http://jmscr.igmpublication.org/home/
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v7i10.56

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Research Paper

Conservative Management of Post-Operative GI Bile Leaks

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Abstract

Background: *Postoperative bile leaks is an infrequent but a serious disorder. Majority of the cases of bile leak present follows hepato-biliary surgeries. Some of them are associated with gastro-intestinal (GI) anastomotic leaks. Traditionally surgery has been the gold standard for GI anastomotic leaks. However, conservative management with regular ultrasounds and medications has reduced the morbidity and mortality of patients. Most of the leaks settle with conservative treatment. Endoscopic procedures with percutaneous drainage has been the gold standard for postoperative bile leaks in hepato-biliary surgeries.*

Methods and Materials: *A Prospective study was conducted from June 2017 to July 2018 on eight patients in the Departmen of General Surgery, King George Hospital ,Andhra Medical College, Visakhapatnam on postoperative bile leaks.*

Results: *The definitive management of post-operative bile leak was done within a range of 60 days. Conservative management was done in GI anastomotic bile leaks in 06 patients. Endoscopic procedures with percutaneous drainage was done in 02 patients of hepato-biliary surgeries. Conservative management was effective in all the patients with GI anastomotic bile leaks in postoperative patients.*

Conclusion: *Conservative management is preferred in post- operative GI anastomotic bile leak. Endoscopic management with percutaneous drainage is preferred in simple bile leaks. Conservative management reduces morbidity and mortality in post op bile leak patients.*

Introduction

The Post-operative bile leak is an infrequent but a serious problem. The most common cause of postoperative bile leak is hepato-biliary surgeries, rarely traumatic. It is most commonly seen inpost cholecystectomy patients. Incidence of bile leaks in laparoscopic cholecystectomy is 0.3 to 0.8 % and open cholecystectomy is 0.1 to 0.2%.

The causes of post-operative bile leak includes injury to bile duct, inappropriate ligation of the cystic duct stump, leakage from liver bed, anastomotic site leaks and duodenal blow-outs following gastrectomy etc., Bile duct stump leaks are precipitated by distal block from residual stone or stricture.

Minor leaks may stop spontaneously while major leak can be a serious problem to the patient. These patients may present with external or internal biliary leak. Internal leaks may result in localised or generalised biliary peritonitis. 11-23% of biliary injuries are diagnosed intra-operatively while the remaining is diagnosed post operatively or after discharge of patient from the hospital.

Surgery is the best method for the treatment, but it is associated with morbidity and mortality. Preoperative management ranges from simple

drainage to bilio-enteric anastomosis. Minimally invasive endoscopic procedure with evidenced results being equal to surgical management became the treatment of choice for post -operative biliary leaks. As compared to surgery, endoscopic treatment may require many sessions and is not effective in all cases. Management of post -operative bile leaks is mostly conservative in our study.

Methods

Eight patients of post- operative leaks in Department of General Surgery, King George hospital during June 2017 to July 2018 were studied. Bile leak was seen within a mean duration of ten days following surgery .Bile leaks were classified into simple and complex bile leaks.

Simple bile leak	Complex bile leak
Liver bed leaks Cystic duct leaks Accessory duct leaks Leakage around T-tube Leak with partial laceration of ductal system	Complete duct transection Retained stones Stricture Anastomotic leak

Patients were managed conservatively with endoscopic procedures and percutaneous drainage. ERCP with percutaneous drainage was done in patients with simple bile leak. Conservative management was done in GI anastomotic leaks, but the duration of hospital stay was prolonged. Patients were discharged after the drain output of bile has been decreased. It is confirmed radiologically by USG and MRCP. Patients general condition also was improved before discharging the patient.

Results

From June 2017 to July 2018 eight patients of post- operative bile leak were included in this study. There were six male and two females. All the cases were post -operative. 2 cases were referred from other hospital, 1 case presented with pain abdomen after discharge from our hospital and rest 5 cases were noticed to have bile leak before discharge from the hospital. The amount of bile leak ranged from 150 to 1000ml per day, and the external leak is through abdominal drain. For the identification of the site of bile leak intra abdominally in 2 cases MRCP was done and the remaining cases were managed conservatively with regular ultrasound as they presented with external bile leaks. Successful management was achieved in seven patients and cannot be achieved in one patient (expired due to septic shock (outside operated case)).

