

# Management of Duct to Duct Biliary Anastomotic Stricture with Modified Roux En Y Hepaticojejunostomy in Post-Transplant Biliary Stricture - A Novel Surgical Technique

Selvakumar Naganathan\*

Indraprasta Apollo Hospital, Sarita Vihar, 110085, New Delhi, India

\*Corresponding author: Selvakumar Naganathan, Indraprasta Apollo Hospital, Sarita Vihar, 110085, New Delhi, India, Tel: +919871756756; E-mail: enselva1@gmail.com

Rec date: Apr 03, 2017; Acc date: May 29, 2017; Pub date: Jun 01, 2017

Citation: Naganathan S. Management of Duct to Duct Biliary Anastomotic Stricture with Modified Roux En Y Hepaticojejunostomy in Post-Transplant Biliary Stricture - A Novel Surgical Technique. J Clin Gastroenterol Hepatol 2017, 1: 2.

## Abstract

Liver transplantation is the gold standard for end stage liver disease. Biliary complications are the Achilles heel of liver transplantation. Biliary complications post liver transplantation is 10- 15 percent. Here we describe a case of post-transplant bile leak which healed by stricture. The stricture was not negotiable by ERCP, hence managed by PTBD. But the PTBD could not be internalized because of the tight stricture. In view of the above situation patient underwent surgical biliary drainage in the form of modified Roux en Y Hepaticojejunostomy. The surgical modification has been described in the discussion section. At 3 years' post procedure, the patient is recurrence free.

**Keywords:** Liver transplantation; Biliary; Hepatic encephalopathy, Vascular issues

In view of the above situation patient underwent surgical biliary drainage in the form of Roux en y Hepaticojejunostomy. Unlike conventional Roux en y Hepaticojejunostomy it was side to side RYHJ with the stent across the anastomosis. At 3 years' post procedure patient is recurrence free.

## Case Presentation and Description of the Technique

A 54-year-old gentleman with end stage liver disease secondary to alcoholism decompensated with recurrent episodes of hepatic encephalopathy, and variceal hemorrhage underwent right lobe living donor liver transplantation in December 2012. Intraoperatively the graft was of adequate GRWR with 2 portal veins and 2 bile ducts. The bile ducts were close to each other. Hence ductility and duct to duct biliary anastomosis was done. Post operatively he had subclinical bile leak which was evidenced by positive bag counts on HIDA scan. He was discharged in time. Three months later he presented to us with deranged LFT and generalized purities. He was evaluated with MRCP and found to have benign anastigmatic biliary stricture. ERCP was attempted but failed because the endoscopes could not negotiate the guide wire across the stricture. Hence PTBD was done. Internalization of PTBD was attempted but failed because of the tight anastigmatic stricture. Multiple attempts of PTBD internalization and ERCP were tried in various transplant and non-transplant centers across India over a period of one year. Finally, he came back to us for definitive management. In view of multiple attempts of failed PTBD internalization he was taken up for surgery.

Intraoperatively previously placed ERC stent in the CBD helped in the identification of CBD. The CBD was opened in the midline and extended upwards towards the hilum. Bile duct openings were identified and negotiated with Watson Cheyne dilators and guide wires. Intra operative cholangiogram was done to rule out false tracking. There was good bile flow from both the ducts. Both the ducts were stented with 5F infant feeding tube and the tips of the tubes were passed through the CBD into the duodenum. The choledochotomy was drained by a 60-cm loop Roux En Y Hepaticojejunostomy with 5-0

## Introduction

Liver transplantation is the gold standard treatment for end stage liver disease. Biliary complications are the Achilles heel of liver transplantation. Biliary complications post liver transplantation is 10% to 15% [1]. They have decreased over time and have become stagnant at the above-mentioned rate in various transplant centers across the world. Broadly biliary complications are classified into leaks and strictures. Despite various anastomotic techniques the complication rates have remained same. Hence no technique could be claimed as better than the other. So, different centers continue to practice different techniques which give them best results. We follow interrupted suturing technique with fine absorbable suture material without stents [2]. Biliary complications are more of morbidity than mortality. In view of above nature of biliary complications efficient management of the biliary complications is very important for the success of any transplant program [3]. Here we describe a case of post-transplant bile leak which healed by stricture. The stricture was not negotiable by ERCP, hence managed by PTBD. But the PTBD could not be internalized because of the tight stricture.

interrupted PDS sutures. Patient recovered well without any complication in the immediate post-operative period and was discharged home on the 13<sup>th</sup> post-operative day.

