

# Part 4

## Hepatobiliary and Pancreas

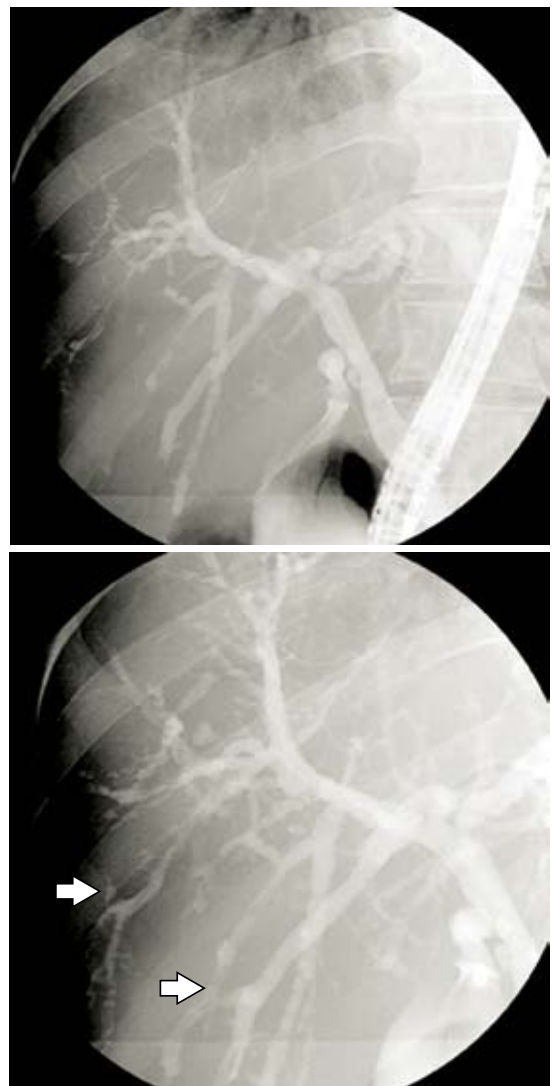
### Case 1

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 49 years old male, known case of chronic bronchitis and thymoma, presented with fever, jaundice and right subcostal pain. His blood chemistry revealed mild cholestatic pattern. His abdominal computer tomography scan showed mild intrahepatic duct dilatation without a definite cause of obstruction.

ERCP was done as shown.



The ERCP showed multiple micro-abscesses (white arrows) communicated with small intrahepatic duct branches with some beading and tapering changes. There was no dilatation of common bile duct, common hepatic duct, gall bladder and cystic duct. Multiple micro-abscesses and sclerosing cholangitis are the diagnosis.

The differential diagnoses are primary or secondary sclerosing cholangitis.

His total immunoglobulin especially IgG has been always at very low side. Thus the diagnosis of Good's syndrome is entertained. He has been treated with antibiotic and supplemental immunoglobulin since.

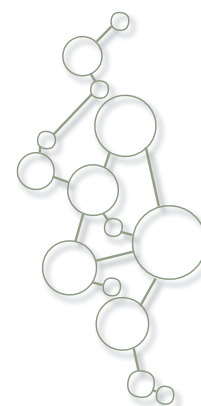
## Discussion

Secondary sclerosing cholangitis (SSC) is a disease that is morphologically similar to primary sclerosing cholangitis (PSC) but originates from a known pathological process. SSC usually has clinical and cholangiographic features like PSC, but natural course may be more favorable if there are a prompt diagnosis and definitive treatments<sup>1</sup>. Sclerosing cholangitis due to biliary obstruction is characterized by a progressive destruction of the intra and extrahepatic biliary tree with multiple stricture formation and subsequent hepatic fibrosis due to chronic bacterial infection<sup>2</sup>.

Good's syndrome (thymoma with immunodeficiency) is a rare cause of combined B and T cell immunodeficiency in adults. Its clinical characteristics are increasing susceptibility to bacterial, opportunistic viral and fungal infections.

## References

1. Abdalian R, Heathcote EJ. Sclerosing Cholangitis: A focus on secondary causes. *Hepatology* 2006;44:1063-74.
2. Gelbmann CM, Rummele P, Wimmer M, Hofstadter F, Gohlmann B, Endlicher E, et al. Ischemic-like cholangiopathy with secondary sclerosing cholangitis in critically ill patients. *Am J Gastroenterol* 2007;102:1221-9.
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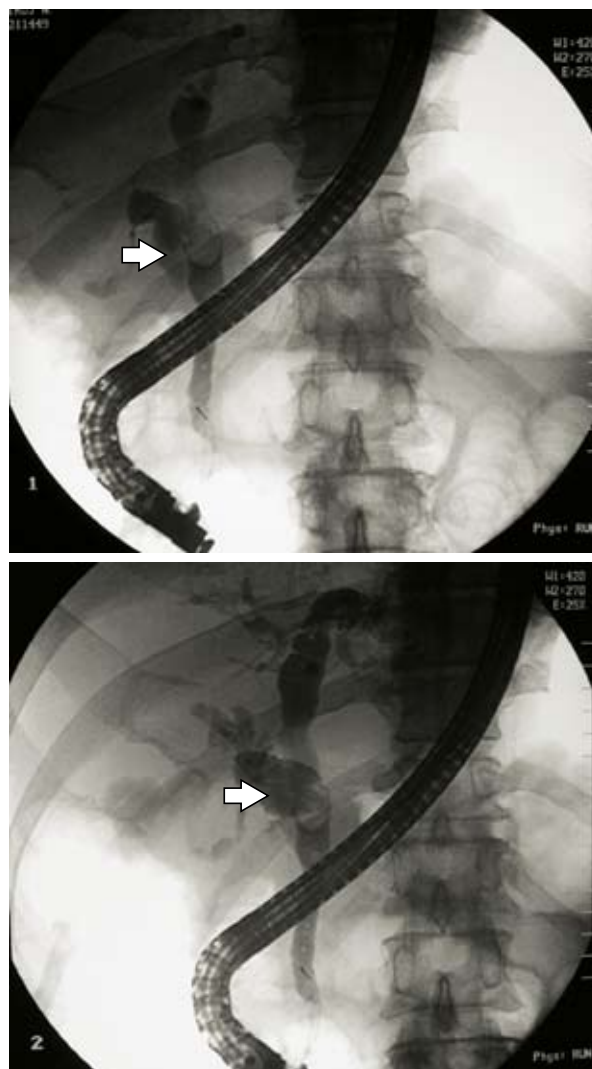
## Case 2

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 48 years old male presented with fever, jaundice and right subcostal pain.

ERCP was done as shown



The ERCP showed an oval filling defect in the overlapping cystic and hepatic ducts (white arrow). There was also upstream dilatation of bilateral intrahepatic ducts. The common bile duct (CBD) was smaller and appeared normal. Mirizzi syndrome type IV is the diagnosis.

The differential diagnoses are common bile duct stone with common bile duct stricture and discordant duct with proximal stone.

This patient underwent biliary sphincterotomy and balloon extraction for stone removal was done after mechanical lithotripsy. He had no immediate complication. Later laparoscopic cholecystectomy was performed successfully.

## Discussion

Mirizzi syndrome is a rare complication of cholelithiasis that accounts for 1% of all patients with gallstone disease. This syndrome is a form of obstructive jaundice caused by a stone impacted in the gallbladder neck or the cystic duct that impinges on the common hepatic duct with or without a cholecystocholedochal fistula<sup>1</sup>.

The condition may result in the clinical presentation of intermittent or constant jaundice<sup>2</sup>.

Management of this syndrome is extremely varied. Recently, endoscopic therapy has been increasingly used in the evaluation and treatment of patients with Mirizzi syndrome. However, surgery is still the standard treatment of this condition.

## References

1. Hazzan D, Golijanin D, Reissman P, Adler SN, Shiloni E. Combined endoscopic and surgical management of Mirizzi syndrome. *Surg Endosc* 1999;13:618-20.
2. Safioleas M, Stamatakis M, Revenas C, Chatziconstantinou C, Safioleas C, Kostakis A. An alternative surgical approach to a difficult case of Mirizzi syndrome: A case report and review of the literature. *World J gastroenterol* 2006;12:5579-81.
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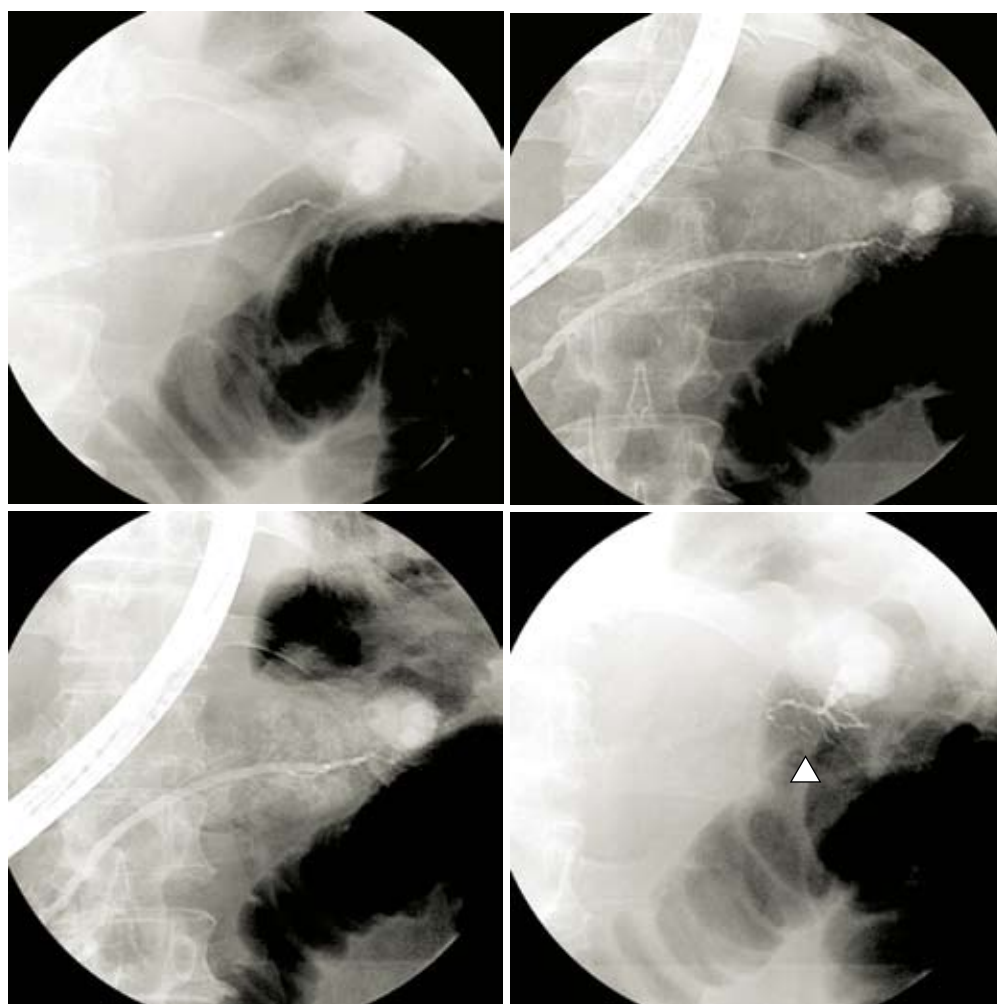
### Case 3

