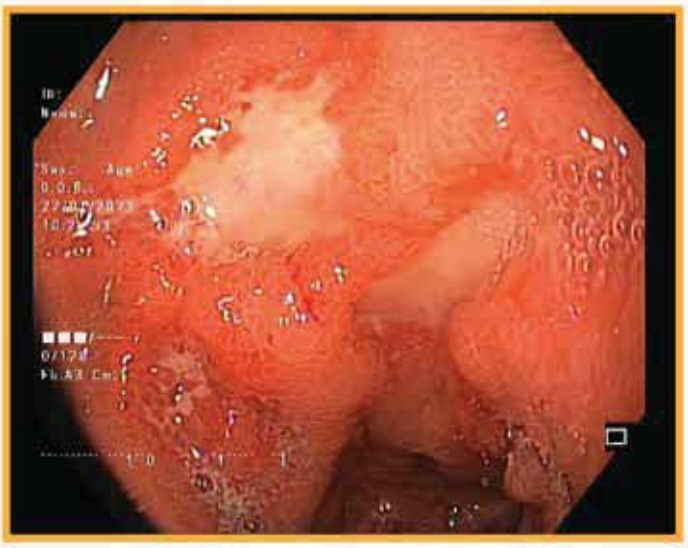
Antral Gastritis

Diverticular disease

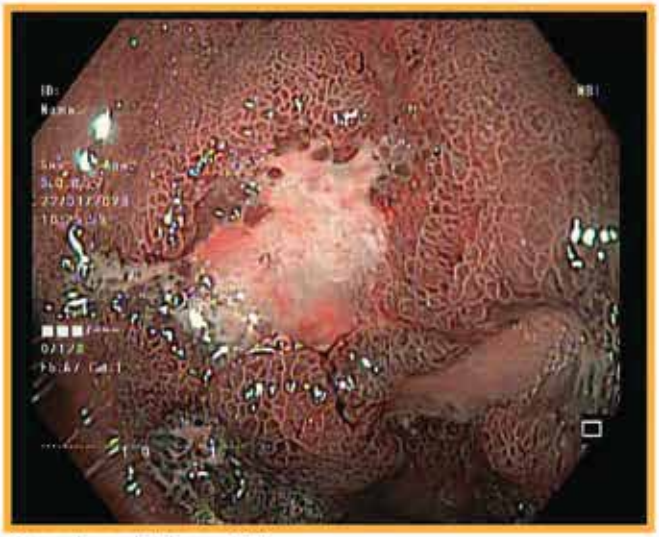
Dr. Mohammad Salah Shiha



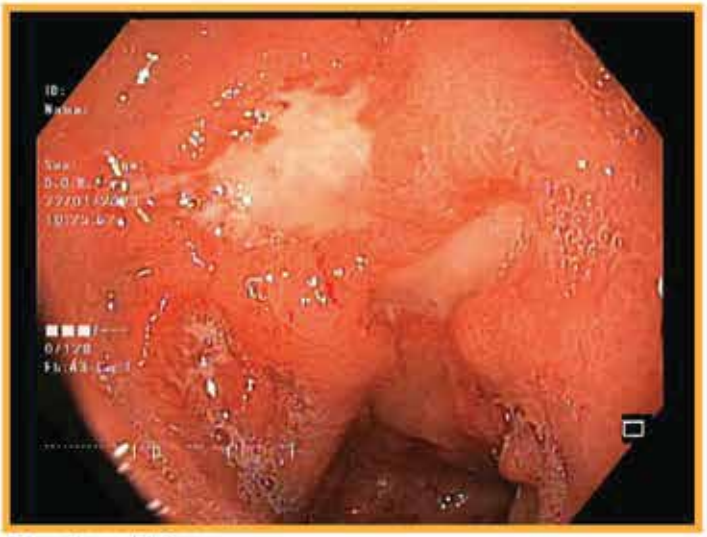
