



# Management of Anastomotic and Non-Anastomotic Biliary Stricture: A Case Report

Ana Belen L, Aldana Belen I, Mercedes Ines CG, Gonzalo C, Lucia B and Oggero AS\*

Division of Image Guided Minimally Invasive Surgery, Juan D. Perón 4190 (C1181ACH), Ciudad autónoma de Buenos Aires, Argentina

## Abstract

This article shows the long-term success of percutaneous biliary balloon dilation on a patient with biliary-enteric anastomosis. Considering that the case is an example of the successful of the treatment in a patient with multiple interventions in context of a bile duct injury. The development of intrahepatic pyogenic abscesses is rare when not associated with cholangitis, intraabdominal or general sepsis, or spread from infected contiguous structures.

## Introduction

The development of intrahepatic pyogenic abscesses is rare when not associated with cholangitis, intra-abdominal or general sepsis, or spread from infected contiguous structures [1]. There has been reported cases of liver abscesses secondary to infected hepatic infarcts seeded by colon organisms *via* the portal vein; therapeutic hepatic artery ligation for primary or metastatic tumors of the liver [1]; or secondary to combined bile duct and hepatic artery injury following gallbladder surgery [2].

The biliary duct is extremely sensitive to arterial blood supply deprivation and cannot tolerate surgical manipulation [3], associated to this, liver abscesses may originate in cases of decreased blood supply, and even some biliary strictures may be produced or exacerbated by bile duct ischemia [2]. However, it is not merely the decreased blood supply that leads to hepatic abscess, but the necrosis, which acts as a nidus for bacterial colonization and predisposes to the development of abscesses [1].

The clinical course of the patients with combined hepatic arterial and bile duct injuries was associated with several differences when compared with isolated bile duct injuries. These differences are primarily hepatic necrosis, abscess formation in the area of liver devoid of arterial blood supply, and anastomotic or bile duct strictures, all present in the first group of patients [2]. It is described in the literature several treatment options for those patients who had liver abscess due to biliary strictures, such as stent placement, biliary drainage, balloon bilioplasty and even liver transplant.

The objective of this presentation is to describe a patient with recurrent liver abscesses secondary to anastomotic and non-anastomotic biliary strictures.

## Case Presentation

A 63-year-old female patient with a history of bile duct surgical injury 10 years ago presented at our department for recurrent liver abscesses over the past two years that began in the right segments and recently in segment three. In addition, the hepatic triphasic Magnetic Resonance Imaging (MRI) showed atrophy of the right posterolateral segments and minor flow in the right portal vein.

After the percutaneous treatment of the pyogenic liver abscesses, due to the suspicion of an abscessed liver tumor, atypical hepatectomy was performed after a multidisciplinary meeting. During surgical approach a bilioenteric anastomosis was observed. The patient evolved with a biliary fistula requiring percutaneous treatment consisting in percutaneous drainage of the biloma and percutaneous transhepatic biliary drainage. After percutaneous cholangiography, we observed an anomalous biliary diameter (with inversion of the size of the bile duct), intrahepatic sectorial strictures (ischemic cholangiopathy) and a bilioenteric anastomosis stricture (Figure 1). The study was completed with a liver biopsy that did not show fibrosis, and with a hepatic arteriography that showed a hyperaemic blood flow with branching of the right hepatic artery (Figure 2).

Subsequently, the anastomotic stricture was treated with three sessions of percutaneous balloon dilation bilioplasty (Figure 3). At one year follow-up, the patient had no evidence of anastomosis re-stricture, nor the presence of new abscesses or cholangitis.

## OPEN ACCESS

### \*Correspondence:

Aldo Sebastian Oggero, Division of Image Guided Minimally Invasive Surgery, Juan D. Perón 4190 (C1181ACH), Ciudad autónoma de Buenos Aires, Argentina,  
E-mail: asebastian.oggero@gmail.com

Received Date: 01 Jun 2023

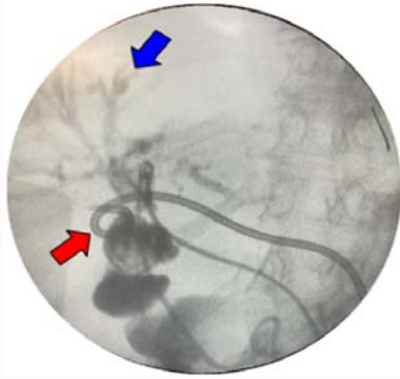
Accepted Date: 13 Jun 2023

Published Date: 17 Jun 2023

### Citation:

Ana Belen L, Aldana Belen I, Mercedes Ines CG, Gonzalo C, Lucia B, Oggero AS. Management of Anastomotic and Non-Anastomotic Biliary Stricture: A Case Report. *Ann Surg Case Rep.* 2023; 6(3): 1078.

