TREATMENT OF LATE STRICTURE OF HEPATICOJEJUNAL ANASTOMOSIS AFTER POST-CHOLECYSTECTOMY BILE DUCT INJURIES

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https://doi.org/10.35805/BSK2022I006

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Conflict of interest
The authors declare that they have no conflicts of interest

Abstract

Hepaticojejunostomy stricture is the disastrous complication of biliary surgery, if untreated can lead to intrahepatic stones, recurrent cholangitis, biliary cirrhosis and hepatic failure. Here, we report a case with the one-more year history of recurrent cholangitis, caused by late stricture of hepaticojejunal anastomosis after iatrogenic bile duct injury.

Case: *46-year old female patient underwent Roux-en Y hepaticojejunostomy (RYHJ) with transhepatic drain following iatrogenic bile duct injury during open cholecystectomy in rural hospital. After 11 year she represent re-stricture of hepatico-jejunal anastomosis with acute recurrent cholangitis attacks and intrahepatic lithiasis. Before admitting to our center it was tried to cross the stricture radiologically with the percutaneous transhepatic dilatation. As the multiple attempt of interventional radiology failed revision surgery required. Despite technical challenge we successfully managed the patient with the revision surgery by performing hepatic resection and creating double–barrel Roux-en Y hepaticojejunostomy with transhepatic transanastomotic stent placement.*

Conclusion. *Hepatico-jejunal anastomotic stricture is one of the challenging and serious complication of biliary surgery resulting multiple hospital readmissions and procedure. Recently, in many referral centers treatment of the re-strictures of hepatico-jejunal anastomosis can be achieved by nonsurgical methods such as stenting with endoscopic retrograde cholangiopancreatography and percutaneous transhepatic balloon dilatation. In cases of failure these methods, surgical treatment is considered. Nowadays in the surgical management of bilio-enteric anastomotic strictures the trend is not to drain anymore still in a number of situations this procedure cannot be avoided. In our case, double-barell hepaticojejunostomy on a transhepatic transanastomotic drain was the best choice of treatment.*

Keywords:
iatrogenic biliary injuries, anastomotic strictures, recurrent cholangitis, Roux-en Y hepaticojejunostomy, double-barrel hepaticojejunostomy

Лечение поздней стриктуры гепатикоеюнального анастомоза после постхолецистэктомического повреждения желчного протока

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Аннотация

Стриктура гепатикоеюностомии является катастрофическим осложнением гепатобилиарной хирургии и если ее не лечить может привести к внутрипеченочным холангиолитиазу, рецидивирующему холангиту, билиарному циррозу и нарушению функции печени. Мы докладываем о случае с более чем годовой историей рецидивирующего холангита, вызванного поздними стриктурами гепатикоеюнального анастомоза после ятрогенного повреждения желчного протока.

Случай. *Пациентке было выполнена гепатикоеюностомия по Ру с чреспеченочным дренажом после ятрогенного повреждения желчного протока во время открытой холецистоэктомии в сельской больнице. Через 11 лет появилась клиника стриктуры гепатикоеюнаанастомоза с приступами острого рецидивирующего холангита и внутрипеченочным холангиолитиазом. Перед поступлением в наш центр стриктуру попытались пересечь с чрескожной чреспеченочной дилатацией. Поскольку неоднократные попытки интервенционной радиологии оказались безуспешными, потребовалось ревизионная операция. Несмотря на технические трудности, нам удалось успешно справиться с повторной операцией, выполнив резекцию печени и создав двойную гепатикоеюностомию по Ру с установкой чреспеченочного трансанастомотического стента.*

Заключение. *Стриктура гепатико-еюнального анастомоза является один из сложных и серьезных осложнений билиарной хирургии, приводящим к многочисленным повторным госпитализациям и процедурам. Сейчас во многих специализированных центрах лечение сужений гепатико-еюнального анастомоза может быть достигнуто такими нехирургическими методами как стентирование с эндоскопической ретроградной холангиопанкреатографией и с чрескожной чреспеченочной балонной дилатацией. В случаях неэффективности этих методов рассматривается оперативное лечение. Несмотря на то, что в последнее время при лечении стриктур билио-дигестивних анастомозов наблюдается тенденция к прекращению дренирования, в ряде ситуацийй этой процедуры не избежать. В нашем случае лучшим вариантом лечения было бигепатикоеюностомия на чреспеченочночном трансанастомотическом дренаже.*

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Ключевые слова:
ятрогенные пороженияжелчевыводящих путей, стриктуры анастомозов, рецидивирующий холангит, гепатикоеюностомия по Ру, бигепатикоеюностомия.