DU FIII



Duodenal Ulcer FIII

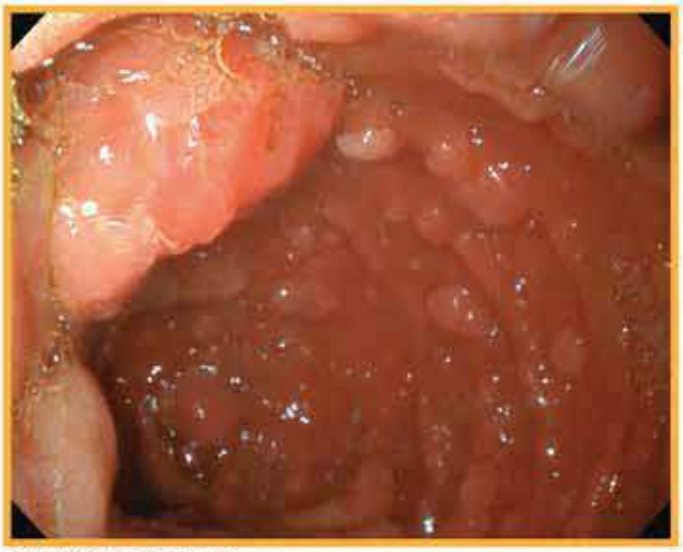


Duodenal Ulcer NBI



Duodenal Ulcer

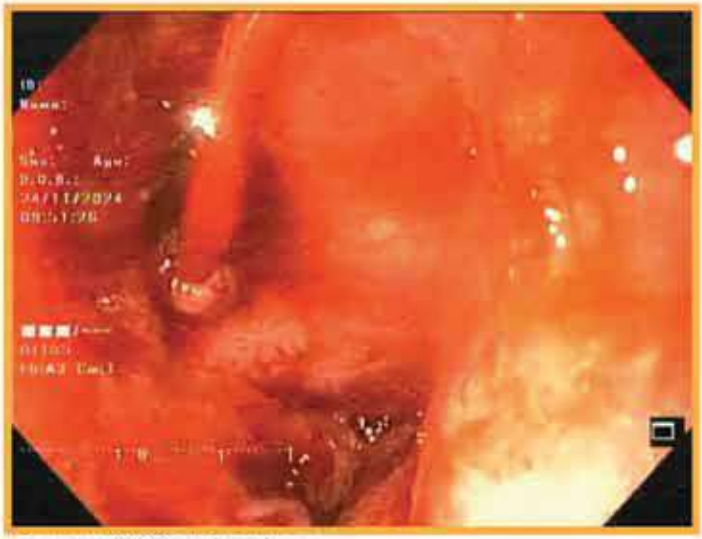
Dr. Mohammad Salah Shiha



FAP (Duodenum)

