# Non-Operative Management of Blunt Hepatic Trauma

*Essay*

Submitted for partial fulfillment of master degree
in General Surgery
By


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بسم الله الرحمن الرحيم

ربى أوزعنى أن أشكر نعمتك التى أنعمت على وعلى والدى و أن أعمل صالحا ترضاة و أدخلني برحمتك في عبادك الصالحين

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# List of abbreviations

**AAST**.....American Association for the Surgery of Trauma

**AIS**..... .....Abbreviated Injury Scale

**APACHE** .....Acute Physiology and Chronic Health Evaluation

**APS**..... Acute Physiology Score

**AE** ..... .....Angioembolization

**Br** ..... .....Branch

**CES**..... Contrast-Enhanced Sonography

**CT** ..... .....Computed Tomography

**DCL** ..... .....Damage Control Laparotomy

**DCS** ..... .....Damage Control Surgery

**DL**.....Diagnostic Laparoscopy

**DPL** ..... .....Diagnostic Peritoneal Lavage

**ED**..... .....Emergency Department

**ERCP**.....Endoscopic Retrograde Cholaniopancreatography

**FAST**.....Focused Abdominal Sonography for Trauma

**GB**..... .....Gall Bladder

**GCS**.....Glasgow Coma Scale

**HIDA** .....Hepatobiliary Iminodiacetic

**HU** ..... .....Hounsfield Units

**ICD**.....International Classification of Diseases

**ISS**..... Injury Severity Score

**IVC**.....Inferior Vena Cava

**LHV**..... .....Left Hepatic Vein

**MHV** ..... ....Middle Hepatic Vein

**MRI**.....Magnetic Resonance Imaging

**NISS** .....New Injury Severity Score

**NOMLI**.....Non-operative Management of Liver Injuries

**OIS** ..... ..Organ Injury Scale

**OISC ..... ..**Organ Injury Scaling Committee

**RHV.....** Right Hepatic Vein

**RTS.....** Revised Trauma Score

**RR.....** Respiratory rate

**SATE.....**Selective arteriography and transcatheter embolization

**SBP.....**Systolic Blood Pressure

**SMV .....**Superior Mesenteric Vessels

**SOFA.....**Sequential organ failure assessment

**SIRS.....**Systemic Inflammatory Response Syndrome

**WBC.....**White Blood Cell

# Introduction

Abdominal trauma is a major cause of death. Nearly 40% of deaths from abdominal trauma are due to blunt trauma caused primarily by motor vehicle accidents. In these circumstances, abdominal trauma is often associated with head, chest, and extremity injury. Delay in diagnosis and treatment is a major contributing factor to mortality, which is often due to hemorrhage, sepsis, and multiple organ failure. **(Gastrointestinal Surgery., 2006)**.

Hepatic injuries are one of the most common abdominal injuries following either blunt or penetrating trauma. CT scanning has revolutionized the treatment algorithm for these patients. The majority of patients are successfully treated with nonoperative management, but surgeons should have a clear understanding of the indications for operative intervention. An array of techniques including operative, interventional, and endoscopic, are often required for management of advanced grade hepatic injuries**. (Clay C. Cothren et al., 2008).**

Severe hepatic injuries require surgical intervention due to hemodynamic instability. Low-grade injuries can be managed nonoperatively with excellent results, while patients with hepatic trauma with associated organ injuries require surgery, because they continue to have significantly higher mortality. **(Stavros Gourgiotis, etal., 2007).**

To manage severe liver trauma (American Association for the Surgery of Trauma grade III to grade V), procedures such as packing of the laceration with omentum, hepatectomy or direct control of bleeding vessels within the liver substance by means of the Pringle maneuver, selective hepatic artery ligation, retrohepatic caval repair with total hepatic vascular occlusion, and perihepatic packing were selected and combined based on the specific injury. **(Jing-mou Gao, et al., 2004).**

During the past 2 decades, management of blunt hepatic injuries has changed dramatically. Nonoperative management of hemodynamically stable patients is now the standard of care. Successful nonoperative management of splenic injuries, the high rate of nontherapeutic laparotomies with associated complications in patients with liver injuries, the refinement of computed tomographic (CT) scanning, and more aggressive use

of interventional radiology have all contributed to this dramatic change. **(Kozar, Rosemary A, et al., 2006).**

Although the liver is the abdominal organ most commonly injured after blunt trauma, the majority of injuries are relatively minor. Operative management of these patients often results in a nontherapeutic exploration because the liver usually has stopped bleeding. Operative management of the more severe liver injuries, however, is associated with significant morbidity and mortality. **(Martin A. Croce, et al., 1995).**

# Aim of the work

The aim of the work is to evaluate the non-operative management of blunt hepatic trauma regarding the prognosis and benefits and risks.

# Surgical anatomy of the liver