Analysis of A2A LDLTx Biliary Complications using Non-Stented Biliary Anastomosis

Thesis

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List of Abbreviations

Abb.	Full term
BL	*Biliary Leakage*
CCA	*Cholangiocellular Adenocarcinoma*
CHD	*Common Hepatic Duct*
DD	*Duct-to-Duct*
HIV	*Human Immunodeficiency Virus*
HJ	*Hepaticojejunostomy*
IHPBA	*International Hepato-Pancreato Biliary Association*
INR	*International Normalized Ratio*
IVC	*Inferior Vena Cava*
LDLTx	*Living-Donor Liver Transplantation*
LHD	*Left Hepatic Duct*
LPV	*Left Portal Vein*
LT	*Liver Transplantation*
MMF	*Mycophenolate Mofetil*
PTBD	*Percutaneous Transhepatic Balloon Dilation*
PV	*Main Portal Vein*
RASD	*Right Anterior Sectoral Duct*
RHD	*Right Hepatic Duct*
RPSD	*Right Posterior Sectoral Duct*
RPV	*Right Portal Vein*
RYHJ	*Roux En- Y Hepaticojejunostomy*

ABSTRACT

Background: biliary tract reconstruction during liver transplantation (LT) is the final technical step and the cornerstone of the procedure and is often performed by a duct-to-duct anastomosis. Rarely, recipient and donor biliary stump discrepancies or liver disease-related reasons could lead to a hepaticojejunostomy.

Purpose: to clarify the role of non-stented biliary anastmosis in reducing biliary complications in adult to adult LDLTx and ending the era of using intraductal removable stent.

Patients and Methods: this is a retrospective Single arm Cohort study. Our study was performed in Egypt by following the results of 80 cases of adult to adult LDLTx using non-stented biliary anastomosis in Airforce specialized hospitals and Nasser institute in Cairo. Study period was from July 2015 to June 2018.

Results: Finally, stented bile ducts had complication rate of 3/8 (37%) while stent-less ducts had 20/83(24%) p=0.41.

Conclusion: stent less biliary anastomosis is a well established and tusted method in biliary reconstruction in LDLTx and has a less complications than stented duct to duct biliary anastomosis and hepaticojeujenostomy biliaryenteric anastomosis and allow better management of biliary complication if occurred.

Keywords: *Non-Stented Biliary Anastmosis – LDLTx - Liver Transplantation*

INTRODUCTION

The incidence of biliary complications following liver transplantation (LT) remains high, ranging from 10 to 50 % of patients, it has been found in some studies that stented biliary anastomosis has lower postoperative complications regarding biliary leakage and biliary stricture mainly than non-stented biliary anastomosis. While, other studies found that stent-less biliary anastomosis has better outcome as regard to biliary complications and graft failure. In this study we would analyze biliary complications in non-stented biliary anastomosis and whether it is a preferred technique in reducing post-LDLTx complication.

Biliary tract reconstruction during liver transplantation (LT) is the final technical step and the cornerstone of the procedure and is often performed by a duct-to-duct anastomosis. Rarely, recipient and donor biliary stump discrepancies or liver disease-related reasons could lead to a hepaticojejunostomy ***(Neuhaus et al., 1994).***

The proper completion of this technical step is crucial for postoperative outcome the incidence of biliary complications following liver transplantation (LT) remains high, ranging from 10 to 50 % of patients among clinical series despite an increasing experience worldwide. These complications, mainly represented by biliary leaks and biliary strictures, are responsible for substantial post-transplantation morbidity and

graft loss. Biliary leakage occurs mostly within 3 months postoperatively. This early complication reaches a 10 to 20 % incidence rate. Biliary strictures mainly occur later, within 5 to 8 months and up to 1 year in most. The reported incidence of biliary strictures still ranges from 5 to 30 % among large and recent clinical series ***(Akamatsu et al., 2011).***

In a prospective study performed in korea university in 2015 comparing using intraductal stent versus non-stented biliary anastomosis stated that the overall rate of biliary complications in the internal stent group was lower than in the non-stented group, and most of the biliary complications could be treated successfully with endoscopic or radiologic intervention ***(Jung et al., 2014).***

In this study we will display biliary complications in 112 adult to adult LDLTx using non-stented biliary anastomosis since July 2015.

Aim of the Work

To clarify the role of non-stented biliary anastomosis in reducing biliary complications in adult to adult LDLTx and ending the era of using intraductal removable stent.

Chapter 1
ANATOMY OF THE LIVER AND THE BILIARY SYSTEM

The liver is the largest of the abdominal viscera, occupying a substantial portion of the upper abdominal cavity. It occupies most of the right hypochondrium and epigastrium, and frequently extends into the left hypochondrium as far as the left anterior axillary line (**fig. 1)**.

As the body grows from infancy to adulthood, the liver rapidly increases in size. This period of growth reaches a plateau around 18 years and is followed by a gradual decrease in liver weight from middle age. The ratio of liver to body weight decreases with growth from infancy to adulthood. The liver weight is 4–5% of body weight in infancy and decreases to approximately 2% in adulthood. The size of the liver also varies according to sex, being smaller in females, and body size, enlarging the fat deposition. It has an overall wedge shape, which is, in part, determined by the form of the upper abdominal cavity into which it grows. The narrow end of the wedge lies towards the left hypochondrium, and the anterior edge points anteriorly and inferiorly. The superior and right lateral aspects are shaped by the anterolateral abdominal and chest wall, as well as the diaphragm. The inferior aspect is shaped by the adjacent viscera. The capsule is no longer thought to play an important part in maintaining the shape of

the liver; it is notable that it allows expansion when the liver hypertrophies in response to disease, surgical resection or contralateral embolization of the portal vein or hepatic artery.

Throughout life, the liver is reddish brown in colour, although this can vary, depending on the fat content. Obesity is the most common cause of excess fat in the liver (steatosis); the liver assumes a more yellowish tinge as its fat content increases and gains a bluish tinge with venous obstruction. The texture of the organ is usually soft to firm, although it depends partly on the volume of blood it contains and on its fat and fibrous tissue content.

The liver performs a wide range of metabolic activities required for homeostasis, nutrition and immune defense. For example, it is important in the removal and breakdown of toxic, or potentially toxic, materials from the blood; the regulation of blood glucose and lipids; the storage of certain vitamins, iron and other micronutrients; the synthesis of proteins and clotting factors; the metabolism of amino acids; and bile production. It is involved in a plethora of other biochemical reactions.

Since the majority of these processes are exothermic, a substantial part of the thermal energy production of the body, especially at rest, is provided by the liver. The liver is populated by phagocytic macrophages, components of the mononuclear phagocyte system capable of removing particulates from the blood stream. It is an important site of haemopoiesis in the fetus.