## Results and Discussion

Incidence of biliary complications over the past two decades have dramatically come down owing to the advancements in the technique of biliary anastomosis, technical expertise, better suture materials, use of intra operative cholangiograms, avoiding revascularization of ductal structures etc [4]. However, world over the reported incidence of biliary complications is 5% to 32% [5]. It has become fairly static over the last decade. It adds to the main morbidity and also sometimes to the mortality in post liver transplant patients. Strictures are more common than leaks [6].

Strictures are of two types: Anastomotic and non-anastomotic strictures. Anastomotic strictures are caused by technical failure, healed leaks, ischemia etc. Non-anastomotic strictures are due to vascular issues and are located intra-hepatically and involve segmental ducts [7]. Bile leaks are of two types overt and subclinical. In overt bile leaks with sepsis patients are re-explored and roux en y Hepaticojejunostomy is done in case of leaking duct to duct anastomosis along with controlled drainage of the leak. In case of controlled bile leaks patients are managed conservatively for three weeks and if the bile leak is not decreasing ERCP and stenting are done. In case of subclinical leaks patients are managed by delayed drain removal. Duct to anastomotic biliary strictures are managed with ERCP and CBD stenting [8]. In case of failed stenting PTBD and biliary stenting or rendezvous procedure is done. However, a small cohort of patients fails these non-operative techniques and end up in surgery. Surgical bilioenteric drainage is in the form of Roux en y Hepaticojejunostomy [9]. The disadvantage of these RYHJs is they are not amenable for future endoscopy in case of recurrent strictures which can be as high as 50% [10]. Two ways of handling this is having an access loop or doing a side to side Hepaticojejunostomy as we have done in this case [11]. The advantages are the easier management of future stricture endoscopically and avoidance of access loop complications.

## Conclusion

The conclusions can be drawn as follows:

- We describe a novel technique of Hepaticojejunostomy in post-liver transplantation technique.

- This surgical technique can be extrapolated in the management of non-transplant strictures also.

## References

1. Abdullah K, Abdeldayem H, Hali WO, Hemsy B, Sarrag I, et al. (2005) Incidence and management of biliary complications after orthotopic liver transplantation: A ten years' experience at King Fahad National Guard Hospital. *Transplant Proc* 37: 3179-3181.
2. Akamatsu N, Sugawara Y, Hashimoto D (2011). Biliary reconstruction, its complications and management of biliary complications after adult liver transplantation: a systematic review of the incidence, risk factors and outcome. *Transpl Int* 24: 379-392.
3. Ayoub WS, Esquivel CO, Martin P (2010) Biliary complications following liver transplantation. *Dig Dis Sci* 55: 1540-1546.
4. Kochhar G, Parungao JM, Hanounah IA, Parsi MA (2013) Biliary complications following liver transplantation. *World J Gastroenterol* 19: 2841-2846.
5. Solmi L, Cariani G, Leo P, Miracolo A, Nigro G, et al. (2007) Results of endoscopic retrograde cholangiopancreatography in the treatment of biliary tract complications after orthotopic liver transplantation: our experience. *Hepatogastroenterology* 54: 1004-1008.
6. Duailibi DF, Ribeiro MA Jr. (2010) Biliary complications following deceased and living donor liver transplantation: A review. *Transplant Proc* 42: 517-520.
7. Girotra M, Soota K, Klair JS, Dang SM, Aduli F (2015) Endoscopic management of post-liver transplant biliary complications. *World J Gastrointest Endosc* 7: 446-459.
8. Villa NA, Harrison ME (2015) Management of biliary strictures after liver transplantation. *Gastroenterol Hepatol (NY)* 11: 316-328.
9. Kilic YA, Tez M (2008) Biliary complications after duct-to-duct biliary reconstruction in living-donor liver transplantation: Causes and treatment. *World J Surg* 32: 333.
10. Kyoden Y, Tamura S, Sugawara Y, Matsui Y, Togashi J, et al. (2010). Incidence and management of biliary complications after adult-to-adult living donor liver transplantation. *Clin Transplant* 24: 535-542.
11. Quintero GA, Espinosa H, Pineres G, Ariza A, Zundel N, et al. (1992) Roux-en-Y hepaticojejunostomy with subcutaneous access and the use of Gianturco stents for the management of biliary tract strictures. *World J Surg* 16: 1178-1181.