



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT: ALLIED HEALTH SCIENCES
COURSE NAME: SURGERY

Topic: Liver trauma



CASE SCENARIO



- A 37 year old male presented in a emergency department had a complaints of penetrating trauma how will we manage this patient?



Introduction



DEFINITION

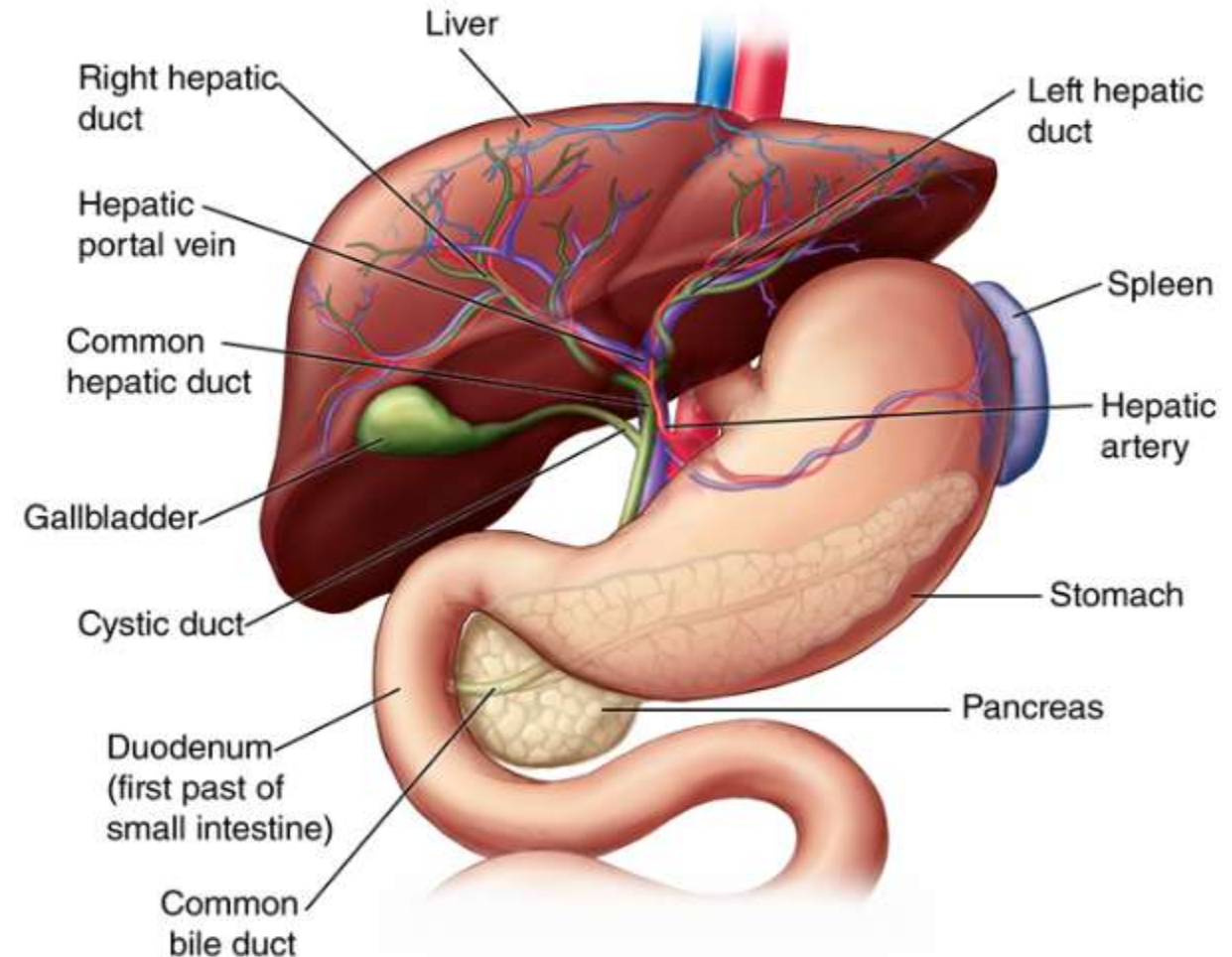
A **liver injury**, also known as **liver laceration**, is some form of trauma sustained to the liver. This can occur through either a blunt force such as a car accident, or a penetrating foreign object such as a knife.

Incidence

Liver injuries constitute 5% of all traumas, making it the most common abdominal injury.