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 54 years old male presented with discomfort at left upper quadrant of the abdomen. He had a history of heavy alcohol consumption for many years. His chest X-ray demonstrated left plural effusion. The pleural tapping resulted in very high amylase fluid.

ERCP was done as shown.



The ERCP showed an extravasation of contrast from the tail of pancreatic duct into a cystic cavity. There was no communication to pleural cavity. A 1.3 cc combination of Histoacryl (Histoacryl blau®, Braun, Melsungen, Germany) and Lipiodol (Guerbet Laboratory, Aulnay-Sous-Bris, France) was injected via ERCP catheter to occlude the rent. After glue injection, repeat pancreatogram demonstrated no further leakage. The arrowhead showed Lipiodol stain at pancreatic tail.

The diagnosis is pancreatic pseudocyst at the tail with possible pancreatopleural effusion.

## Discussion

Pancreatopleural fistulas occur as a rare complication of acute or chronic pancreatitis and present as a high amylase pleural effusion. Leakage of pancreatic fluid into the pleural cavity may be caused by disruption of pancreatic ducts or pseudocysts<sup>1</sup>.

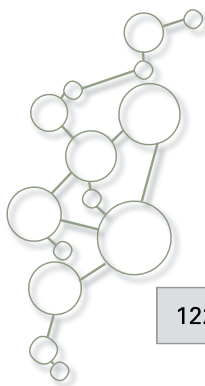
Pancreaticopleural fistula is generally suspected in patients with a history of pancreatitis, who present with classical symptoms related to exudative pleural effusion with high amylase level<sup>2</sup>.

ERCP is more sensitive than computed tomography in demonstration of pancreaticopleural fistula (79% versus 43% respectively). Generally, early endoscopic intervention with pancreatic duct stent placement is recommended<sup>3</sup>.

Glue injection is reserved as a salvage therapy and still under investigation. However, many experts prefer to use glue injection for pancreatic tail leakage due to a significant failure rate of stent therapy in this type of leakage.

## References

1. Koshitani T, Uehara Y, Yasu T, Yamashita Y, Kirishima T, Yoshinami N, et al. Endoscopic management of pancreaticopleural fistulas: a report of three patients. *Endoscopy* 2006;38:749-51.
2. Boudaya MS, Alifano M, Baccari S, Regnard JF. Hemothorax as the clinical presentation of a pancreaticopleural fistula: report of a case. *Surg Today* 2007;37:518-20.
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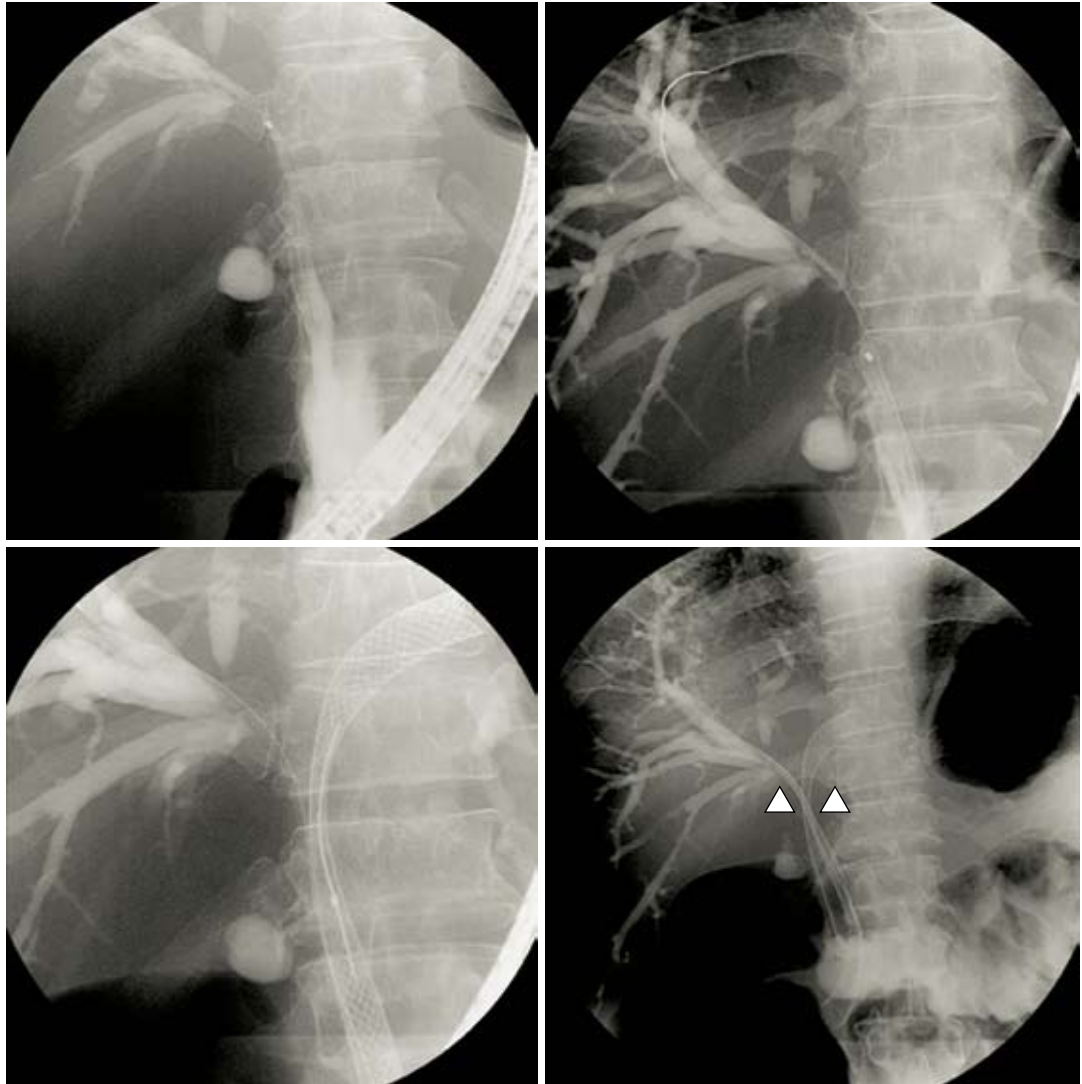
## Case 4

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 45 years old male presented with painless jaundice.

ERCP was done and showed as shown



The ERCP showed dilatation of both intrahepatic ducts with stricture at common hepatic duct. There was no communication between both intrahepatic ducts. There was also subsegmental involvement of secondary branches of the right intrahepatic duct. The diagnosis of Bismuth type III hilar cholangiocarcinoma was given and patient was determined to be unresectable. Subsequently, patient received bilateral uncovered Wallstent (arrow head) insertion (Microvasive, Natick, Mass) for palliative biliary decompression.

The differential diagnoses are benign strictures such as iatrogenic bile duct injuries or other carcinomas such as gall bladder cancer or hilar nodal metastases.

## Discussion

Cholangiocarcinoma can occur anywhere along the intra or extrahepatic ducts, most commonly (60%) occurs in the perihilar region of the liver (the confluence of the right and left hepatic ducts (Klatskin type tumor))<sup>1</sup>.

Aggressive surgical treatment including hepatic resection is recommended as a standard therapy. The operative mortality is 9%. Negative resection margins is the single most important indicator for prolonged survival<sup>2</sup>.

In addition to improve quality of life, palliative endoscopic biliary drainage is aimed to relieve jaundice, pruritus, prevent cholangitis and avoid liver failure due to progressive biliary obstruction,. Metallic stent placement is the most cost-effective treatment of inoperable malignant bile duct strictures, especially for patients without hepatic metastases who can survive longer<sup>3</sup>.

## References

1. Heimbach JK, Haddock MG, Alberts SR, Nyberg SL, Ishitani MB, Rosen CB, et al. Transplantation for hilar cholangiocarcinoma. Liver Transpl 2004;10:S65-8.
2. Hemming AW, Reed AI, Fujita S, Foley DP, Howard RJ. Surgical management of hilar cholangiocarcinoma. Ann Surg 2005;241:693-702.
3. Khan SA, Thomas HC, Davidson BR, Taylor-Robinson SD. Cholangiocarcinoma. Lancet 2005;366:303-14.



