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Up-Date Management of Extra-Hepatic Biliary System Injuries

Essay

Submitted for partial fulfillment of Master Degree of

General Surgery

By

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Mohamed Mohamed Ahmed Abozied

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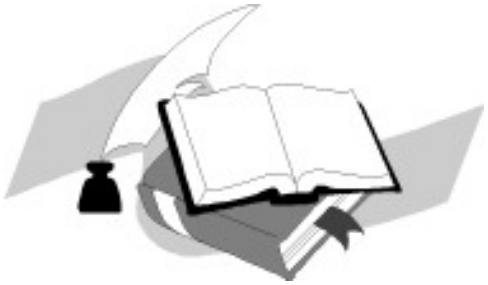


Introduction

Bile duct injury continues to be an important clinical problem, resulting in serious morbidity, and occasional mortality to patients, The ease of management, operative risk, and outcome of bile duct injuries vary considerably, and are highly dependent on the type of injury and its location. **(Wan-Yee Lau et al., 2007).**

Suspect extra-hepatic biliary tract trauma when the patient presents with a mechanism of injury consistent with the application of significant blunt force to the thoraco abdominal region, Mechanisms of injury can range from motor vehicle, crashes to short falls, Penetrating trauma to the extra-hepatic biliary tract may be obvious based on the external trajectory of the object, especially in stab wounds, In gunshot wounds to the abdomen, which may have a varied intra-abdominal trajectory, the path of injury may be less obvious.

A patient's history of laparoscopic cholecystectomy is an important consideration in defining an extra-hepatic biliary tract injury caused by a prior procedure. (**Lau WY et al., 2011**).

Complete transection of the second part of the duodenum occurred as an isolated internal injury involved in a motor vehicle accident, Her terminal bile duct lay in the free edge of the proximal transected duodenum, may also leading to avulsion of ampulla of vater. (**J. P. Harris et al., 2008).**

A perforation or an avulsion of the gallbladder from a blunt thoraco-abdominal trauma is extremely rare, penetrating abdominal trauma is a more frequent cause of gallbladder injuries. (**Jeffrey L. Ponsky et al., 2011).**

Although the exact incidence of nonoperative biliary trauma is unknown, isolated biliary injury without trauma to associated intra-abdominal structures is extremely rare, Fewer than 40 cases of common bile duct avulsion following blunt trauma are reported, however it is much more rare than penetrating trauma and more difficult to diagnose. (**Jeffrey L. Ponsky et al., 2011).**

Bile duct injuries may be classified by mechanism and type of injury, location of injury, effect on biliary continuity, and timing of identification Each of these factors plays a significant role in determining the appropriate operative repair and management, mortality and morbidity rate. (**John C et al., 2007).**

Mortality depends directly on the delay in the diagnosis and the treatment, as well as on the severity of the injury, Patients with lesions that are promptly discovered and appropriately treated within hours of injury have a mortality rate of less than 10%, while patients with extensive injuries and delayed treatment may have a mortality rate nearing 40%.

Most of the morbidity associated with the extra-hepatic biliary tract is related to bile leak and vascular injuries within the hepatoduodenal ligament (hepatic artery/portal vein). (**Jeffrey L. Ponsky et al., 2011).**

Management depends on the timing of recognition of injury and may be considered as intraoperative, early and delayed. **(S. Connor et al., 2005).**

Once a bile duct injury has been diagnosed, a well-informed decision must be made regarding the timing and type of repair, First and foremost, this requires full appreciation for the injury and the resultant anatomy Multiple studies have shown that early repair of biliary injury may be performed but repair in the setting of overt inflammation is unlikely to be successful. (**Mercado MA., 2006).**

Nonoperative interventions may be able to provide durable and definitive biliary drainage, and multiple groups report high success rates with either percutaneous or endoscopic techniques. (**Kassab C. et al., 2006).**

When an injury is diagnosed at the time of initial surgery, the decision of whether or not to attempt repair, be it primary or bilioenteric, depends primarily on the experience and comfort level of the surgeon with what is a technically challenging procedure in a nondilated biliary system**. (Thompson BNJ et al., 2006).**

Patients undergoing biliary reconstruction should be managed as with any upper gastrointestinal reconstruction. **. (John C. et al., 2008).**

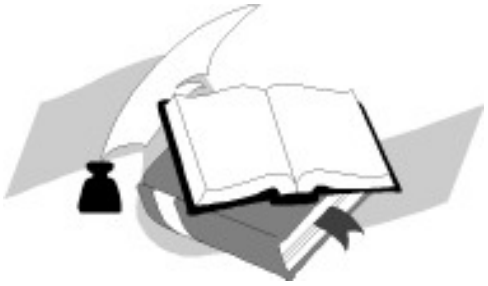
Aim of the work

The aim of this work is to review the recent literature about the current management practices of bile duct injury.

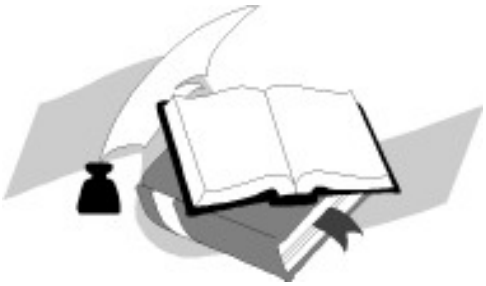
Review of literature; it will include the following topics:

1. Anatomy of extra hepatic biliary system.
2. Classification according to location, mechanism,clinical presentation.
3. Diagnostic work up.
4. Preoperative management.
5. Types of repair.
6. Post operative care.
7. Summery and conclusion.

Review of Literature



Chapter I
Anatomy



Anatomy

The biliary tract is the conduit between the liver and the duodenum and is designed to store and transport bile, under control of neuronal and hormonal regulation. Bile is formed in the hepatocytes and steadily secreted into canaliculi, which transport it to the larger extra-hepatic ducts. The sphincter of Oddi regulates the flow of bile into the duodenum or to the cystic duct and the gallbladder. When stimulated, the gallbladder contracts steadily, the sphincter relaxes and bile flow into the duodenum increases**.(James Toouli and Mayank Bhandar ., 2006).**

Development of the Bile Duct.

A hepatic diverticulum appears in the ventral wall of the primitive midgut early in the 4th week of intrauterine life in the development of the human embryo, this small diverticulum is the anlage for the development of the liver, extra-hepatic biliary ducts, gallbladder and ventral pancreas. In the 4th week, two buds can be recognized in the hepatic diverticulum The cranial bud becomes the liver and the extra-hepatic biliary tree, The caudal bud develops into superior and inferior buds, From the superior bud, the gallbladder and cystic duct appear and the right and left ventral pancreas develops from the inferior bud. By the 5th week, all elements of the biliary tree are recognizable. (Fig. 1). **(Hisami Ando., 2010).**