Etiology

- **blunt trauma** from motor vehicle crashes, falls, bicycle crashes, violence
- **penetrating injury** that tears or cuts the liver.





Assessment 1



1. What is the Definition of an Liver trauma?
2. What are the Causes of Liver trauma?
3. In which lobe liver is located?



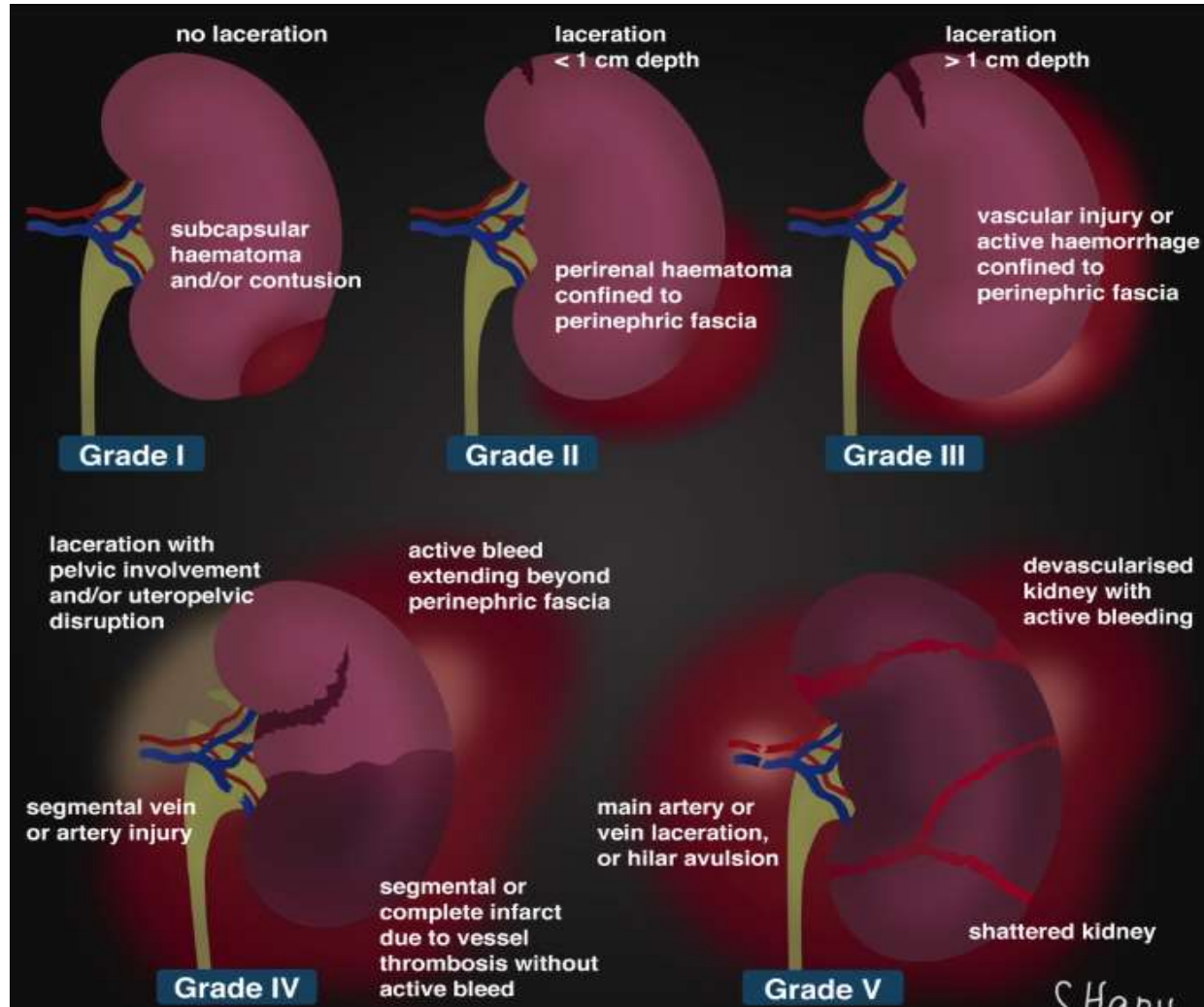
Classification of Liver damage

- Stage I
- Stage II
- Stage III
- Stage IV
- Stage V
- Stage VI

	Extent of damage	Description
I	Hematoma	Subcapsular, non-expansive, < 10% of surface
	Laceration	Non-bleeding, < 1 cm deep
II	Hematoma	Subcapsular, non-expansive, 10 - 50% of surface
	Laceration	1 - 3 cm deep, < 10 cm in size
III	Hematoma	Subcapsular, expansive, > 50% of surface or intraparenchymal > 2 cm
	Laceration	> 3 cm deep
IV	Hematoma	Bleeding intraparenchymal rupture
	Laceration	Involving 25 - 50% of lobe
V	Laceration	Parenchymal, involving more than 50% of lobe
	Vascular	Juxtahepatic veins, main hepatic veins or retrohepatic cava
VI	Vascular	Hepatic avulsion