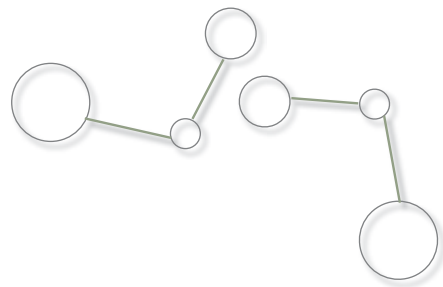
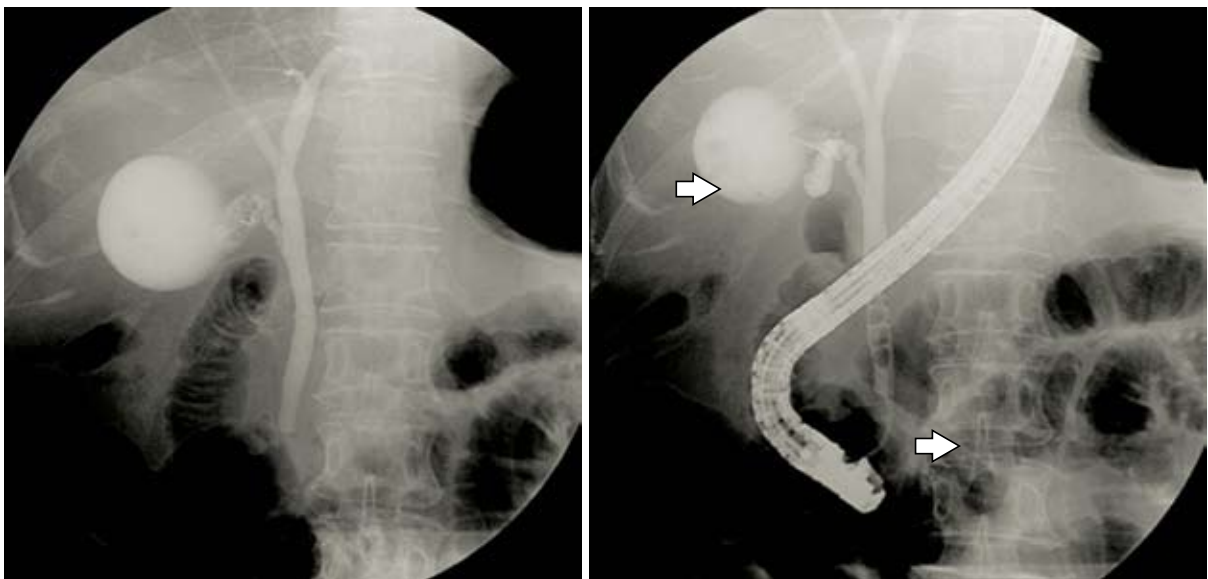
## Case 5

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 64 years old female presented with epigastrium discomfort for 2 days. She denied fever, diarrhea, nausea or vomiting. She had diabetes mellitus and hyperlipidemia.

ERCP was done as shown



The ERCP showed small multiple stones in common bile duct with a few gallbladder stones (white arrow).

This patient underwent biliary sphincterotomy and balloon extraction of stone. Repeat cholangiogram showed a clear common duct. Later laparoscopic cholecystectomy was performed.

## Discussion

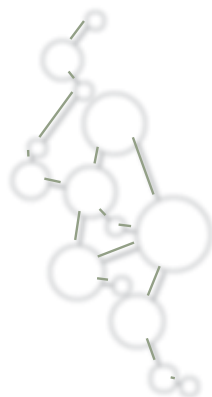
The symptoms and signs of common bile duct stones (CBD) are varies and can range from being completely asymptomatic to severe discomforts such as biliary colic, jaundice, cholangitis and pancreatitis<sup>1</sup>.

Endoscopic retrograde cholangiography with sphincterotomy is a standard therapeutic approach to manage CBD stone<sup>2</sup>.

Majority of stones can enter CBD from gallbladder. After therapeutic ERCP, early removal of the gall bladder to decrease the risk of recurrent stone is practically recommended.

## References

1. Caddy GR, Tham TC. Symptoms, diagnosis and endoscopic management of common bile duct stones. *Best Practice & Research Clinical Gastroenterology* 2006;20:1085-101.
2. Lee SH, Hwang JH, Yang KY, Lee KH, Park YS, Park JK, et al. Does endoscopic sphincterotomy reduce the recurrence rate of cholangitis in patients with cholangitis and suspected of a common bile duct stone not detected by ERCP? *Gastrointest Endosc* 2008 ;67:51-7.
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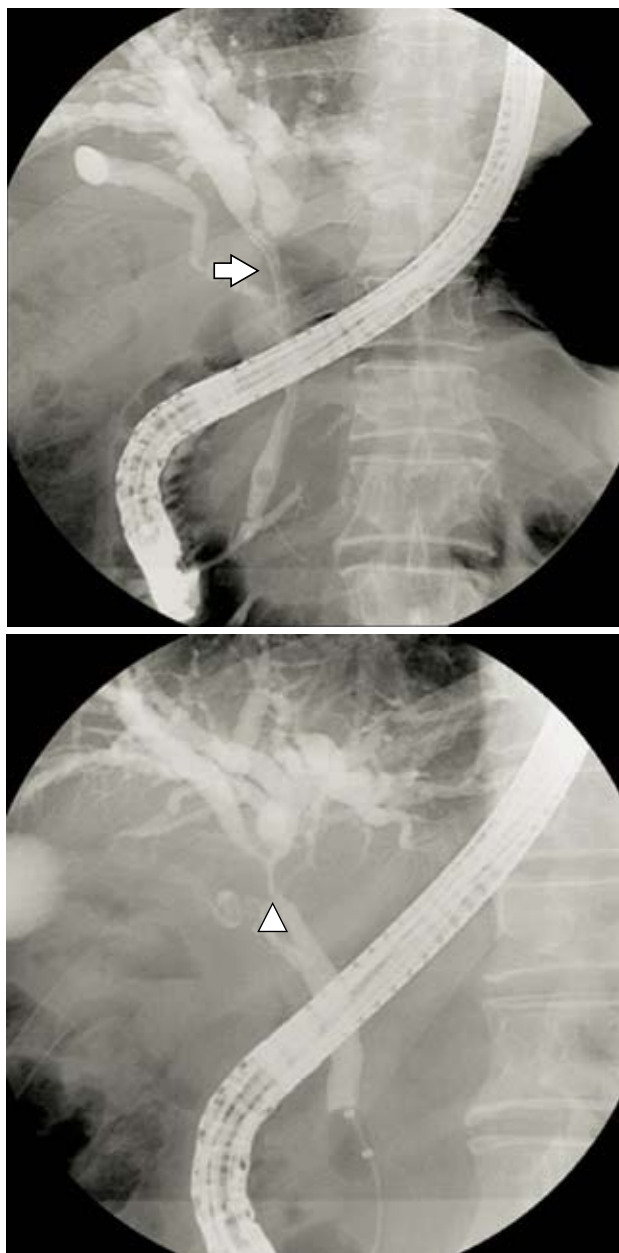
## Case 6

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 66 years old male presented with cholestatic jaundice.

ERCP was done as shown



The ERCP showed a benign long stenosis (white arrow) at hepatic hilum with upstream dilatation of bilateral intrahepatic ducts. Due to the initial diagnosis of possible hilar cholangiocarcinoma, then he underwent a standard sphincterotomy and double pigtail stent was inserted. His biopsy revealed no malignancy and his laboratory findings showed a high IgG4 level (1,030 mg/dL, normal 8-140mg/dL). The diagnosis of autoimmune pancreatitis was given. And after treatment with prednisolone for 5 months, subsequent ERCP with stent removal showed a significant improvement of the stricture (arrow head) when compared to the previous study.

The differential diagnoses are hilar cholangiocarcinoma or other benign strictures such as iatrogenic bile duct injuries.

