After Muhe performed the first laparoscopic cholecystectomy (LC) in 1985 in Germany(1), LC has been widely accepted as treatment of choice for symptomatic gallstones and from the beginning of 21st century, this technique is preferred surgical method for symptomatic gallstones. Patients without history of previous interventions, lack of inflammation, lack of complete transection of common bile duct, and greater diameter of bile duct present better operative results, decreased rates of morbidity and mortality, and lower rates of postoperative complications(2). Hepaticojejunostomy (HJ) and common bile or common hepatic ducts (type E injuries) are the most serious. Roux-en-Y hepaticojejunostomy (HJ) is the preferred surgical method for type E. But, if there is a question of strictures of HJ, it tends to require collaboration among surgeons, gastroenterologists, hepatologists and interventional radiologists for its management. Despite of the effort of multidisciplinary setting, the complication is high which may need liver transplantation and or occur death(5). The most important factor mainly correlated for improving the outcomes of cholecystectomies remains the expertise of the surgeon.(6)

Case report
31-years-old male patient had a history of bile duct injury following laparoscopic cholecystectomy (LC) three months back in Dubai. ERCP with stent placement was approached one day after the injury but it failed. After seven days, Roux-en-Y hepaticojejunostomy was performed for the management of BDI. The patient’s past medical history was unremarkable. After three months, patient admitted in our hospital for the complaints of fever, jaundice, chills and rigors. No history of abdominal pain was noted. Magnetic resonance cholangiopancreatography (MRCP) result showed abrupt cut off of the right and left hepatic ducts with proximal moderate dilation of biliary IHBDs. Also, the abdominal contrast enhanced computed tomography (CECT) scan suggested the similar finding as MRCP.

Patient was started with antibiotics for the treatment of obstructive cholangitis and discharged from hospital when the symptoms of cholangitis resolved in ten days of hospital admission, giving advice to perform percutaneous trans-hpetic biliary drainage (PTBD) and dilation of the of anastomotic site stricture. LFTs were slightly elevated at the time of discharge with Total Bilirubin: 4.1 mg/dl; Conjugated bilirubin: 2.6 mg/dl; Serum Alkaline Phosphatase (ALP): 195 IU/dl; and Serum glutamic oxaloacetic transaminase (SGOT): 58 IU/dl. Other findings were within normal limit. After 6 weeks of discharge from our hospital, patient return with the complaint of yellowish discoloration of eyes, body and urine with itching all over body. Patient also had complaint of intermittent on-off fever. On investigation, we found Total Bilirubin: 44.3 mg/dl; Conjugated bilirubin: 26.7 mg/dl; Serum ALP: 212 IU/dl; and AST: 20 IU/dl, Alanine Transaminase (ALT): 56 IU/dl; PT: 17.6 second, INR: 1.4. Antibiotics were given and Percutaneous Transhepatic Biliary Drainage (PTBD) was performed to lower jaundice. A percutaneous radiological intervention performed with the intention of dilation was unsuccessful because the guide wire could not pass from the stenosis site. Percutaneous Transhepatic (PT) Cholangiogram of right sub-hepatic region has minimally dilated right posterior biliary system with abrupt cut off of RHD distally and non-visualization of left sided biliary system. PT Cholangiogram of left sub-hepatic region has abrupt cut off of CHD with non opacification of jejunum loops and non-visualisation of right posterior duct. According to Strasberg classification, this is the case of Type E5 (Involvement of aberrant right sectorial hepatic duct alone or with concomitant stricture of the CHD). As the patient had recurrent episodes of cholangitis and failed percutaneous treatment, we decided for exploration. After the lysis of adhesions, we performed the dissection of the anastomotic area and stricture was identified. We excised it and redid the Roux-en-Y hepaticojejunostomy end to side with 3-0 VICRYL® (polygatrin 910) without tension with access loop.

Figure 2 CT scan showing right and left intra-hepatic PTBD tubes.

Discussion
When confirmed with a BDI, how should it be evaluated; when should it be repaired and who should perform that repair; early or delayed; index surgeon or a hepatopancreato-biliary specialist; surgically, endoscopically or percutaneously; biliary stenting or surgical bypass should all the topics of discussion. Endoscopic biliary stenting and percutaneous transhepatic biliary drainage (PTBD) catheter dilation of site stricture are recommended as earlier option for biliary stricture(7).

Introduction
However, surgical interventions are required for ineffective cases. The Strasberg classification attempts to differentiate the type of bile duct injury from the standpoint of surgical complexity, with Type A and E being on opposite ends of the spectrum. Although Type A are usually treated with endoscopic intervention, Type E are complex injuries that require surgical repair. Successful surgical treatment of type E stricture can be as high as 90% when performed with centers with the appropriate expertise. Moreover, it is a great surgical challenge to handle with biliary stricture after Roux-en-Y for bile duct injury. The operation can be much more complex and difficult when compared with the first attempt for bile duct injury repair. Attempt to repair the bile duct injury and moreover biliary stricture after PTBD and redo Roux-en-Y should be attempted if the stricture is experienced in advanced biliary surgery(8); otherwise, at a minimum, an external drainage of the gallbladder fossa should be achieved, with subsequent referral to a specialist.

In this case of HJ stricture, patient presented with jaundice, fever and chills which we managed with antibiotics. PTBD catheter dilation was tried but failed. It is usually achieved by insertion of large percutaneous stents into both the left and right hepatic ducts. This insertion can be done by interventional radiologists or by surgeons who are experienced in performing this type of procedure. Since the biliary tree is completely occluded with altered liver function, a drainage procedure of both hepatic lobes to decompress the liver was performed via PTBD and redo Roux-en-Y was planned as the standard procedure for the management of HJ stricture.

Conclusions
Early referral of bile duct injury, moreover biliary stricture after Roux-en-Y hepaticojejunostomy to the tertiary care center where the surgeons are experienced in advanced biliary system and skilled intervention radiologists would appear to be necessary to assure optimal result.

References