

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.JournalofSurgicalResearch.com

Iatrogenic injuries of the extrahepatic biliary system



Ghodratollah Maddah, MD,^a Mohammad Taghi Rajabi Mashhadi, MD,^a
 Mehdi Parvizi Mashhadi, MD,^a Mehdi Jabbari Nooghabi, PhD,^{b,c}
 Masoumeh Hassanpour, MSc,^b and Abbas Abdollahi, MD^{b,*}

^aEndoscopic and Minimally Invasive Surgery Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

^bSurgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

^cDepartment of Statistics, Faculty of Mathematical Sciences, Ferdowsi University of Mashhad, Mashhad, Iran

ARTICLE INFO

Article history:

Received 28 May 2015

Received in revised form

10 October 2015

Accepted 20 November 2015

Available online 25 November 2015

Keywords:

Cholecystectomy

Iatrogenic disease

Bile ducts

Biliary stricture

ABSTRACT

Background: Iatrogenic traumatic extrahepatic biliary tract injuries though rarely occur; they can lead to exceedingly morbid complications. The aim of this study was to evaluate the management strategies and outcomes of patients presented with iatrogenic bile duct injuries.

Methods: This is a retrospective study. Over 19 y, 124 patients were managed for iatrogenic biliary injuries at our institution. The data related to the etiology of biliary tract injury, symptoms of injury, laboratory and radiologic studies, injury-to-diagnosis time, type of biliary tract injury, injury management, hospitalization time, and postoperative complications were reviewed.

Results: The main clinical presentations were jaundice or recurrent cholangitis in 64 (51.61%) patients, followed by bile peritonitis in 34 (56.67%) and biliary fistula in 26 (43.33%) patients. Only in 23 (18.54%) cases, the injury was recognized intraoperatively. The most frequent surgical procedure was open cholecystectomy in 81 (65.32%) of 124 patients. The remaining patients were operated on laparoscopically. Good results were achieved in 99 of 101 patients with direct suture repair including hepaticojejunostomy, choledoduodenostomy, and choledochocholedochostomy (98.02% success rate) at the first attempt. Three cases (2.97%) of biliary strictures after direct suture technique and four (3.96%) cases of postoperative mortalities were detected. The mortality rate was mostly affected by male gender, advanced age, and existence of bile peritonitis. Totally, 111 (89.52%) patients are still alive with a mean follow-up time of 78 ± 38 (2–230) mo.

Conclusions: Biliary injuries can be sometimes life-threatening complications. A successful repair may provide patients with a lifelong relief from symptoms, whereas a failed repair may result in recurrent biliary obstruction, reoperation, and even death.

© 2015 Elsevier Inc. All rights reserved.

* Corresponding author. Surgical Oncology Research Center, Imam Reza Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, 9133913716, Mashhad, Iran. Tel.: +98 51 38022677; fax: +98 51 38519868.

E-mail address: abdollahia@mums.ac.ir (A. Abdollahi).

0022-4804/\$ – see front matter © 2015 Elsevier Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.jss.2015.11.032>

Introduction

Major bile duct injury is a life-threatening complication with severe financial implications.¹ Cholecystectomy is a major surgical procedure which should never be assumed lightly.^{2,3} Even an experienced surgeon may cause accidental trauma to the biliary tract.⁴ Bile duct injury is associated with unfavorable long-term effects on health-related quality of life. The outcome of a litigation claim for malpractice can also affect quality of life.⁵ Cholecystectomy is one of the most frequently performed abdominal operations.^{6,7} Failure to identify the anatomy of the triangle of Calot has been revealed to be the commonest cause of biliary tract injury. This can be ascribed to the factors inherent to the laparoscopic approach, inadequate expertise of the surgeon, and local anatomic risk factors.⁸

The harmful effect of bile duct injury on survival can be avoided if surgeons, gastroenterologists, and radiologists work together in a multidisciplinary team.⁹ Open cholecystectomy is a reliable and secure method of gallbladder removal when performed by a trained surgeon.¹⁰

The incidence of bile duct injury during open cholecystectomy varies from 0%–0.4% and is most often reported at 0.1%–0.25%.¹¹ But the rate of injury to the bile duct has increased and has at least doubled because the introduction of laparoscopic cholecystectomy.⁷

Despite an increasing number of surgeons with more experience in laparoscopic cholecystectomy, the incidence of iatrogenic injury to the bile duct continues to be stable; so it can be taken for granted that bile duct strictures and injuries will remain a problem well into the new millennium.¹²

Results of a survey in Vancouver general hospital showed that 57 (50%) of participating general surgeons experienced an injury to the bile duct during their practice.¹³

In recent years, we noticed a dramatic increase in the incidence of bile duct stricture and injuries due to introduction of a new generation of practicing surgeons and partly from the introduction of laparoscopic cholecystectomy.

