Management of Recurrent Cholangitis in Patient with Iatrogenic Bile Duct Stricture

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ABSTRACT

Iatrogenic bile duct stricture is the most common causes of benign bile duct stricture. Several studies reported that approximately 80% of benign strictures occur following injury during a cholecystectomy. Strictures of the biliary tract have a broad spectrum of manifestations, ranging from mild elevation of liver enzymes to life-threatening infections such as cholangitis, liver abscess, and biliary cirrhosis. Moreover, due to its indolent course with subtle clinical manifestations, diagnosis is often delayed and most patients present with a protracted, complicated course. We reported a case of 26 years old female with recurrent cholangitis due to iatrogenic bile duct stricture. Biliary drainage through endoscopic approach followed by surgical procedure was selected as strategic management for the patient.

Keywords: *bile duct stricture, cholangitis, endoscopy, surgery*

ABSTRAK

Striktur biliaris iatrogenik adalah penyebab terbanyak penyempitan saluran empedu yang bukan disebabkan oleh keganasan. Dari beberapa studi dilaporkan bahwa 80% striktur tersebut terjadi pasca kolesistektomi. Striktur biliaris mempunyai manifestasi klinis yang luas, mulai dari peningkatan enzim hati hingga infeksi yang dapat berakibat fatal seperti kolangitis, abses hati, dan sirosis biliaris. Oleh karena gejala klinis yang muncul perlahan-lahan, diagnosis striktur biliaris seringkali menjadi terlambat sehingga pasien seringkali datang dengan komplikasi. Kami melaporkan sebuah kasus wanita 26 tahun dengan striktur biliaris iatrogenik. Drainase biliar secara endoskopi diikuti dengan pembedahan dipilih sebagai strategi tata laksana pada pasien ini.

Kata kunci: *striktur biliaris, kolangitis, endoskopi, pembedahan*

INTRODUCTION

Bile duct stricture is a challenging clinical condition that requires multidisciplinary approach for management. In general, there are two etiologies of bile duct strictures, benign and malignant. Patients with biliary strictures due to operative injury, radiation, trauma, or chronic pancreatitis generally have a good prognosis. In contrast, patients with bile duct strictures due to malignancy have a less favorable outcome. Most of benign causes of bile duct strictures are iatrogenic; approximately 80% of its case is resulting from operative trauma.[1] This case report would discuss

a strategic management in 26 years old woman with recurrent cholangitis due to iatrogenic bile duct stricture.

CASE ILLUSTRATION

A 26 year old female admitted to the Emergency Unit of Cipto Mangunkusumo Hospital with chief complain of yellowish eyes since two weeks before admission. The complaint was accompanied with fever, right upper quadrant abdominal pain, brown tea colored urine, and pale-colored feces. She was diagnosed with Mirizzi syndrome a year ago which required her to undergo a laparoscopic cholecystectomy. Three months before admission, she was hospitalized due to cholangitis and underwent endoscopic retrograde cholangiopancreatography (ERCP) procedure. The ERCP revealed a stricture of the distal common bile duct (CBD), a plastic stent was placed at the area of stricture.

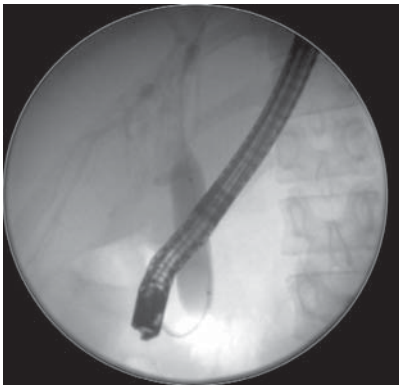

Figure 1. Pre-stent fluoroscopy showed stricture in the CBD

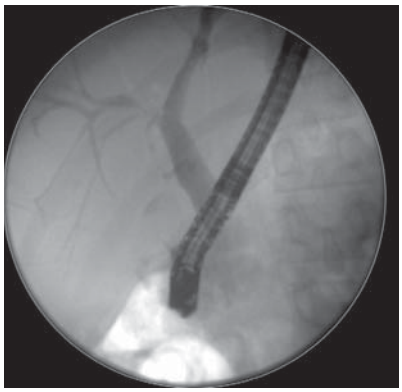

Figure 2. Post-stent fluoroscopy showed dilatation of the strictured part after stent placement

Physical examination revealed tachycardia, fever (38,1^{0}C), icteric sclera, and tenderness in her right upper abdominal quadrant. Laboratory examination showed elevated white cell counts (31,800 cells/mL), high serum bilirubin (total bilirubin 42.6 mg/dL; direct bilirubin 40.0 mg/dL; indirect bilirubin 2.6 mg/dL), and elevated procalcitonin (54.6 ng/mL). The patient was diagnosed with cholangitis. Meropenem is given as empiric antibiotic, followed by ERCP which revealed stricture at the CBD with migration of previous biliary stent. A plastic stent was placed at the stricture point; pus-containing biliary fluid was flow out from the CBD. After stent placement, total bilirubin was fall to 4.8 mg/dL. She was prepared to undergo double bypass surgery of her biliary tract.