Өт жолдарының холецистэктомиялық жарақатынан кейінгі гепатикоеюнальды анастомоздың алшақ стриктурасын емдеу

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Аңдатпа

Гепатикоеюностомияның стриктурасы гепатобилиарлық хирургияның күрделі асқынуы болып табылады және емдемеген жағдайда бауырішілік холангиолитиазға, қайталама холангитке, билиарлық циррозға және бауыр функциясының бұзылуына әкелуі мүмкін. Біз өт жолдарының ятрогендік зақымдануынан кейін гепатокоенальды анастомоздың кейінгі стриктурасынан туындаған қайталама холангиттің бір жылдан астам тарихы бар жағдай туралы баяндаймыз.

Клиникалық жағдай. *Науқасқа ауылдық ауруханада ашық холецистэктомия кезінде өт жолдарының ятрогендік зақымдануынан кейін бауыр арқылы дренажбен Ру гепатикоеностомиясы жасалды. 11 жылдан кейін жедел рецидивті холангит және бауырішілік холангиолитиаз ұстамаларымен гепатикоеналды анастомоз стриктурасының клиникасы пайда болды. Біздің орталыққа түскенге дейін тері арқылы бауыр арқылы стриктураны көлденеңінен шығару әрекеті жасалды. Интервенциялық радиологияның қайталама әрекеттері сәтсіз болғандықтан, тексеру операциясы қажет болды. Техникалық қиындықтарға қарамастан, біз бауыр резекциясын жасау және бауыр арқылы трансанастомотикалық стент орнату арқылы Ру бойынша қосарлы гепатикоеностомияны жасау арқылы қайталама операцияны сәтті жүргізе алдық.*

Қорытынды. *Бауыр анастомозының стриктурасы билиарлық хирургияның күрделі және ауыр асқынуларының бірі болып табылады, бұл көптеген қайталама госпитализациялар мен процедураларға әкеледі. Қазіргі уақытта көптеген мамандандырылған орталықтарда гепатикоеностомиялық анастомоздың тарылуын емдеуге эндоскопиялық ретроградтық холангиопанкреатография мен стенттеу және тері арқылы трансанастомотикалық балондарын ұзарту сияқты хирургиялық емес әдістер арқылы қол жеткізуге болады. Бұл әдістер тиімсіз болған жағдайда хирургиялық емдеу қарастырылады. Соңғы уақытта билио-дигестивті анастомоздардың стриктурасын емдеуде дренажды тоқтату үрдісі байқалғанына қарамастан, кейбір жағдайларда бұл процедураны қолдануға тура келеді. Біздің жағдайда емдеудің ең жақсы нұсқасы бауыр арқылы трансанастомотикалық дренажда бигепатикоеюностомия болды.*

Түйін сөздер:
өт жолдарының ятрогендік зақымдануы, анастомоздардың стриктуралар, қайталама холангит, Ру гепатикоеюностомиясы, биггепатоэюностомия

Introduction

Most of extrahepatic bile ducts injuries of the are iatrogenic and occur during laparoscopic or open cholecystectomies. Correct management of iatrogenic bile duct injuries is very important because if improperly treated, serious complications like biliary stricture, cholangitis, biliary cirrhosis portal hypertension and even death can occur [1, 2, 3]. Therapeutic options for the iatrogenic bile duct injuries can be divided into two groups: non-surgical (endoscopic approach and radiological interventions) and surgical. In general, minor bile duct injuries can be successfully treated endoscopically, but proximal and complex injuries require surgical treatment [4]. Roux-en Y hepaticojejunostomy (RYHJ) is the most preferred biliary reconstruction method for the management of iatrogenic biliary injuries [3, 5].