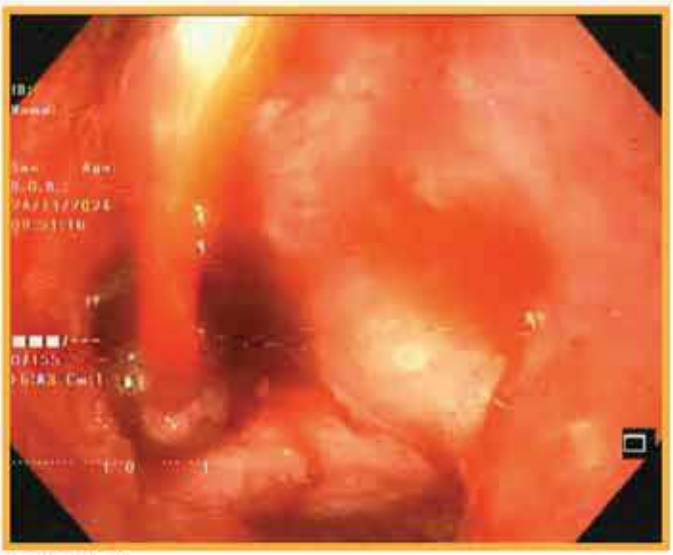
Fundal Varices

Forignbody (coin) in esophagus



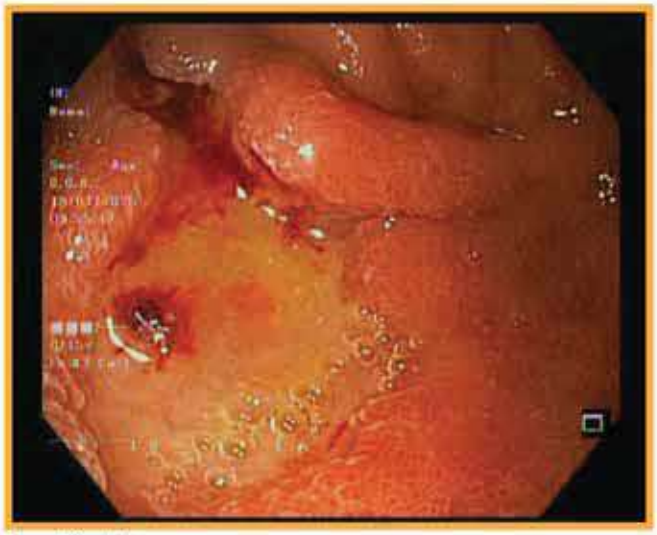
Forrest IA Gastric Ulcer

Dr. Mohammad Salah Shiha

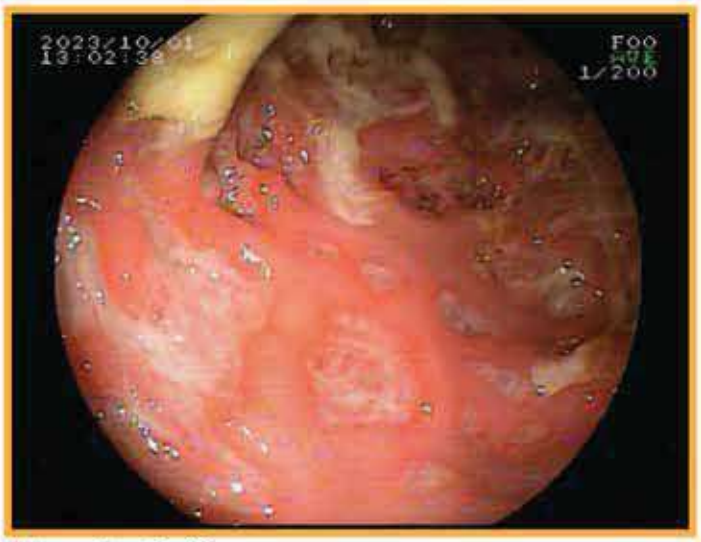


Forrest IA

Fundal Varices 2



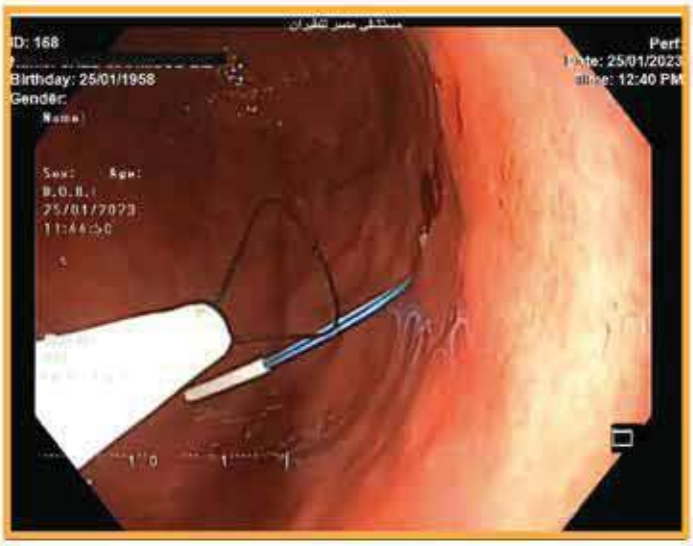
Gastric Ulcer



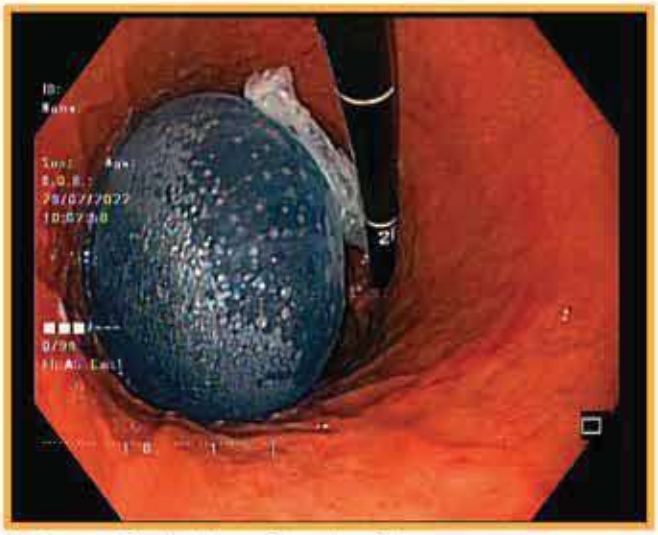
Ulcerative Colities

Dr. Mohammad Salah Shiha

H.Pylori Induced Gastriris