Copyright © 2023 Oggero AS. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**Figure 1:** Percutaneous transhepatic biliary drainage this figure shows the catheter placed (red arrow) into the fluid collection (biloma) associated with an anomalous diameter (blue arrow) of the intrahepatic biliary tree (inverted) and sectorial strictures (non-anastomotic stricture).



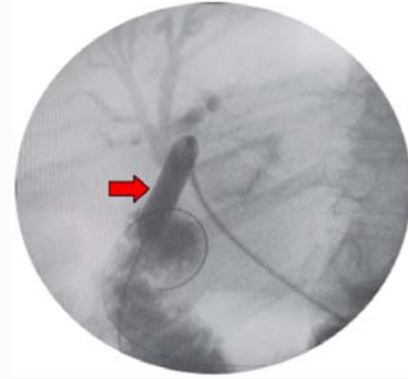
**Figure 2:** Hepatic arteriography. The figure shows a hyperemic right hepatic artery.

## Discussion

In this scenario, a multidisciplinary meeting approach including hepato-pancreato-biliary surgeons, gastroenterologists, and interventional surgeons is essential in order to achieve optimal outcomes [4-5]. Percutaneous or endoscopic intervention should be considered in patients with clinical manifestations of cholestasis or biliary sepsis when a dominant stricture affects the main bile duct or the left or right hepatic ducts. Although endoscopic approach is usually the first-line treatment option for most patients with benign biliary strictures [6]; in this patient, with an intrahepatic biliary fistula and the history of a hepatojejunostomy, we preferred the percutaneous transhepatic approach [7].

The percutaneous approach is suitable for most patients, and it is safe and effective, for which it is considered the method of choice. As previously described, the patient had both anastomotic and non-anastomotic biliary stricture. The treatment of the last group of biliary strictures is not well known and, excluding liver transplant, there are not many other options. However, the treatment for anastomotic biliary strictures is well described and there are several methods.

The first line of treatment is usually minimally invasive, and percutaneous dilatation is the standard approach [8]. Balloon dilatation of biliary strictures has been reported as a safe and suitable method, with low morbidity and one-year high-rate patency. Although percutaneous dilatation has been described by numerous authors with long-term success rates ranging from 44% to 90%, treatment protocols have been flexible and the population heterogeneous.



**Figure 3:** Percutaneous biliary balloon dilatation. The figure shows the presence of the Percutaneous balloon (red arrow) through the stricture.

Nevertheless, the implementation of a percutaneous biliary balloon dilatation protocol session with a fixed interval is associated with a high rate of long-term patency [8-10].

## Conclusion

Percutaneous biliary balloon dilatation can be an effective and safe method of treatment on patients with biliary-enteric anastomosis. This may be performed in three sessions in cases of patients with clinical manifestations showing a long-term success.

## References

- Jochimsen PR, Zike WL, Shirazi SS, Pearlman NW. Iatrogenic liver abscesses: A complication of hepatic artery ligation for tumor. *Arch Surg.* 1978;113(2):141-4.
- Gupta N, Solomon H, Fairchild R, Kaminski DL. Management and outcome of patients with combined bile duct and hepatic artery injuries. *Arch Surg.* 1998;133(2):176-81.
- De Santibáñes E, Ardiles V, Pekolj J. Complex bile duct injuries: Management. *HPB (Oxford).* 2008;10(1):4-12.
- Schreuder AM, Busch OR, Besselink MG, Ignatavicius P, Gulbinas A, Barauskas G, et al. Long-term impact of iatrogenic bile duct injury. *Dig Surg.* 2020;37(1):10-21.
- Deltenre P, Valla DC. Ischemic cholangiopathy. *Semin Liver Dis.* 2008;28(3):235-46.
- Kořcher M, Cerna M, Havlík R, Kraňal V, Gryga A, Duda M. Percutaneous treatment of benign bile duct strictures. *Eur J Radiol.* 2007;62(2):170-4.
- Laasch HU, Martin DF. Management of benign biliary strictures. *Cardiovasc Intervent Radiol.* 2002;25(6):457-66.
- Oggero AS, Bruballa RC, Huespe PE, de Santibáñes M, Claria RS, Boldrini G, et al. Percutaneous balloon dilatation for hepaticojejunostomy stricture following paediatric liver transplantation: Long-term results of an institutional "Three-Session" protocol. *Cardiovasc Intervent Radiol.* 2022;45(3):330-336.
- Janssen JJ, van Delden OM, van Lienden KP, Rauws EA, Busch OR, van Gulik TM, et al. Percutaneous balloon dilatation and long-term drainage as treatment of anastomotic and non-anastomotic benign biliary strictures. *Cardiovasc Intervent Radiol.* 2014;37:1559-67.
- Czerwonko ME, Huespe P, Mazza O, de Santibanes M, Sanchez-Claria R, Pekolj J, et al. Percutaneous biliary balloon dilatation: Impact of an institutional three-session protocol on patients with benign anastomotic strictures of hepatojejunostomy. *Dig Surg.* 2018;35(5):397-405.