International Journal of Medical and Health Research
ISSN: 2454-9142
Received: 22-03-2019; Accepted: 25-04-2019
www.medicalsciencejournal.com
Volume 5; Issue 5; May 2019; Page No. 114-116

Non-surgical management of Post cholecystectomy bile leakage: Experience from tertiary care centre in Bihar

Dr. Sanjay Kumar[1], Dr. Rakesh Kumar Singh[2*], Dr. Manish Mandal[3], Dr. Umakant prasad[4]

[1] Associate Professor, Department of Surgical Gastroenterology, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna, Bihar, India

[2] Assistant Professor, Department of Surgical Gastroenterology, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna, Bihar, India

[3] Professor and Head, Department of Surgical Gastroenterology, Indira Gandhi Institute of Medical sciences, Sheikhpura, Patna, Bihar, India

[4] Associate Professor, Department of Radiology, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna, Bihar, India

[*] Corresponding Author: Rakesh Kumar Singh

Abstract
Biliary like age is the most common morbidity after cholecystectomy. Cholecystectomy is the most commonly surgical Procedure in India because cholelithiasis is a very common problem in India and hence an effective management for this is very essential. Open cholecystectomy and laparoscopic cholecystectomy are two modalities of treatment offered to patients suffering from symptomatic gall stones. Major bile duct injury following cholecystectomy can be devastating to the patient and needs prompt diagnosis and timely surgical intervention. But in maximum cases, as in this study, bile leak occurs mostly from minor bile duct injury, duct of luschka, GB bed or accessory bile duct and needs only expectant conservative management, leads to disappearance of the leak without any residual effect.

Keywords: Biliary leakage, cholecystectomy, laparoscopic cholecystectomy, etc.

Introduction

Cholecystectomy is the surgical removal of the gallbladder. Cholecystectomy is a common treatment of symptomatic gallstones and other gallbladder conditions. In 2011, cholecystectomy was the 8th most common operating room procedure performed in hospitals in the United States. Cholecystectomy can be performed either laparoscopic ally or via an open surgical technique. Complications of cholecystectomy include bile duct injury, wound infection, bleeding, retained gallstones, abscess formation and stenosis (narrowing) of the bile duct [1].

A serious complication of cholecystectomy is biliary injury, or damage to the bile ducts. Laparoscopic cholecystectomy has a higher risk of bile duct injury than the open approach, with injury to bile ducts occurring in 0.3% to 0.5% of laparoscopic cases and 0.1% to 0.2% of open cases. In laparoscopic cholecystectomy, approximately 25-30% of biliary injuries are identified during the operation; the rest become apparent in the early post-operative period [3].

Damage to the bile ducts is very serious because it causes leakage of bile into the abdomen. Signs and symptoms of a bile leak include abdominal pain, tenderness, fever and signs of sepsis several days following surgery, or through laboratory studies as rising total bilirubin and alkaline phosphatase. Complications from a bile leak can follow a person for years and can lead to death. Bile leak should always be considered in any patient who is not recovering as expected after cholecystectomy. Most bile injuries require repair by a surgeon with special training in biliary reconstruction. If biliary injuries are properly treated and repaired, more than 90% of patients can have a long abdominal -term successful recovery [4].

Laparoscopic cholecystectomy is treatment of choice for symptomatic Gall stone disease. Open cholecystectomy is preferred over laparoscopic cholecystectomy in cardiac patients as Carbon dioxide insufflations in such patients can lead to cardiac arrhythmias. The initial cost for setup of laparoscopic surgery is high and the time taken to gain expertise over this procedure is also long as compared to open procedures. Taking into consideration the advantages and drawbacks of both open cholecystectomy and laparoscopic cholecystectomy further studies are needed to highlight the superiority of one over the other.

Hence from the above findings the present study was planned to share the experience of non-surgical management of tertiary care centre for diagnosis and treatment of biliary leakages after cholecystectomy.

Methodology

The present study was planned in the Department of Surgical Gastroenterology, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna. This was a retrospective analysis of prospectively collected data. From January 2012 to December 2018, a total of 60 patients with post-operative bile leak were studied which included the patients came to our opd, referred in-patient department (IPD), operated in our department or other surgical units of our hospital, including 44 females and 16 males, treated non surgically. The mean age of the patients was 45 years, with a range from 20-70 years.

The original operations performed in these patients were simlpe open cholecystectomy in 22 cases, laparoscopic cholecystectomy in 35 cases and open cholecystectomy with T tube drainage in 3 cases. Most patients were presented with sudden or gradual abdominal pain, mild to moderate fever. Eight patients had high grade fever with hypotension, three had nausea and vomiting. Almost half of the patients had bilious outflow in original drain, 3 had bile leak from fistulous tract after T – tube removal, 5 patients had bile leakage from drian site after original drain removal, 5 patients had bile leakage from skin incision site.