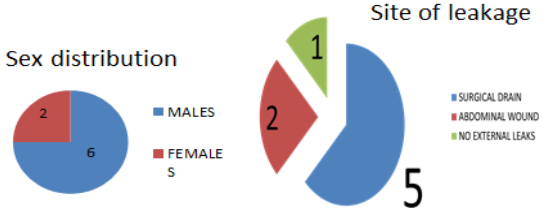
Patient data

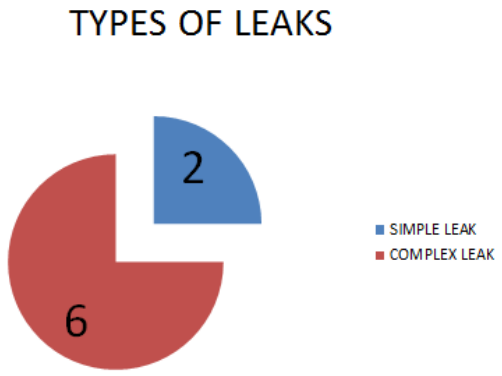
Characteristics	No
Patients (M,F)	8(6,2)
Age range	35 to 50
Previous surgical procedure: Lap. cholecystectomy Hepatic resection Hepatico-jejunostomy Distal Gastrectomy Duodeno-jejunostomy Primary closure of perforation Abdominal abscess	 1 1 1 1 2 1
Site of external leak: Surgical drain Abdominal wound No external leak	 5 2 1
Simple leak Complex leaks	2 6

Endoscopic management (ERCP, T-tube placement) with percutaneous drainage was successful in one patient

Type of bile leak	PTC and ERCP No(%)	Conservative No(%)	Total No(%)
Simple bile leak	01(12.5)	01(12.5)	02(25)
Complex bile leak	00(00)	06(75)	06(75)
Total	01(12.5)	07(87.5)	08(100)

The mean time for management of bile leak was 28±15 days for conservative management of post -operative GI bile leaks .





Discussion

The incidence of postoperative bile leaks cannot be assessed accurately as many heal spontaneously. Post-operative bile leaks occurs usually from liver bed or bile duct injury as a result of pressure gradient created by sphincter ofoddi. The commonest cause of postoperative bile leaks was cholecystectomy and the commonest site was the cystic duct stumpleaks. Treatment options available for bile leak include Conservative management, Percutaneous drainage, Endoscopic biliary drainage and Surgical repair. It is important to select the appropriate therapeutic approach. Resorting to surgery as a primary approach for therapy should not be the standard practice. On the other hand strict adherence to conservative management is associated with an obligatory 9% conversion to surgery in advanced stages.

Surgery may be required for two goals

1) Drainage of collection,
2) Definitive treatment.

Two reasons to place a drain as an early essential step is firstly an intra-abdominal collection may predispose to serious septic complications unless promptly drained, secondly final repair should not be attempted at this early stage, since the affected bile duct are collapsed, friable and are usually embedded within a severe local inflammatory reaction.

As a definitive therapy surgery is indicated when

1) There is no bilio –enteric continuity,
2) Failure of non surgical methods with bilio-enteric continuity,
3) Surgery is the primary line of treatment for an associated pathology.

Earlier bile leaks were treated by surgical repair, and is associated with high morbidity (22%-37%) and mortality (03%-18%). Also percutaneous trans-hepatic biliary drainage carries a high morbidity rate owing to haemorrhage and bile leaks related to liver puncture. Endoscopic therapy became the standard method for definitive treatment of postoperative bile leaks, in the form of naso-biliary drainage, sphincterotomy or stent insertion. The principle of endoscopic technique is abolition or reduction of pressure gradient and bile diversion away from site of injury, resulting in closure of fistula.

Endoscopic treatment has replaced surgery in all simple bile leaks. In cases of complex bile leaks endoscopic treatment was less effective in comparison with surgical treatment (44.2% - 55.8%). Although endoscopic treatment proved effective in bile leaks associated with retained stones or stricture it has many disadvantages) generally it is less effective in complex bile leaks than in cases of simple bile leaks 2) the duration may be very long 3) stent complications and 4) long term follow up which may be required. Surgery is the preferable treatment for cases with bile leaks associated with retained stone or stricture only in surgically suitable patients.

Conservative management with regular ultrasound and electrolyte correction was preferable in patients presented with GI anastomotic leaks. Broad spectrum antibiotics should be preferred to prevent sepsis in these patients. Long hospital stay is drawback for conservative management of post-operative bile leaks.

Many recent studies concluded that there was no role for endoscopic treatment in patients with transection of CBD or anastomotic leaks. In our study conservative management was successful in GI anastomotic leaks. However endoscopy was a mandatory integral tool in initial management either alone or with percutaneous techniques.

Conclusion

Conservative management is preferred in bile leaks following post-operative GI anastomotic leaks. Endoscopic treatment has replaced surgery in all simple postoperative bile leaks. Conservative management reduces mortality and morbidity in patients.

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