Despite RYHJ has excellent long-term outcomes (nearly-90%) it´s also associated with some complications, including anastomotic stricture, which sometimes leads to recurrent cholangitis and intraductal stone formation [6]. In many cases, non-surgical methods (endoscopic sphincterotomy or balloon dilatation, percutaneous interventions) may be useful, but in selected cases surgical revision is still considered as a standard of treatment of anastomotic strictures after iatrogenic bile duct injuries. Here we report a case of late development anastomotic stricture presenting 11 years after hepaticojejunostomy due iatrogenic biliary injury after open cholecystectomy.

Case presentation

A 46 year-old female patient was admitted to our clinic with the jaundice, fever and acute recurrent cholangitis. Eleven years earlier she had undergone RYHJ with transhepatic drain due to high (Strasberg E2) iatrogenic injury of the common hepatic duct (CHD) during open cholecystectomy in rural hospital. Her postoperative course was uneventful. The transhepatic drain was changed several times and removed after 2 years. Eleven years later she presented acute cholangitis with fever, jaundice and vomiting which treated conservatively with antibiotics several times. Before admitting to our center she was referred to another hospital for percutaneous transhepatic ballon dilatation (PTBD). Her cholangiogram showed high grade of RYHJ stricture. But multiple attempts of across the stricture was failed, because of due to the presence of intrahepatic stones stricture was non-crossable with conventional interventional radiology. In the end, it was decided to perform revision surgery in our hospital and renew the cicatrized anastomosis. On examination she was icteric and there was pain and tenderness in

right subcostal region. Laboratory tests showed white blood cell count (WBC)17.94*109/l, C-reactive protein (CRP) 264mg/l, total bilirubin 4,75mg/dl, direct bilirubin 4.55mg/dl, alanine aminotransferase (ALT) 30.6U/l, aspartate transaminase (AST) 27U/l, gamma-glutamyl transferase (GGT) 232U/l, and alkaline phosphatase (ALP)-272U/l.

Magnetic resonance cholangiopancreatography (MRCP) revealed stricture of HYS near the confluence zone and mild dilation of the intrahepatic biliary ducts associated with intrahepatic lithiasis.

During in multidisciplinary meeting including surgeons, radiologists and hepatogastroenterologists revision surgery was indicated as a treatment strategy. Subsequently revision surgery was performed. During surgery to expose the intrahepatic ducts partial liver resection was performed. Then, to correctly assess the anatomy of biliary tract intraoperative cholangioscopy was used which revealed multiple intraductal sludges and stones.

The stones and sludges removed from intrahepatic ducts. In further examination it was noticed that, as the result of recurrent cholangitis a very severe scar and fibrous tissue formed on anastomosis. Therefore it was decided to resect previous anastomosis and create a new, mucosa-mucosa, tension-free, double-barell RYHJ on a transhepatic transanastomotic drain.

In early postoperative period she was complicated with right side pneumonia which is successfully managed conservatively. The patient was discharged from the hospital on the 20 postoperative day in good general condition and satisfactory laboratory results. Six month after surgery transhepatic drains was changed and repeated cholangiogram showed well-functioning RYHJ. The patient was doing good through two-years of follow-up.