FIGURE 1 – Surgical and anatomopathological classification of liver damage (AAST)

Grades of liver trauma

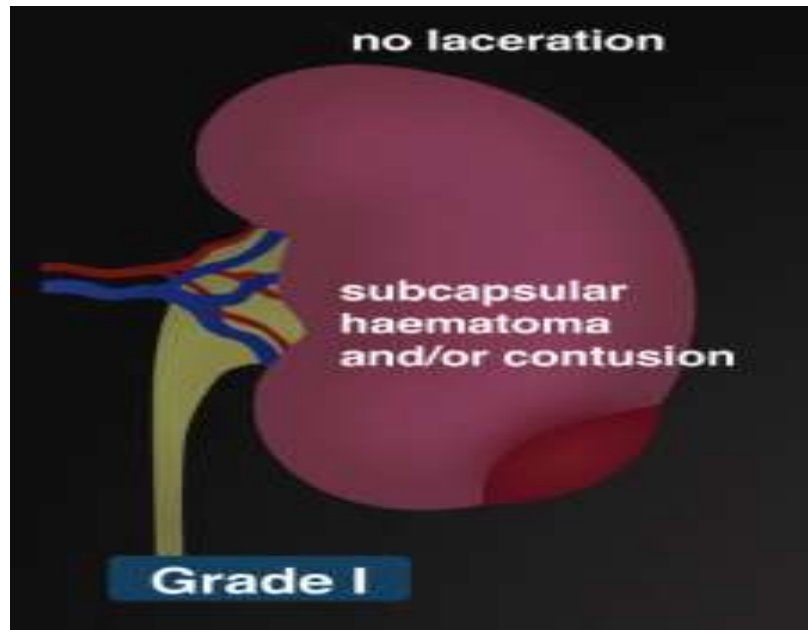




Grade 1



- Subcapsular hematoma and/or parenchymal contusion without laceration

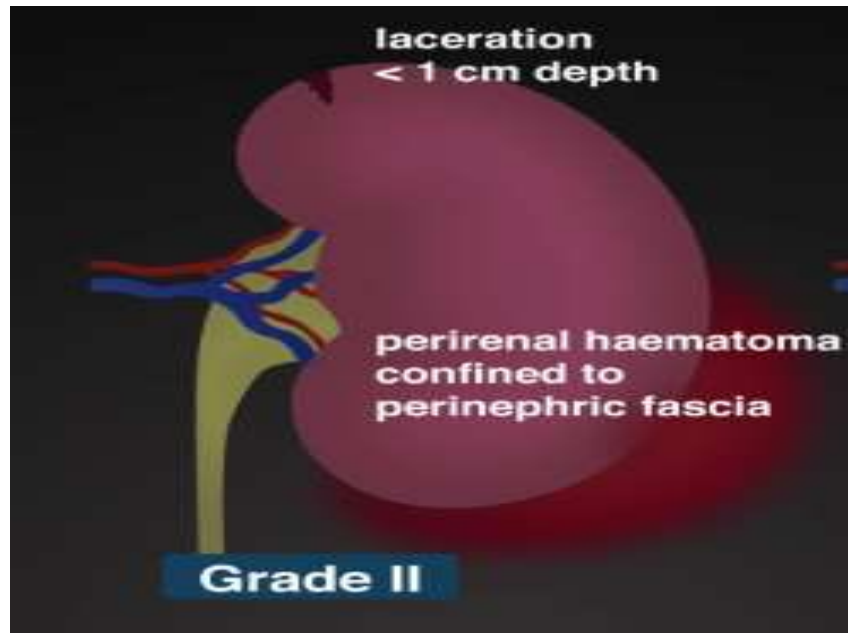




Grade II



- Perirenal hematoma confined to Gerota fascia
Renal parenchymal laceration ≤ 1 cm depth without urinary extravasation