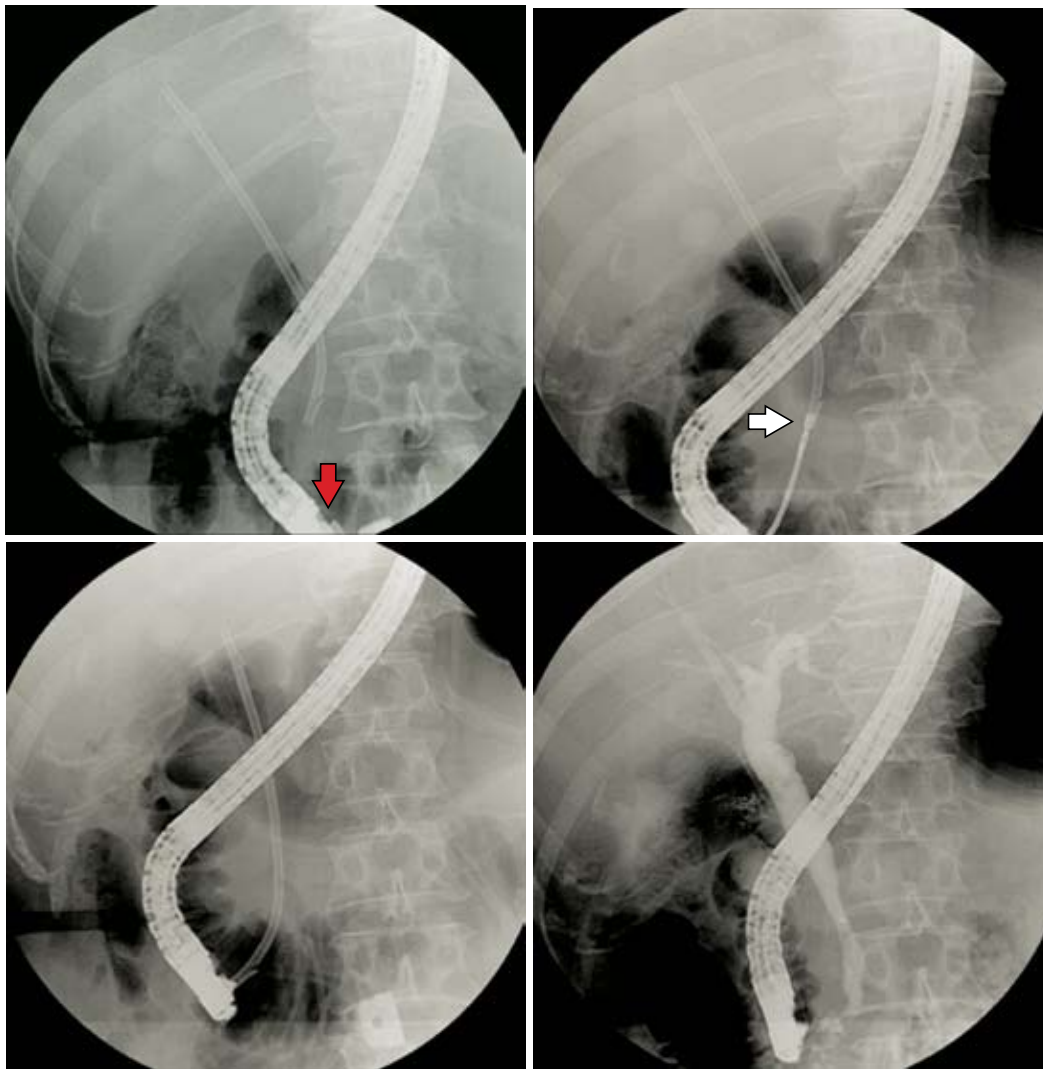
## Case 7

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 54 years old female presented with cholestatic jaundice after ERCP and stent placement to relief obstructive jaundice.

ERCP was done as shown



The ERCP showed upward migration of plastic stent into common bile duct. This was demonstrated by a gap between the ampulla and the distal end of the stent (red arrow). The stent was grasped by a rat tooth forceps (white arrow) and then successfully removed.

## Discussion

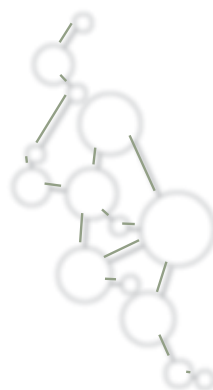
The most frequent complication associated with bile duct stenting is early occlusion caused by clogging, with or without cholangitis. Stent migration proximally and distally are uncommon complications with reported incidence up to 6%<sup>1</sup>.

Presentations can be varies from mild intermittent abdominal pain to acute life-threatening organ perforation that required urgent laparotomy<sup>2</sup>.

Therefore, dislodged or migrated stents should be removed either by Dormia basket, balloon catheter or forceps. When the bile ducts are dilated, the stent may be grasped at its shaft. If the bile ducts are not dilated, it is preferable to catch the stent at the distal end<sup>3</sup>.

## References

1. Namdar T, Raffel AM, Topp SA, Namdar L, Alldinger I, Schmitt M, et al. Complications and treatment of migrated biliary endoprotheses: a review of the literature. *World J Gastroenterol* 2007;13:5397-9.
2. Karim A, Orbell JH, Bhatti K, Chaudhary B, Parvaiz A. Biliary stent migration presenting as a recurrent abdominal wall abscess with underlying enterocutaneous fistula. *Gastrointest Endosc* 2006;63:874-6.
3. Chaurasia OP, Rauws EA, Fockens P, Huibregtse K. Endoscopic techniques for retrieval of proximally migrated biliary stents: the Amsterdam experience. *Gastrointest Endosc* 1999;50:780-5.



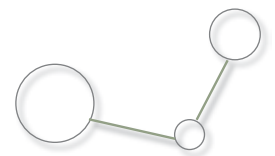
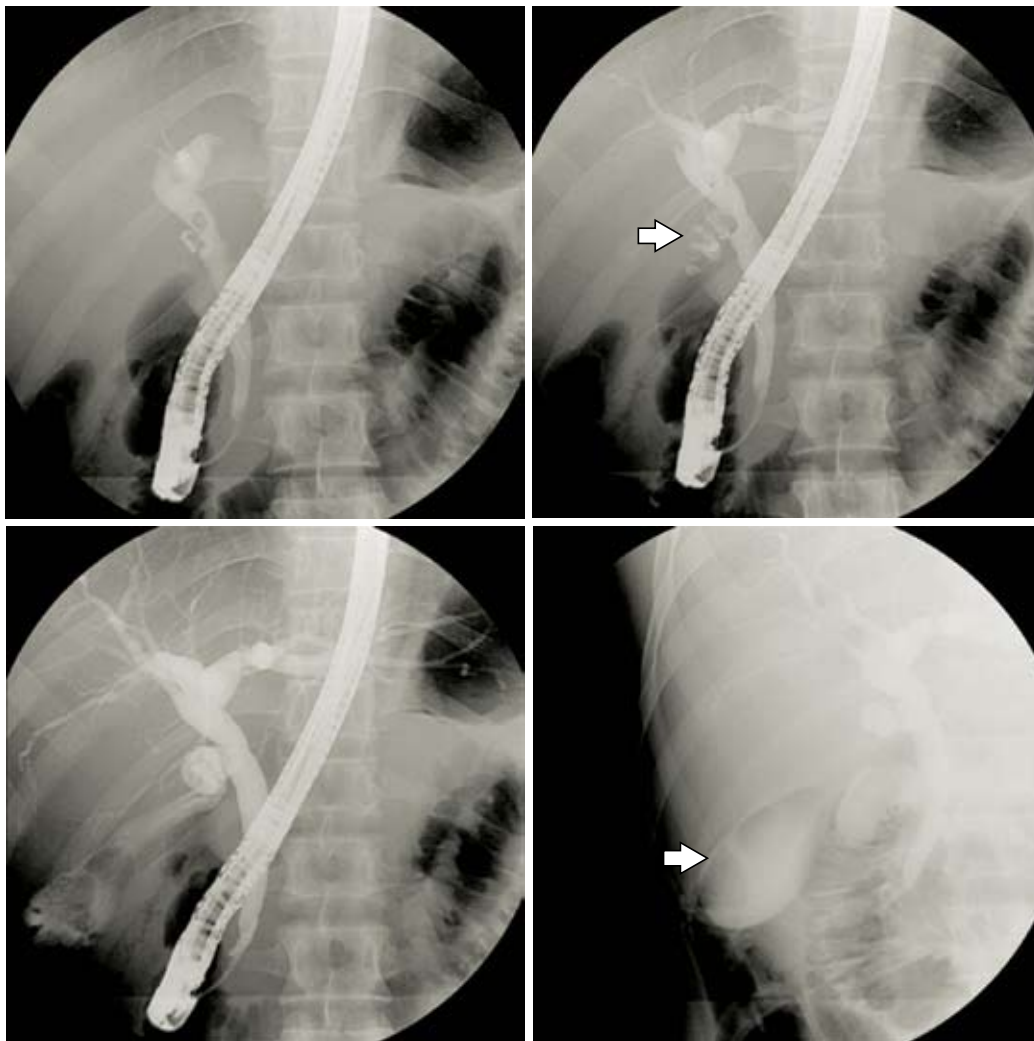
## Case 8

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 17 years old male presented with epigastric discomfort for 4 days. He had mild jaundice. He denied any fever before arrival.

ERCP was done as shown



The ERCP showed few stones in the cystic duct and multiple small stones in the gallbladder (white arrow).

This patient underwent biliary sphincterotomy and balloon extraction of the cystic duct stones.

## Discussion

Cystic duct stone is the major cause of acute cholecystitis (95% of cases). Small stones (<3mm) may pass readily through the cystic duct and become common duct stones. The cystic duct obstruction causes inflammation and distension of the gallbladder and this in turn results and leads to gallbladder ischemia and transmural necrosis if the obstruction persists<sup>1</sup>.

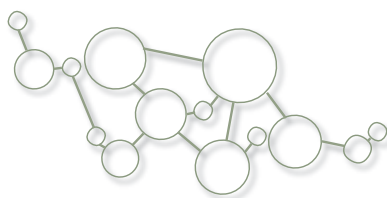
In contrast to cystic duct stone and gallbladder stone, up to 50% of patients with common duct stone present with biliary colic, cholangitis, pancreatitis or jaundice if the stone is left in situ<sup>2</sup>.

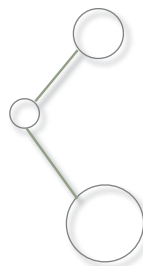
Biliary sphincterotomy has been the foundation of therapeutic ERCP for common bile duct stone extraction even in asymptomatic one<sup>3</sup>.

In some certain situation as in this case, the cystic duct stones can also be removed during endoscopy.

## References

1. Turner MA, Fulcher AS. The cystic duct: normal anatomy and disease processes. *Radiographics* 2001;21:3-22.
2. Caddy GR, Tham TC. Symptoms, diagnosis and endoscopic management of common bile duct stones. *Best Practice & Research Clinical Gastroenterology* 2006;20:1085-101.
3. Ginsberg GG. Endoscopic retrograde cholangiopancreatography. *Endoscopy* 2007;39:1010-2.