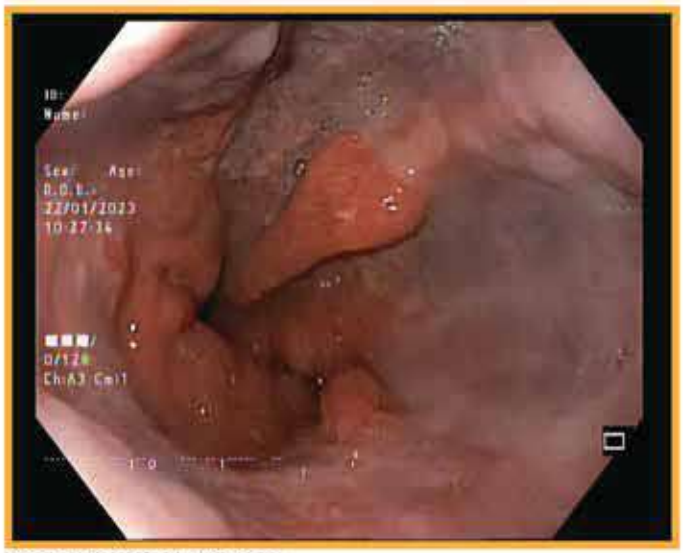
Insertion of PEG



Intragastric balloon for obesity

Lesser curvature gastric ulcer FIII

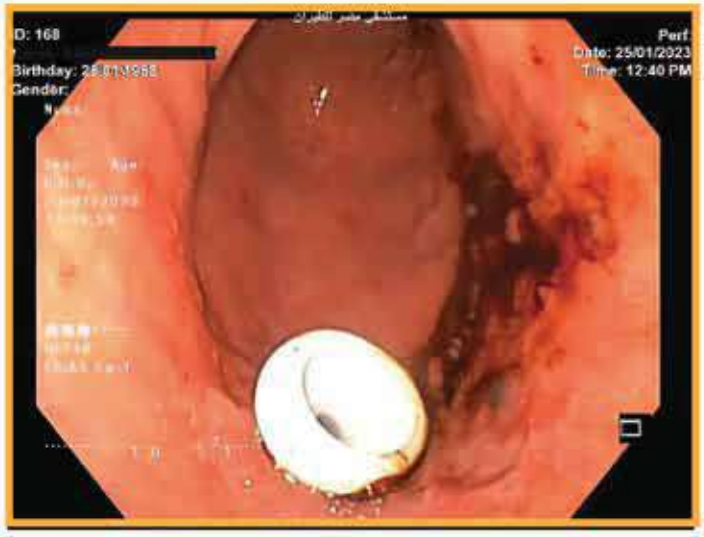
Dr. Mohammad Salah Shiha



Oesophageal Varices

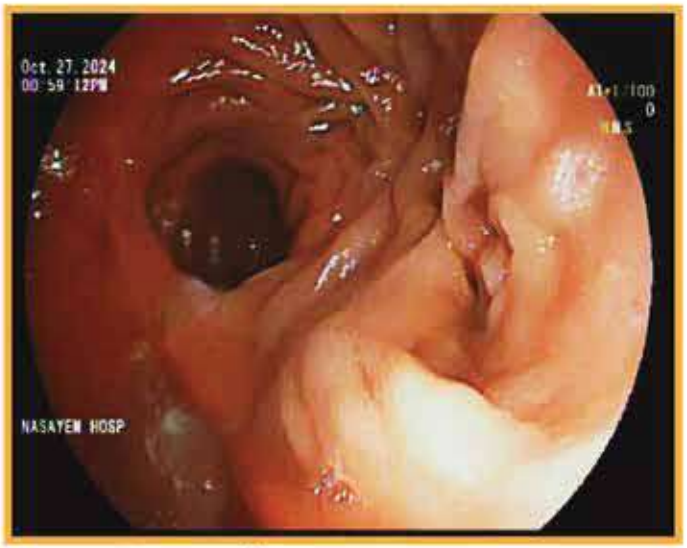
Oesophageal Varices

OV with ulceration

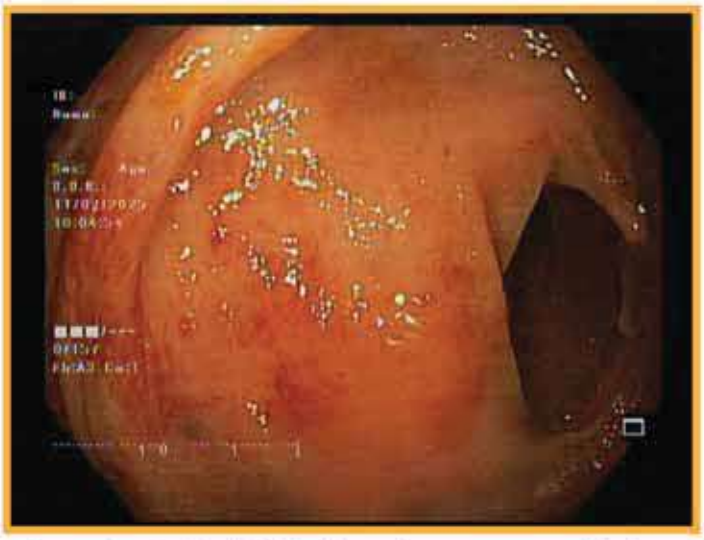


PEG Button

Dr. Mohammad Salah Shiha



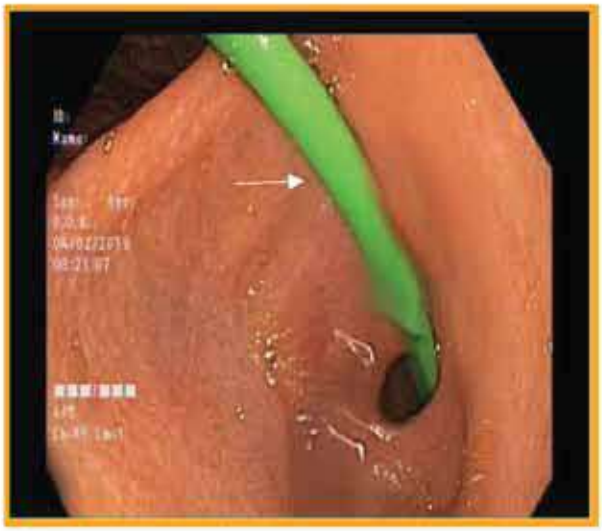