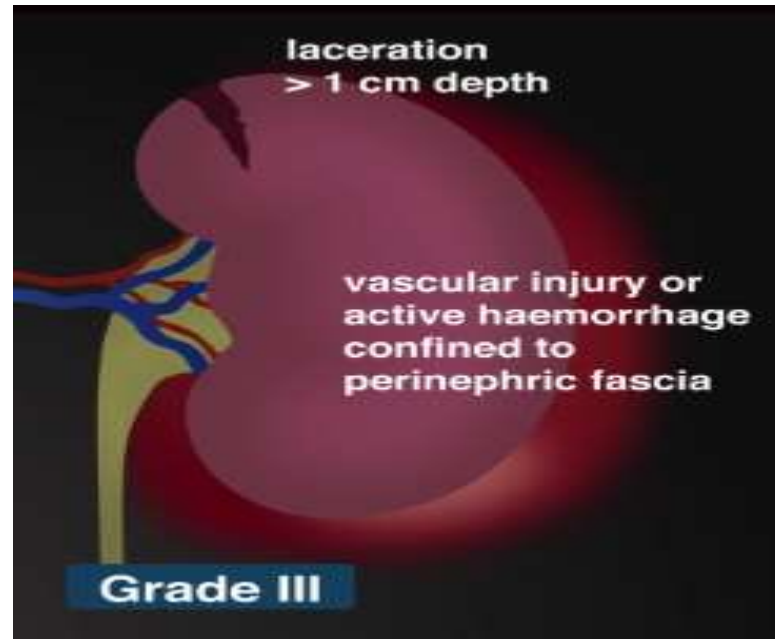




Grade III



- Renal parenchymal laceration >1 cm depth without collecting system rupture or urinary extravasation
Any injury in the presence of a kidney vascular injury or active bleeding contained within Gerota fascia

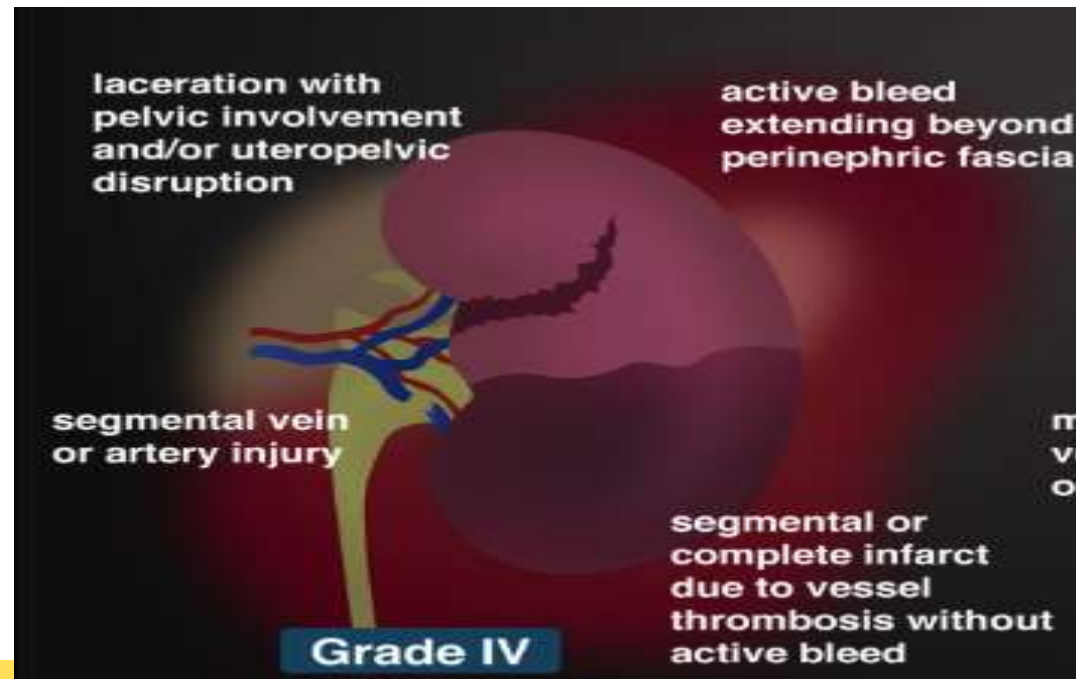




Grade IV



- Parenchymal laceration extending into urinary\ collecting system with urinary extravasation
- Renal pelvis laceration and/or complete ureteropelvic disruption
- Segmental renal vein or artery injury
- Active bleeding beyond Gerota fascia into the retroperitoneum or peritoneum
- Segmental or complete kidney infarction(s) due to vessel thrombosis without active bleeding