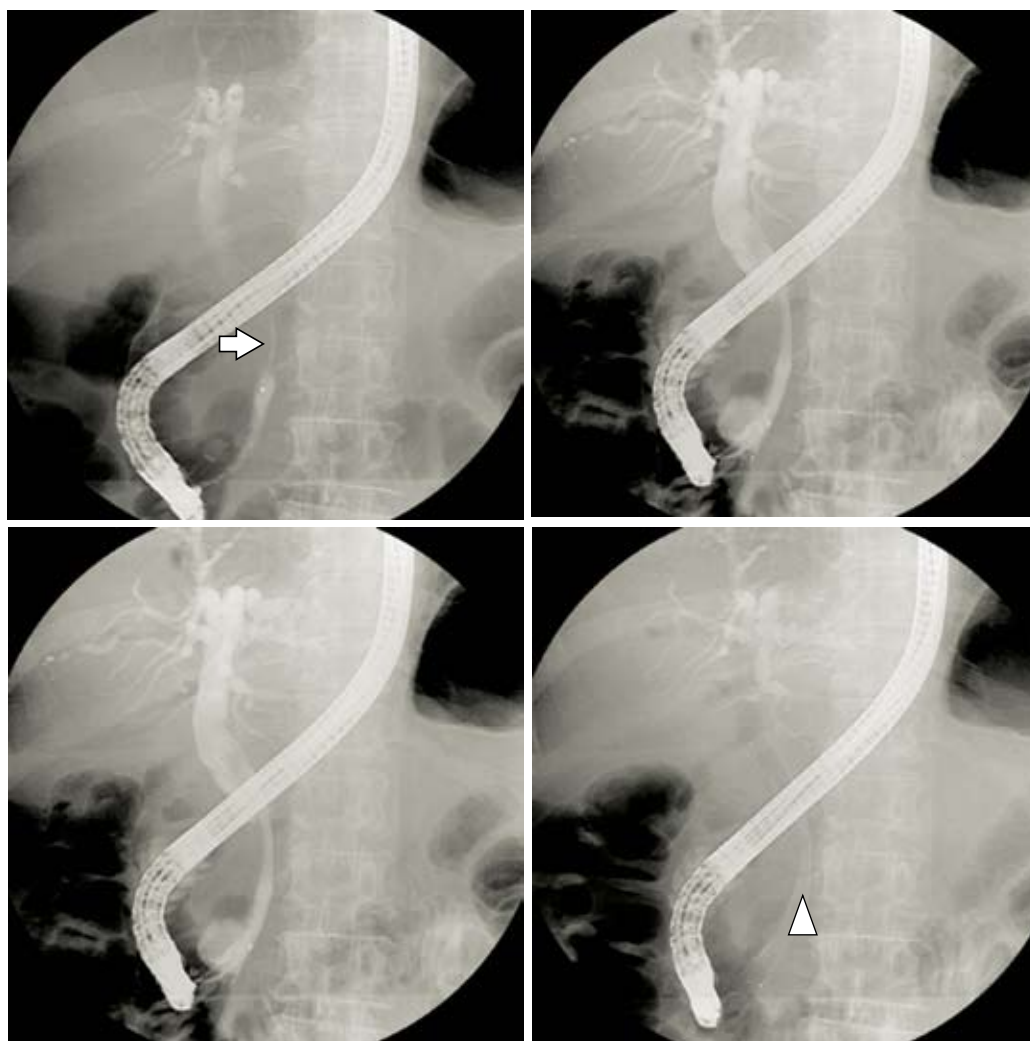
## Case 9

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 72 years old female presented with fever and jaundice. She was found to have cholangiocarcinoma of the common hepatic duct. She underwent ERCP with double pigtail stent few months ago. Three month later, she presented with recurrent jaundice.

Repeat ERCP was performed as shown.



The ERCP showed malignant common hepatic duct stricture (3 cm. in length, white arrow). The old plastic stent was removed and replaced with Wallstent (arrow head, Natick, Mass)

## Discussion

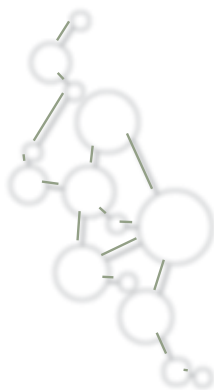
Main limitation of the plastic stent placement is stent occlusion as a result of bacterial biofilm. The median time for stent occlusion for standard large-bore stents is approximately 3 months. Stent occlusion results in recurrent jaundice, usually with cholangitis<sup>1</sup>.

For patients with occluded plastic stents, treatment options include replacement with another plastic stent or metallic stent<sup>2</sup>.

Metallic stent placement is the most effective treatment for inoperable malignant common bile duct stricture. Placement of a metallic stent is more cost effective in patients without hepatic metastases than in patients with hepatic metastases<sup>3</sup>.

## References

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2. Shah JN, Muthusamy VR. Endoscopic palliation of pancreatobiliary malignancies. *Gastrointest Endosc Clin N Am* 2005;15:512-31.
3. Kaassis M, Boyer J, Dumas R, Ponchon T, Coumaros D, Delcenserie R, et al. Plastic or metal stents for malignant stricture of the common bile duct? Results of a randomized prospective study. *Gastrointest Endosc* 2003;57:178-82.



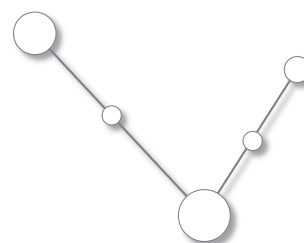
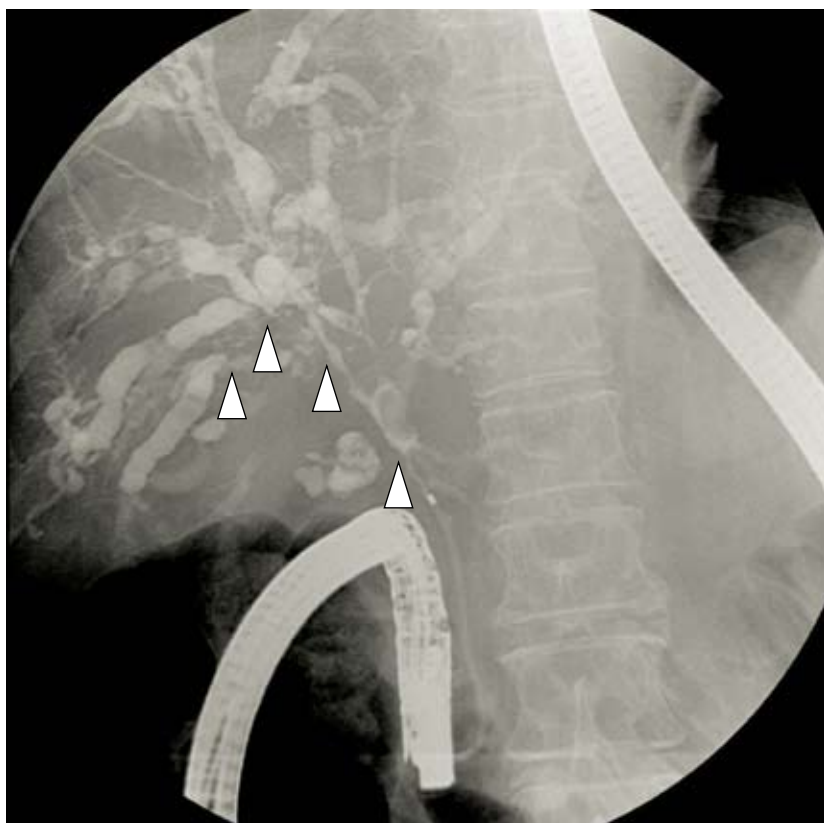
## Case 10

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 61 years old female presented with progressive jaundice. She also had breast cancer with small bowel metastasis.

ERCP was done as shown



The ERCP showed multiple strictures of the extra and intrahepatic ducts (arrow head). Endoscopic findings of this patient also revealed duodenal ulcer and duodenal stenosis. Malignant biliary obstruction from metastasis was the diagnosis.

The differential diagnoses are hilar cholangiocarcinoma with intrahepatic duct involvement or other benign strictures such as primary sclerosing cholangitis. There is no therapeutic role of endoscopy in this patient.

## Discussion

Malignant obstructive jaundice may be caused by various malignancies such as pancreatic carcinoma, ampullary cancer, primary bile duct cancer, and metastatic cancers<sup>1</sup>.

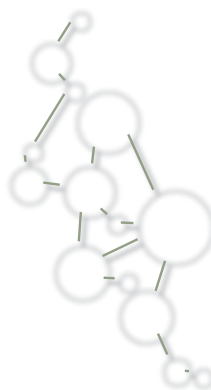
Primary aim of treatment is to provide biliary drainage with long-term relief from pruritis, cholangitis, pain and jaundice<sup>2</sup>.

In patient with combine biliary obstruction and duodenal obstruction, combined stenting for simultaneous palliation of both obstruction safe and less invasive than surgical palliation with an acceptable clinical outcome<sup>3</sup>.

However, patient with multiple intrahepatic duct stricture, role of endoscopy is deemed only for a diagnostic purpose.

## References

1. Baron TH. Palliation of malignant obstructive jaundice. Gastroenterol Clin N Am 2006;35:101-12.
2. Singhal D, Van Gulik TM, Gouma DJ. Palliative management of hilar cholangiocarcinoma. Surgical Oncology 2005;14:59-74.
3. Kaw M, Singh S, Gagneja H. Clinical outcome of simultaneous self-expandable metal stents for palliation of malignant biliary and duodenal obstruction. Surg Endosc 2003;17:457-61.