Roux-en-Y gastrojejunostomy



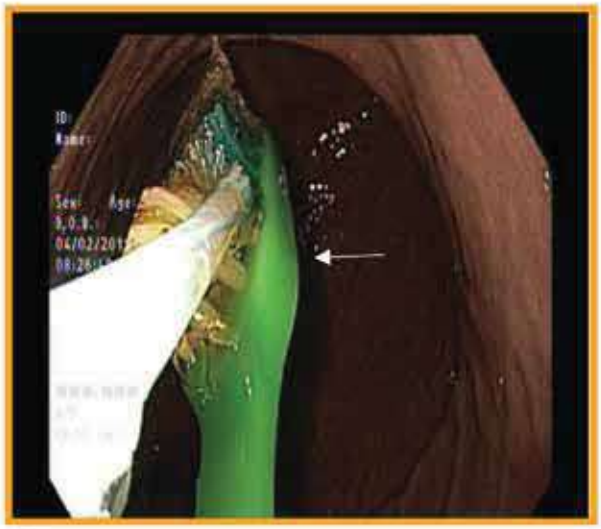
Ulcerative Colitis (Mild, ulcerative mucosa with loss of mucosal vascularity)

Dr. Sabir Ali

Stomach



1A



1B

A young female with a history of psychiatric illness presented with foreign body ingestion. The upper gastrointestinal endoscopy revealed a toothbrush (pic 1A white and 1B white arrow). in the antrum and D1(the first part of the