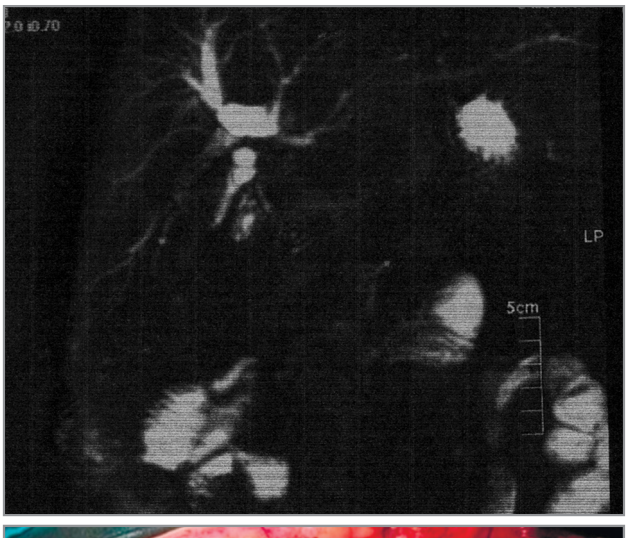

Figure 1.
Preoperative MRCP

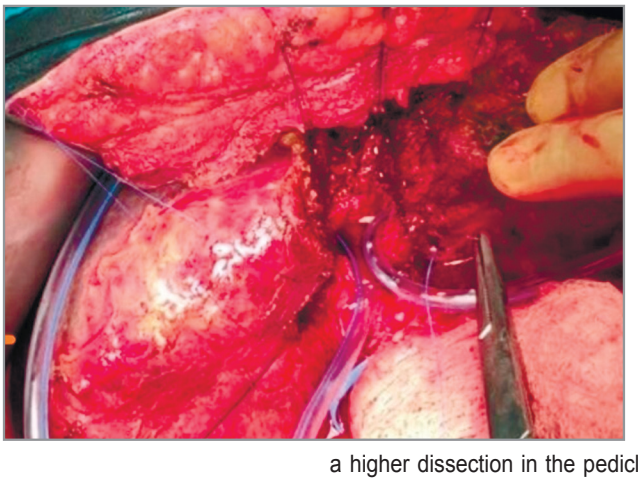

Figure 2.
Intraoperative picture of construction of the double-barrel anastomosis

Discussion

Nowadays in many centers, patients with a bilioenteric anastomotic strictures due iatrogenic biliary injuries are treated by dilatation and /or stent insertion with either an endoscopic or percutaneous approach. Surgical revision may be needed in patients with unsuccessful endoscopic or percutaneous treatment [7, 8]. Redo surgery for the bilio-enteric anastomotic stricture represent high grade of challenge for hepatobiliar surgeon because every new attempt of reconstruction inevitably implies tissue resection and a higher dissection in the pedicle with damage to the vascularization of the biliary tree. These factors affect both the course of surgery and the postoperative success rate so as it has been proposed that the failure rate of redo surgerys for the recurrent strictures ranges between 5-30% compared to nearly 90 % success in primary reconstruction in specialized centers [6, 9]. The traditional surgical approach to bile duct stricture repair involves Roux-en-Y hepaticojejunostomy. RYHJ failure can be associated with several other pathogenic factors including recurrent cholangitis, intrahepatic

calculi, intrahepatic stricture, and improper technical construction of the Roux-en-Y limb [10].

The most common of these late complications are anastomotic stricture and recurrent cholangitis. Recurrent cholangitis almost invariably is attributed to anastomotic stricture, however this assumption has been questioned recently [10, 11].

In the study of Okabayashi et al. postoperative cholangitis rate reported 7.7% (45) in a group of 583 patients who had undergone biliary-enteric anastomoses. Among patients with postoperative cholangitis anastomotic stenosis developed in 57.8% patients, (26/45) [12]. In a study by AbdelRafee et al. on 120 patients undergoing hepaticojejunal anastomosis for treatment of iatrogenic bile duct injuries, anastomotic stenosis occurred in 11.6% of the patients and postoperative cholangitis occurred in 14.2% of the total group and in 53.6% of the patients with anastomotic stenosis [13].

In our case recurrent cholangitis occurred in the absence of normal biliary drainage as a result of anastomotic stricture. Before admitting to our clinic she experienced several cholangitis attacs which is treated with antibiotics. As the last conservative therapy failed due development of antibiotic-resistant bacterial strains and multiple attempts of PTBD also failed, the surgical intervention was required. The main goal of revision surgery was provide adequate biliary excretion by creating wide RYHJ. For achievement of adequate boundary of healthy (non-ischemic, noninflammation and non-scarred) ducts and improvement of the surgical space we performed hepatic resection. This maneuver also helped to remove intrahepatic stones and sludges without difficulties. However, the use of transhepatic stents for supporting bile ducts is controversial we have followed stent use recommendations issued by Mercado et al. and Sampaio et al.in cases with small nondilated ducts to minimize the risk of stricture formation.2,9 We also think that despite poor impact to the patients quality of life in selected cases the transhepatic trananastomotic stents should be necessarily used.

Conclusion

Redo surgery for the late anastomotic stricture following hepaticojejunostomy after iatrogenic bile duct injuries always demonstrate technical difficulties for the hepatobiliary surgeons. It is very important to create wide, mucosa-to-mucosa, tension free bilioenteric-anastomosis with optimal length of Roux limb. Despite recently in the management of re-strictures of HYS the trend is not to drain anymore still in a number of situations this procedure cannot be avoided. In our case, double-barell HYS with placement transhepatic transanastomotic stent was the best choice of treatment.

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