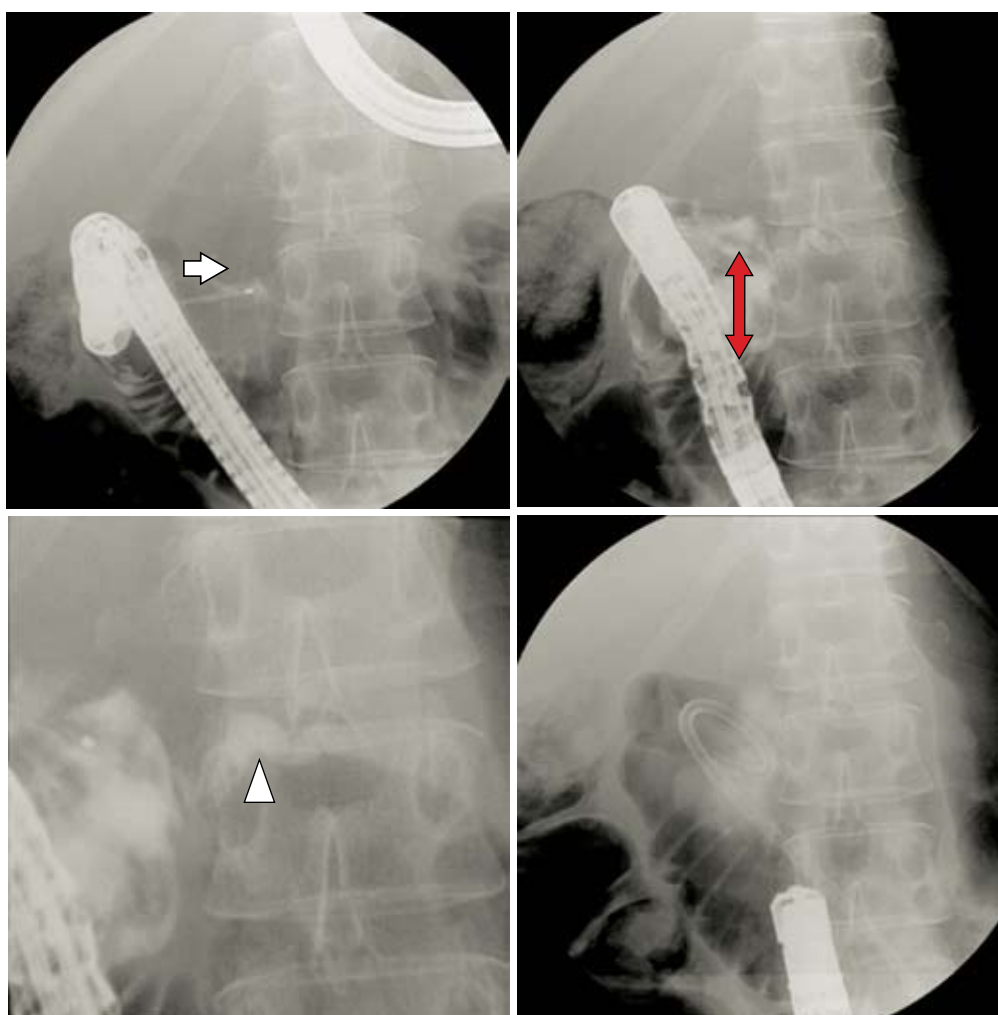
## Case 11

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 53 years old female presented with severe abdominal pain that referred to her back for 3 days. She underwent exploratory laparotomy from car accident few years ago. The CT scan showed pancreatic pseudocyst at the head of pancreas.

Pancreatogram was done via major ampulla as shown.



The ERCP showed completely obstruction of the main pancreatic duct at the head. There was a significant bulging of duodenum at the first part. Transduodenal pseudocyst drainage was performed (contrast filled cystic cavity, red arrow). Dilated upstream pancreatic duct was demonstrated after further filling of contrast in the pseudocyst.

The final diagnosis is a pancreatic pseudocyst with disconnected duct at the head and body.

**The differential diagnoses are** pancreas divisum with pseudocyst and other neoplastic pancreatic cysts such as, intraductal papillary mucinous neoplasms (IPMN), mucinous cystic neoplasms (MCN) and serous cystic neoplasms (SCN).

## Discussion

Pancreatic pseudocysts comprise more than 80% of the cystic lesions of the pancreas and cause complications in 7-25% of patients with pancreatitis or pancreatic trauma<sup>1</sup>.

Indications for pseudocyst drainage include pain, infection, obstruction of the GI or the biliary tract, leakage, or fistulization of the collection<sup>2</sup>.

Percutaneous drainage is possible but it is contraindicated in pseudocyst with pancreatic duct communication like this patient. Pseudocysts may be endoscopically drained transpapillary, transmurally, or using a combination of the two. Pseudocyst can be entered at a point of endoscopically visible extrinsic compression. Entry is confirmed by aspiration of fluid and/or injection of radiopaque contrast. Transmural drainage is achieved by placing one or more stents through gastric or duodenal wall. The transmural tract is dilated with a standard dilating balloon catheter before placement of one or two stents<sup>3</sup>.

## References

1. Singhal D, Kakodkar R, Sud R, Chaudhary A. Issues in management of pancreatic pseudocysts. JOP 2006;7:502-7.
2. Hookey CL, Debroux S, Delhay M, Arbanitakis M, Le Moine O, Deviere J. Endoscopic drainage of pancreatic-fluid collections in 116 patients: a comparison of etiologies, drainage techniques, and outcomes. Gastrointest Endosc 2006;63:635-43.
3. Baron TH. Treatment of pancreatic pseudocysts, pancreatic necrosis, and pancreatic duct leaks. Gastrointest Endosc Clin N Am 2007;17:559-79.

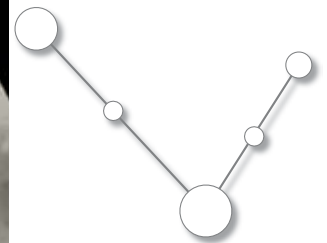
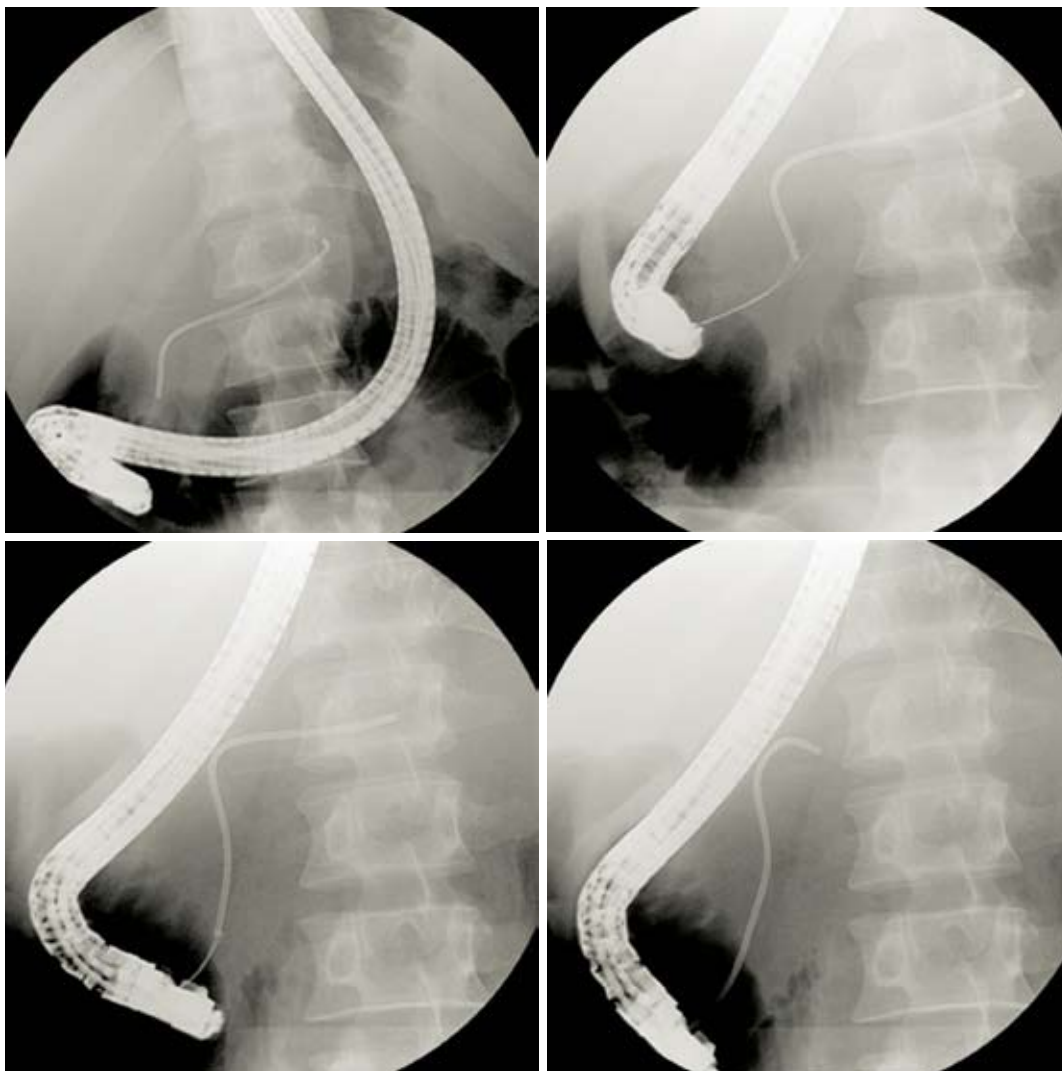
## Case 12

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 34 years old male presented with bleeding per ampulla. ERCP with pancreatic stent placement was performed to protect pancreatic duct. After bleeding was well controlled, the stent was found to be migrated up into the pancreatic duct.