duodenum), which was successfully removed using a snare and biopsy forceps (pic 1B white arrow)

.

Duodenum

1A

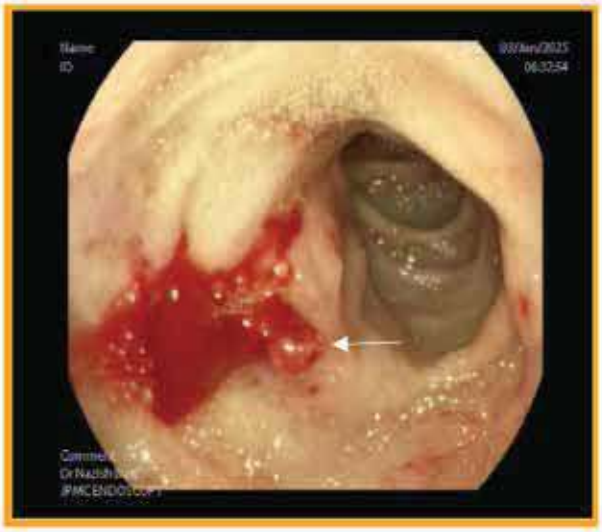
1B

A young male presented with complaints of abdominal pain. An upper gastrointestinal endoscopy was performed, revealing multiple elongated, motile worms in D2 (the second part of the duodenum), identified as Ascaris umbricoides (pic 1A white and 1B white arrow).

.