We present our experience with a series of patients who had iatrogenic biliary tract injury after cholecystectomy to evaluate the management strategies and outcomes of the patients.

Materials and methods

This retrospective study was approved by the ethics committee of Mashhad University of Medical Sciences. Over 19 y from December 1994 to January 2014, 124 patients (30 [24.19%] male and 94 [75.81%] female with the mean age of 47.18 ± 13.99 y [aged 22–80 y]) were managed for iatrogenic biliary injuries at two teaching hospitals of Ghaem and Omid, affiliated to Mashhad University of Medical Sciences. Patient with minor bile leakage from the gallbladder bed was excluded. Major bile duct injuries included lateral lesions, complete transection, and late strictures of the extrahepatic bile ducts.

We used Strasberg classification to describe the location of the extrahepatic bile duct injury in our survey.

The diagnosis of biliary injury was documented by clinical examination combined with the liver function tests studies.

All injuries were detected by primary surgeons, and then, the patients were referred to our institution. Patients' data were collected from the operative reports. The patients were recommended to return for follow-up visits and liver chemistry tests at 1, 3, 6, and 12 mo after discharge, then annually or as needed.

Technical considerations for reconstruction of hepaticojejunostomy

In high bile duct injury, the procedure of lowering the hilar plate is performed. In this maneuver, an incision is made at the base of the quadrate lobe at the precise point in which Glisson capsule reflects to the lesser omentum. By elevation of the left hepatic system from under the surface of the caudate lobe, the exposure of the hilar bile duct will be facilitated.

Bilioenteric anastomosis using the Roux-en-Y jejunal limb is a well-established approach. A Roux-en-Y loop of jejunum (70 cm in length) has to be prepared and brought up in a retrocolic fashion. A precise tension-free of unscarred mucosa is required. Special attention should be paid to the blood supply (back bleeding from the transected end of the upper bile duct) before creation of an anastomosis to prevent subsequent stricture formation and also for a better apposition of mucosa to mucosa anastomosis. We joined the mucosa to the jejunal serosa by 4-0 chromic stitch sutures as a separate stitches as shown in [Figure 1](#).

A single layer end to side anastomosis was made between the divided end of the duct and the jejunum. The anterior row of sutures was initially placed to raise the duct leaving a clear field for placement of the posterior row of sutures with the bites of 1–2 mm. We used 4-0, 5-0, or polyglactin braided suture (Supabon, Supa Medical Devices, Tehran, Iran) as a material for reconstruction of the bile duct.

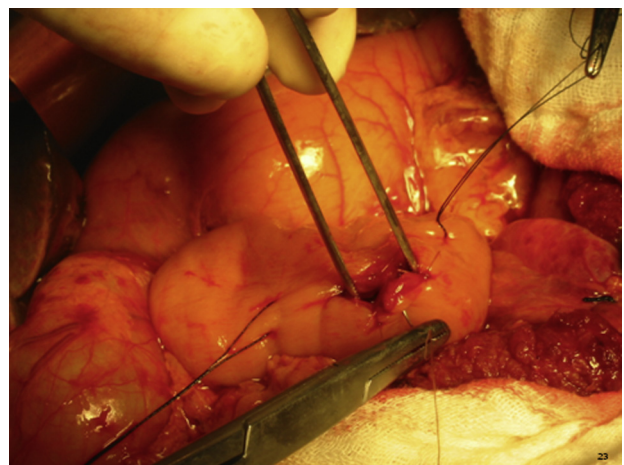


Fig. 1 – Suturing of mucosa to serosa of the jejunal stoma preparing for anastomosis. (Color version of figure is available online.)

Download English Version:

<https://daneshyari.com/en/article/5734093>

Download Persian Version:

<https://daneshyari.com/article/5734093>

[Daneshyari.com](https://daneshyari.com)