ERCP was done with attempting stent removal.



A Caesar tripod (Wilson-Cook, Winston Salem, NC) was used to grasp the migratory stent and then subsequently the stent was successfully removed.

## Discussion

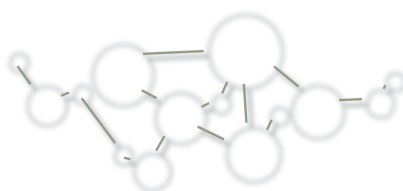
Proximal migration of pancreatic stent is an infrequent occurrence which sometimes causes severe pain to the patient. These stents can be removed endoscopically with a high degree of success in patient with dilated duct with different techniques<sup>1</sup>.

However, in patient with normal pancreas, the smaller diameter of the pancreatic duct and the associated stent in ductal system may limit the possibilities for endoscopic removal<sup>2</sup>, especially small caliber single pigtail stents<sup>3</sup>.

A grasping tripod, which requires a smaller space in order to open, is our recommended device for proximally migrated pancreatic stent that is impacting a small duct<sup>4</sup>.

## References

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2. Baron TH, Dean LS, Morgan DE, Holt TL. Proximal migration of a pancreatic duct stent: endoscopic retrieval using interventional cardiology accessories. *Gastrointest Endosc* 1999;50:124-5.
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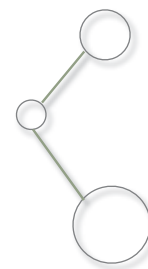
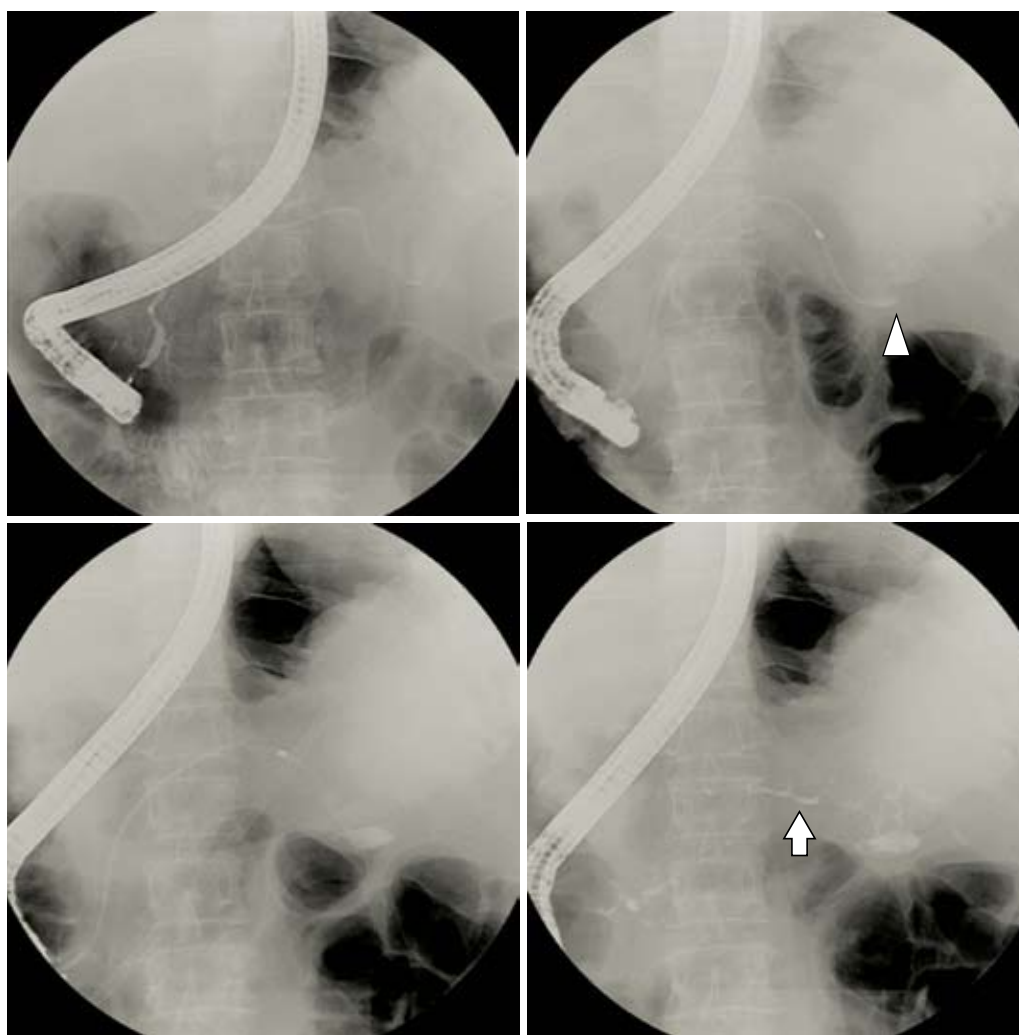
## Case 13

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 63 years old female presented with fever and palpable mass at left upper part of the abdomen for 1 month. She had diabetes mellitus and hypertension. The cyst was aspirated and found to have high amylase level.

ERCP was done as shown.



Pancreatogram demonstrated a normal size pancreatic duct. Arrowhead indicated contrast leaking into cystic cavity from pancreatic tail.

Histoacryl (Histoacryl blau®, Braun, Melsungen, Germany) and Lipiodol (Guerbet Laboratory, Aulnay-Sous-Bras, France) injection at tail of pancreas was performed. White arrow showed some lipiodol stain in peripancreatic lymphatic system.

There was no symptom related to distant emboli. The cyst disappeared in 2 months and was confirmed by a repeat CT scan.

The final diagnosis is post Histoacryl injection of pancreatic pseudocyst with local lymphatic emboli.

## Discussion

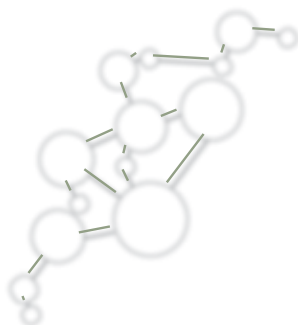
Pancreatic duct leaks can be internal or external. External leaks usually occur following pancreatic surgery. Internal fistulas may result from pseudocysts and present as pancreatic ascites or pleural effusions<sup>1</sup>.

ERCP is more sensitive than computed tomography in demonstration of pancreaticopleural fistula (79% versus 43% respectively). Early endoscopic intervention with pancreatic duct stent placement is recommended due to high success rate in fistula closure<sup>2</sup>.

The endoscopic treatment of fistulas with biological glues is a good therapeutic option with a much lower risk than surgery. This therapy achieves very high success rate,<sup>3</sup> however, complication such as local emboli can occur. The risk of distant emboli in this condition is low comparing to cirrhotic patient with portosystemic shunt.

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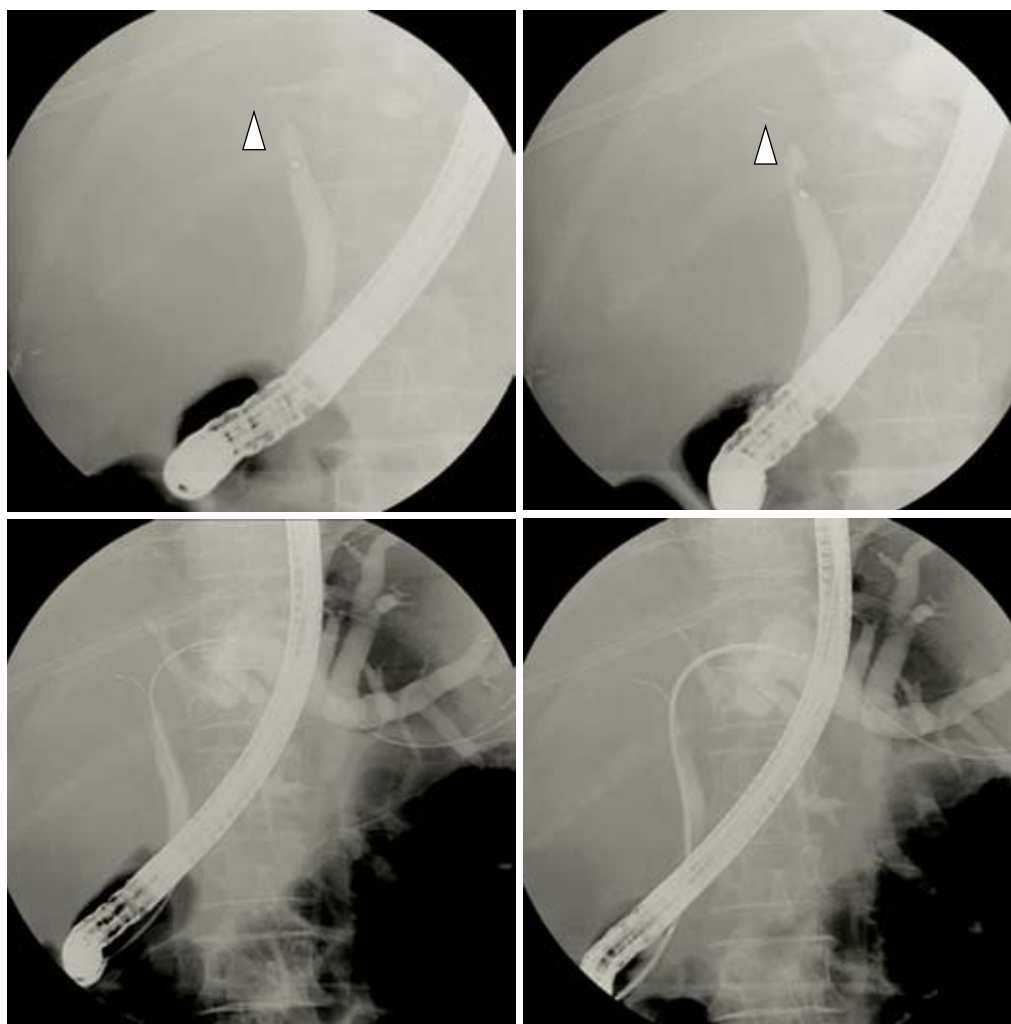
**Case 14**

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 68 years old female presented with fever and jaundice for 2 weeks. CT scan showed dilated intrahepatic ducts bilaterally with infiltrating mass into the main portal vein.