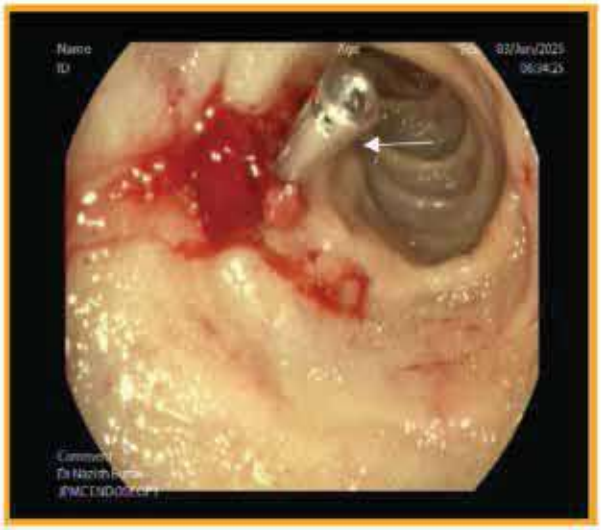
Dr. Sabir Ali

Duodenum



2A

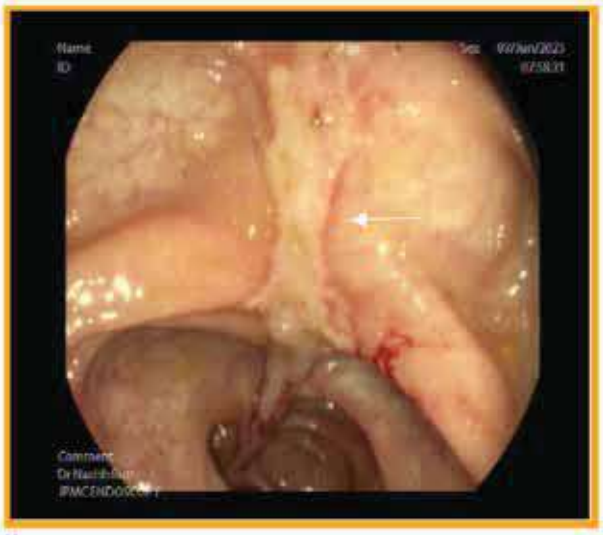
A middle-aged male presents with hematemesis. Upper gastrointestinal endoscopy revealed a Forrest Class IB ulcer in D2 (the second part of the duodenum) with active oozing of blood (pic 2A white arrow).



2B

Hemoclipping of Forrest Class IB ulcer in D2 (pic 2B white arrow).

Colon



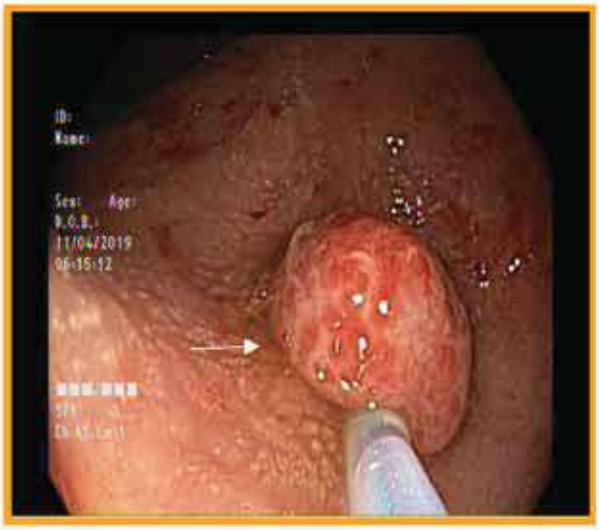
1

A young female presents with abdominal pain, fever, and weight loss. Colonoscopy reveals ulcers in the transverse colon (pic 1 white arrow).

Dr. Sabir Ali

Colon

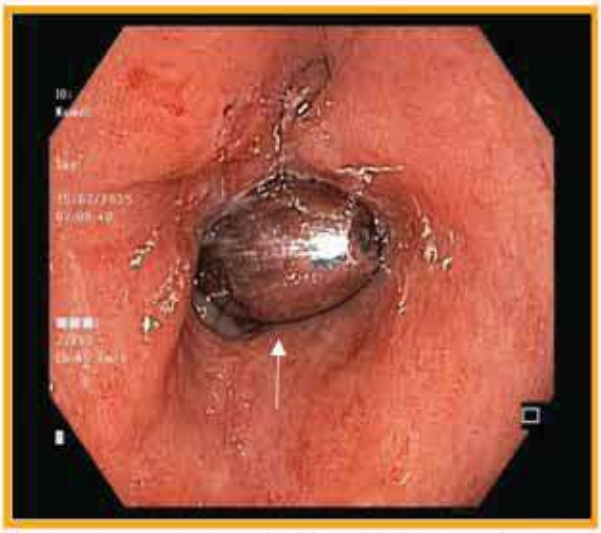
2A



2B

A middle-aged male presents with bleeding per rectum. Colonoscopy reveals a sessile polyp (pic 2A white arrow), which was successfully removed using hot snare polypectomy (pic 2B white arrow).

Rectum



Rectal foreign Body (pic 1 white arrow).