The diagnoses were made by surgical history, clinical examinations and investigations like – ultrasonography, MRCP, ERCP and drainage tubogram. The site of leakage was cystic duct stump, gall bladder fossa, minor bile duct injury, lateral injury of bile duct and disrupted fistulous tract of T tube.

When patients presented the symptoms of bile leakage or biliary peritonitis then following measures are taken

- Put the patients in right lateral decubitus postion and semi reclining position.
- Correct fluid and eletrolyte imbalance.
- Start appropriate antibiotics.
- Provide nutritional support.
- If nausea and vomiting then put Ryle's tube.

After stabilizing the patients specific non-surgical methods were chosen according to volume and site of bile leakage. Keep patent the original drain by flushing with antibiotics and saline, insertion of new drain through fistulous tract, ultrasonographic guided percutaneous catheter drainage, ERCP (endoscopic sphincterotomy / endoscopc biliary stenting), PTCD/ PTBD.

All the patients were informed consents. The aim and the objective of the present study were conveyed to them. Approval of the institutional ethical committee was taken prior to conduct of this study.

Following was the inclusion and exclusion criteria for the present study.

Inclusion Criteria

1. All patients undergone cholecystectomy for cholelithiasis
2. Cholecystectomy along with choledochotomy

Exclusion Criteria

1. Cholecystectomy in Whipple's operation
2. Cholecystectomy in choledochal cyst excision
3. Hepatectom
4. High output > 500ml / day

Results & Discussion

The data from the 60 patients undergone the cholecystectomy were collected and presented below.

Carl Langenbuch, the pioneer of open cholecystectomy had very famously stated that "gall bladder should be removed not because it contains stones, but because it forms them" [9]. The purpose of both open cholecystectomy and laparoscopic cholecystectomy is to provide relief to the patient by safely removing the diseased gall bladder. The indications for surgery are same for both the procedure. Hence, the choice of operation depends on the patients' preference, cost of hospital stay, lesser incidence of post-operative complication and surgeons' expertise. More number of patients and surgeons are now inclined to LC as operation of choice for cholelithiasis because of better cosmetic results, reduced main and early mobilisation [10-11].

Table 1: Type of cholecystectomy and Cases of Major bile duct injury

Type of procedure	No of cases	Major bile duct injury
Open cholecystectomy	22	06
Laparoscopic cholecystectomy	35	08
Cholecystectomy with choledochotomy	03	00
Total	60	14

Table 2: Table showing site of bile duct injury

Site	No of cases
GB Bed, Duct of Luschka, minor accessory duct	34
Cystic Duct	6
Common Hepatic Duct	10
Common Bile Duct	6
Aberrant hepatic duct	4
Total	60

Table 3: Table showing mode of conservative treatment of biliary leak

Management	No of cases
Keep original drain patent	18
Re insert new drain With original fistulous tract	04
USG guided PCD	10
ERCP stenting	10
PTBD	02
Total	44

Table 4: Table showing results of surgical management

Results of surgical management	No. of cases
Successful conservative T/t	44
Hepatico jejunostomy	15
Mortality	01
Total	60

In our study, as the above tables shown, the 44 patients out 60 patients with post cholecystectomy bile leak were all managed by non-surgical treatment. The cure rate of non-surgical treatment was 73.3% (44/60). The 15 patients required Roux en Y Hepatico jejunostomy either due to development of biliary stricture or prolong high out-put external biliary fistula. One patient died due to sepsis.

Laparoscopic cholecystectomy is currently the standard of care for symptomatic gallstones. It has evolved to a daycare procedure over the last 30 years. Similarly, the management of bile leak has changed from conservative to minimally invasive approach. Cystic duct stump and small peripheral right hepatic ducts within the liver bed account for most of

the injuries [12]. Those originating in liver bed often are asymptomatic [13]. When they become symptomatic, they present with abdominal pain, distension, vomiting, and jaundice or bile leakage in a surgical drain.

In our study the occurrence of post-op symptoms was similar irrespective of the type of surgery performed. However, Bodvall reported that the frequency of post-op biliary distress was significantly lower in the patients in whom choledocholithotomy was performed concurrently [14]. Same study also reported that number of gall stones does not influence the outcome of post-op symptoms.

There was no significant difference in the interval between surgery and appearance of symptoms amongst the biliary and non-biliary groups. Majority of the patients became symptomatic within 1-2 months of surgery. Literature also mentions that postcholecystectomy syndrome presents within a few weeks of surgery while in the other half it first appears months or even years later [15].

Endoscopic interventions replaced surgery as first-line treatment for most of the biliary ducts injuries and biliary leakage following cholecystectomy. All of them are aimed towards decreasing the transpapillary pressure, allowing bile to flow through the path of decreased resistance. As a consequence, biliary leakage closes spontaneously. Recent data strongly suggest that biliary stent placement without biliary sphincterotomy is more efficient and has a lower complication rate than biliary sphincterotomy [16-17]. Since endoscopic treatment is a standard practice for management of postcholecystectomy biliary leakage at our institution, all the patients with suspected biliary leakage were referred to the endoscopy unit.