ERCP was done as shown.



The ERCP showed stricture (arrow head) interrupted the main hepatic confluence and right secondary hepatic confluence with upstream dilatation of left intrahepatic duct. Hilar cholangiocarcinoma of Bismuth type IIIa was the diagnosis.

The differential diagnoses are benign strictures such as iatrogenic bile duct injuries or other carcinomas such as gallbladder cancer or hilar nodal metastases.

This patient underwent metallic stent insertion into left intrahepatic duct.

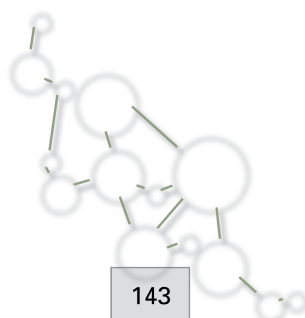
## Discussion

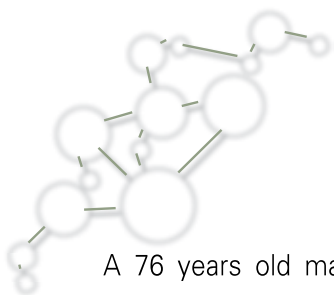
Hilar cholangiocarcinoma was first described by Altemeier, et al. in 1957. Patients with hilar cholangiocarcinoma are usually in their 6<sup>th</sup> or 7<sup>th</sup> decade. Over 90% present with painless jaundice and only few survive for more than 6 months without treatment<sup>1</sup>. It has been accepted that metallic stent insertion is the main resource for palliative therapy. In this case negotiating the guide wire into the left biliary system was very difficult due to a severe angulation of common duct and left intrahepatic duct (arrow head). However, it was succeed by using ricochet technique (having the guide wire hit the opposite wall of the main duct before it made U-turn into the desired intrahepatic duct).

Technical success rates for bilateral endoscopic stent placement are lower than unilateral drainage. Most jaundice patients can be palliated adequately with only unilateral drainage<sup>1</sup>. Median survival did not differ between the two strategies but a higher rate of complication in bilateral drainage group could occur<sup>2</sup>. Therefore, we suggest that single stent insertion is more cost effective since it contains a lower risk of procedure-related complication and mortality<sup>3</sup>.

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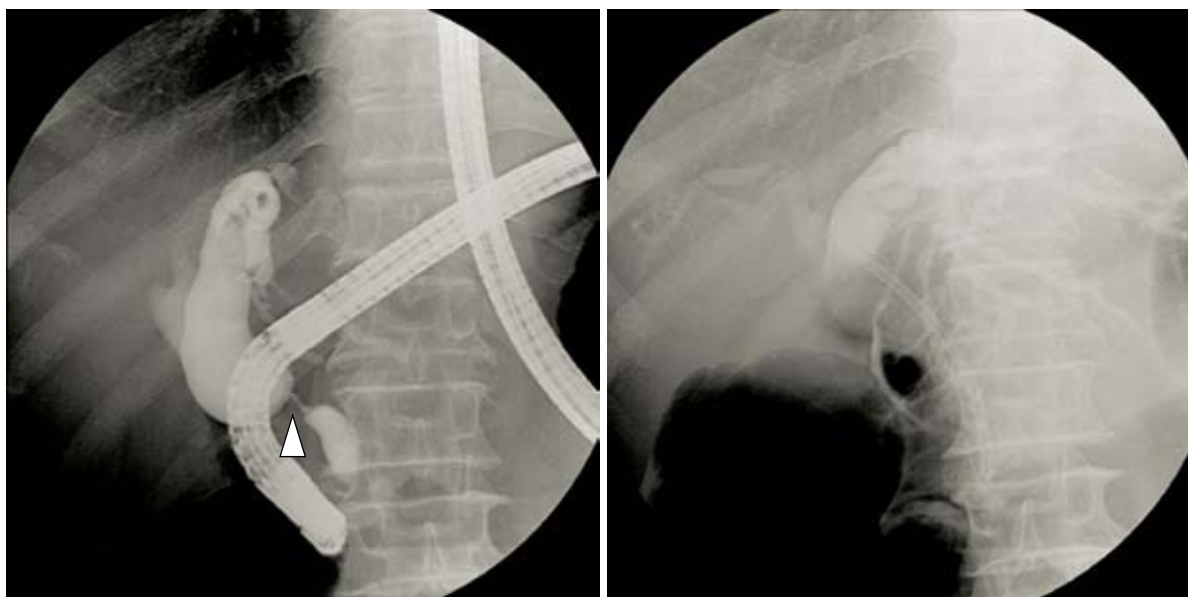
## Case 15

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 76 years old male presented with jaundice and palpable gallbladder for 1 month. CT scan of the abdomen demonstrated dilated common duct, gallbladder and intrahepatic ducts bilaterally.

ERCP was done as shown.



The ERCP showed a 1.5 cm. stricture at distal common bile duct (arrow head) with upstream dilatation of common hepatic duct and mild dilatation of both intrahepatic ducts. In this case, there was no filling of contrast into gallbladder. Of note, vigorous injection of the contrast was not performed. A 10 Fr x 9 cm. plastic stent was inserted across the stricture. Cholangiocarcinoma of distal common bile duct was the diagnosis.

The differential diagnoses are pancreatic head carcinoma, autoimmune pancreatitis with distal common duct involvement and primary sclerosing cholangitis.

## Discussion

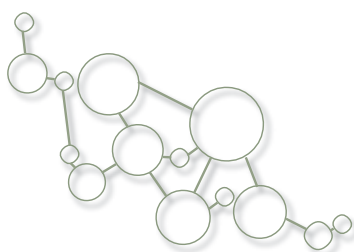
One fourth of cholangiocarcinoma arise from the distal common bile duct. The most common symptom is painless jaundice<sup>1</sup>.

In advanced carcinoma, endoscopic stenting with plastic stent is associated with fewer complications and shorter total hospital stay, but with higher risk of recurrent biliary obstruction than surgery<sup>2</sup>.

Placement of plastic stent should be used in patients with spread of the tumor to the liver, whereas a metallic stent should be placed in patients without hepatic metastases due to cost effectiveness<sup>3</sup>.

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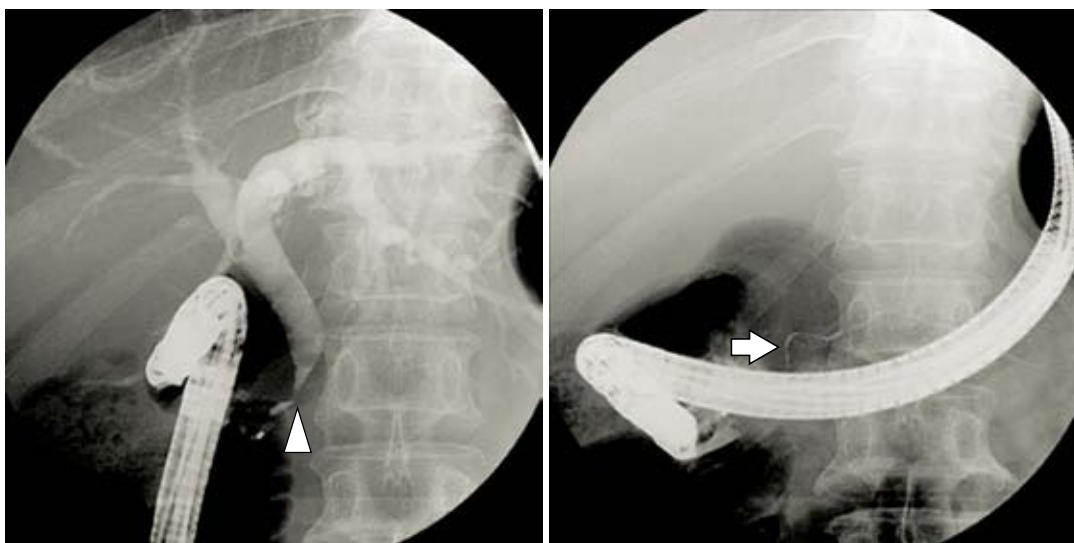


## Case 16

Danai Limmathurotsakul, MD.

Rungsun Rerknimitr, MD.

A 56 year-old Thai man presented with intermittent postprandial epigastric pain and jaundice for 2 months. CT scan of the abdomen showed dilatation of biliary tree started from common bile duct. The cholangiogram showed stricture of the distal CBD [2 cm. in length (arrow head)] with dilated common hepatic duct and intrahepatic duct. Pancreatogram demonstrated diffuse narrowing of pancreatic duct without any segmental dilatation (white arrow).



## Discussion

Autoimmune pancreatitis (AIP) is a unique form of chronic pancreatitis characterized by a high serum IgG4 concentration.<sup>1</sup>

Hallmark finding on direct pancreatogram is diffuse or segmental irregular narrowing of the main pancreatic duct. The intrapancreatic portion of the common bile duct is narrow in almost of the patients.<sup>2</sup>

Treatment of choice for AIP is steroid therapy, which has been shown to improve the symptoms, reverse the inflammatory process, and resolve of the radiographic and laboratory abnormalities.<sup>3</sup>

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