DISCUSSION

Strictures of the biliary tract have broad spectrum of manifestations, ranging from mild elevation of liver enzymes to life-threatening infections such as ascending cholangitis, liver abscess, and biliary cirrhosis. Due to its indolent course with subtle clinical manifestations, diagnosis is often delayed and most patients present with a protracted, complicated course. In this report, a female patient presented with signs and symptoms suggesting cholangitis. She had history of Mirizzi syndrome which required her to undergo laparoscopic cholecystectomy one year before admission. Nine months after the surgery, she had the first episode of acute cholangitis due to stricture of her bile duct. Iatrogenic cause is the most common etiology of benign bile duct stricture; approximately 80% of its case is resulting from operative trauma. Several studies revealed the incidence rate of bile duct injury is 0.2–0.3% after open cholecystectomy and 0.4–0.6% after a laparoscopic cholecystectomy.[2,3]

About 75% cases of iatrogenic bile duct strictures were unrecognized at the time of surgery and the clinical presentations might be delayed for more than 5 years in some cases. Early recognized strictures are often associated with a bile leak caused by direct trauma, whereas delayed presentation is associated with ischemic injury and resultant fibrosis.[4] The patient had a second episode of cholangitis three months after. Following endoscopic biliary decompression through ERCP with a placement of plastic stent, we planned to do surgical biliary bypass as definite treatment. Medical treatment consists of administration of empiric antibiotic therapy addressed to typical organisms causing cholangitis such as *Escherichia coli*,

Klebsiella, Enterococcus, Proteus, Bacteroides, and Clostridium species. A combination of cephalosphorin/fluoroquinolone and metronidazole is a traditional regimen of choice for cholangitis. Newer agent like imipenem-cilastatin and piperacillin-tazobactam also has excellent activity against the typical pathogens.[1,5]

The goal of treatment in benign bile duct stricture is biliary drainage which can be achieved via endoscopic treatment via ERCP or surgical treatment. ERCP is a valuable technique in biliary disease, it carried out different diagnostic procedure (e.g., sphincter of Oddi manometry) and therapeutic interventions (e.g., stone extraction, biliary drainage, stent placement) at the same time. As diagnostic tools, ERCP can detect intrahepatic and extrahepatic dilatation, stones, and the site of biliary stricture with 90-100% sensitivity and specificity. It also has as high as 90-95% success rate, with a complication rate of approximately 3-5%. ERCP also can help distinguish malignant from benign biliary obstruction.[6]

Endoscopic treatment of bile duct stricture usually consists of serial placement of multiple plastic stents over 12 months period, with success rates ranging from 74-90% following this approach. However, the recurrence rates is as high as 30% within 2 years of stent removal.[7,8,9] A study done by Regimbeau et al revealed that surgical treatment of bile duct stricture due to chronic pancreatitis had better long term outcome compared with endoscopic approach, although overall morbidity was also higher in surgical treatment group.[10]

The major determinant on outcomes of patients with bile duct strictures is the underlying disease condition. Patients with biliary strictures due to operative injury, radiation, trauma, or chronic pancreatitis generally have a good prognosis. In contrast, patients with bile duct strictures due to malignancy have a less favorable outcome. Her history of recurrent cholangitis may decrease the possibility of successful endoscopic dilatation and lead to recurrence of her symptoms. Regarding her underlying benign condition, her young age, and relatively we decided to do surgical biliary bypass for this patient to prevent recurrence of her symptoms.

REFERENCES

1. Dadhwal US, Kumar V. Benign bile duct strictures. Med J Amed Forces India 2012;68:299-303.
2. Roslyn JJ, Binns GS, Hughes EF, Saunders KK, Zinner MJ, Cates JA. Open cholecystectomy: a contemporary analysis of 42,474 patients. Ann Surg 1993;218:129-37.
3. Kramling H, Huttl TP, Heberer G. Development of gallstone surgery in Germany. Surg Endosc 1999;13:909-13.
4. Zepeda GS, Baron TH. Benign biliary strictures: current endoscopic management. Nat Rev Gastroenterol Hepatol 2011;8:573-81.
5. Solomkin JS, Mazuski JE, Bradley JS, Rodyold KA, Goldstein EJ, Baron EJ, et al. Diagnosis and management of complicated intra-abdominal infection in adults and children: guidelines by the surgical infection society and the infectious diseases society of America. Clin Infect Dis 2010:50:133-64.
6. Hintze RE, Adler A, Veltzke W. Clinical significance of magnetic resonance cholangiopancreatography (MRCP) compared to endoscopic retrograde cholangiopancreatography (ERCP). Endoscopy 1997;29:182-87.
7. Johnson C. Gall bladder and liver disorders in sickle cell disease: a critical review. University of Southern California Health Sciences Center 2001.
8. Costamagna G, Pandolfi M, Mutignani M. Long-term results of endoscopic management of postoperative bile duct strictures with increasing numbers of stents. Gastrointest Endosc 2001;54:162-8.
9. Bergman JJ, Burgemeister L, Bruno MJ, Rauws EA, Gouma DJ, Tytgat GM, et al. Long-term follow-up after biliary stent placement for postoperative bile duct stenosis. Gastrointest Endosc 2001;54:154-61.
10. Regimbeau JM, Fuks D, Bartoli E, Fumery M, Hanes A, Yzet T, et al. A comparative study of surgery and endoscopy for the treatment of bile duct stricture in patients with chronic pancreatitis. Surg Endosc 2012;26:2902-8.