When biliary-enteric continuity is present, and there is no obstruction to bile flow distal to the origin of the fistula, a prolonged period of conservative treatment is indicated because spontaneous closure of the fistula is usual. Nowadays conservative treatment in the form of external drainage of bile has shown excellent result in the management of bile leak.

However in case of major bile duct injury, operative procedure should be considered. [18-19] Conservative treatment in the form of controlled external biliary fistula was considered in in this study. Out of which maximum of the biliary leak cases resolved spontaneously in a couple of days with controlled external biliary fistula. This is almost similar to the study of Chen XP *et al*. (Non-surgical treatment of bile leakage) who found 82.5% patient recovered after nonsurgical treatment.18

Conclusion

Cholelithiasis is a very common problem in India and hence an effective management for this is very essential. Open cholecystectomy and laparoscopic cholecystectomy are two modalities of treatment offered to patients suffering from symptomatic gall stones. Major bile duct injury following cholecystectomy can be devastating to the patient and needs prompt diagnosis and timely surgical intervention. But in maximum cases, as in this study, bile leak occurs mostly from minor bile duct injury, duct of luschka, GB bed or accessory bile duct and needs only expectant conservative management, leads to disappearance of the leak without any residual effect.

Conflict of interest: None
Funding: None

References

1. Doherty GM, Doherty GM (ed.). CURRENT Diagnosis & Treatment: Surgery (14 ed.). New York, NY: McGraw-Hill Education, 2015.
2. Furtado R, Le Page P, Dunn G, Falk GL. High rate of common bile duct stones and postoperative abscess following percutaneous cholecystostomy. Annals of the Royal College of Surgeons of England. 2016; 98(2):102-6.
3. Gurusamy KS, Rossi M, Davidson BR. Percutaneous cholecystostomy for high-risk surgical patients with acute calculous cholecystitis. The Cochrane Database of Systematic Reviews. 2013; (8):CD007088,
4. Townsend CM, Evers BM, Mattox KL, Beauchamp RD. Sabiston textbook of surgery: the biological basis of modern surgical practice (20th ed.). Philadelphia, PA. ISBN 978-0-323-29987-9, 2016.
5. Doherty GM. Doherty GM (ed.). Current Diagnosis & Treatment: Surgery (14 ed.). New York, NY: McGraw-Hill Education, 2015.
6. Oslen DO. Mini versus Lap. Cholecystectomy. Am J Surg. 1993; 165:440-3.
7. Goco IR, Chambers LG. Dollar and cents: minicholecystectomy and earl discharge. South Med J. 1988; 81:161-3.
8. O'Dwyer PJ, McGregor JR, McDermott EW, Murphy JJ, O'Higgins NJ. Patient recovery following cholecystectomy through a 6 cm or 15 cm transverse subcostal incision: a prospective randomized clinical trial. Postgraduate Medical Journal. BMJ Group. 1992; 68:817-9.
9. Neidich R, Soper N, Edmundowicz S, Chokshi H, Aliperti G. Endoscopic management of bile duct leaks after attempted Minimally invasive management of bile leak after laparoscopic cholecystectomy laparoscopic cholecystectomy. Surg Laparoendosc Endosc. 1996; 5:348-54. Back to cited text no. 13
10. Azurin DJ, Go LS, Maslack M, Kirkland ML. Bile leak following laparoscopic cholecystectomy. J Laparoendosc Surg. 1995; 5:233-6.
11. Bodvall B. Late results following cholecystectomy in 1930 cases and special studies on the postoperative biliary distress. Acta Chir Scand (Suppl). 1964; 29:1.
12. Lawrence. Post-operative syndromes. In: Sleisenger MH, ed. Gastrointestinal disease. 4th Ed. Philadelphia, W. B. Saunders co. 1989; 2:1730-3
13. Mavrogiannis C, Liatsos C, Papanikolaou IS, Karagiannis S, Galanis P, Romanos A. Biliary stenting alone versus biliary stenting plus sphincterotomy for the treatment of post-laparoscopic cholecystectomy biliary leaks: a prospective randomized study. Eur J Gastroenterol Hepatol. 2006; 18:405-409.
14. Pioche M, Ponchon T. Management of bile duct leaks. J Visc Surg. 2013; 150:S33-S38.
15. Strasberg SM, *et al*. Results of a new strategy for reconstruction of biliary injuries having an isolated rightsided component. J Gastrointest Surg. 2001; 5:266-274.
16. Chen XP PS. Causes and treatment of bile leakage. Zhongguo Shiyong Waike Zazhi. 2001; 21:102-104.
17. Chen XP, *et al*. A ten-year study on non-surgical treatment of postoperative. World J Gastroenterology. 2002; 8:937-942.