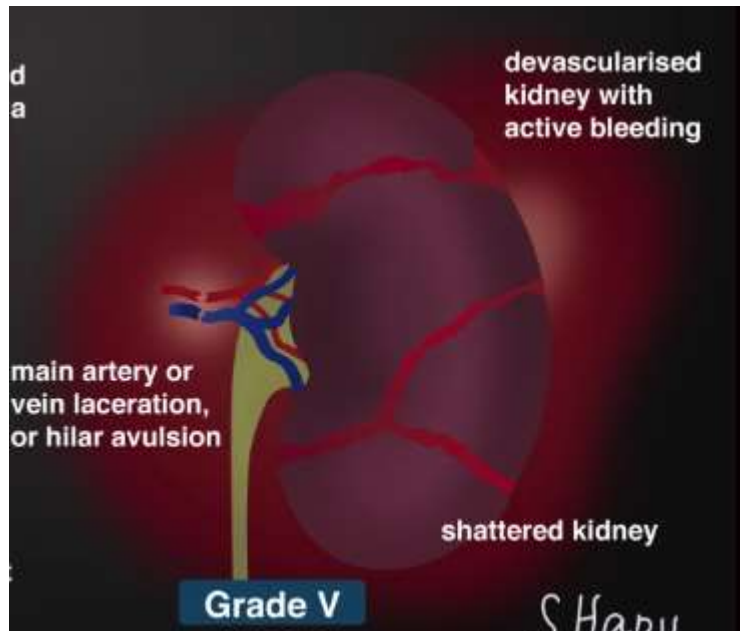




Grade V

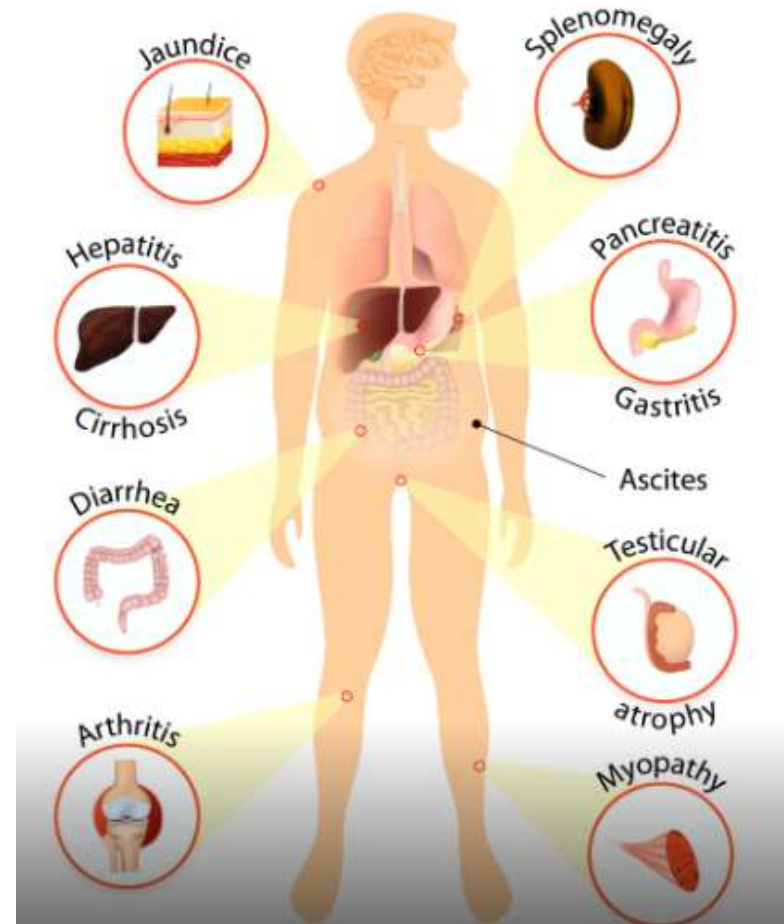


- Main renal artery or vein laceration or avulsion
Devascularized kidney with active bleeding
Shattered kidney with loss of identifiable parenchymal renal anatomy



Clinical Manifestation

- Jaundice
- Hepatitis
- Cirrhosis
- Diarrhea
- Arthritis
- Splenomegaly
- Pancreatitis
- Gastritis
- Ascites
- Testicular atrophy
- Myopathy

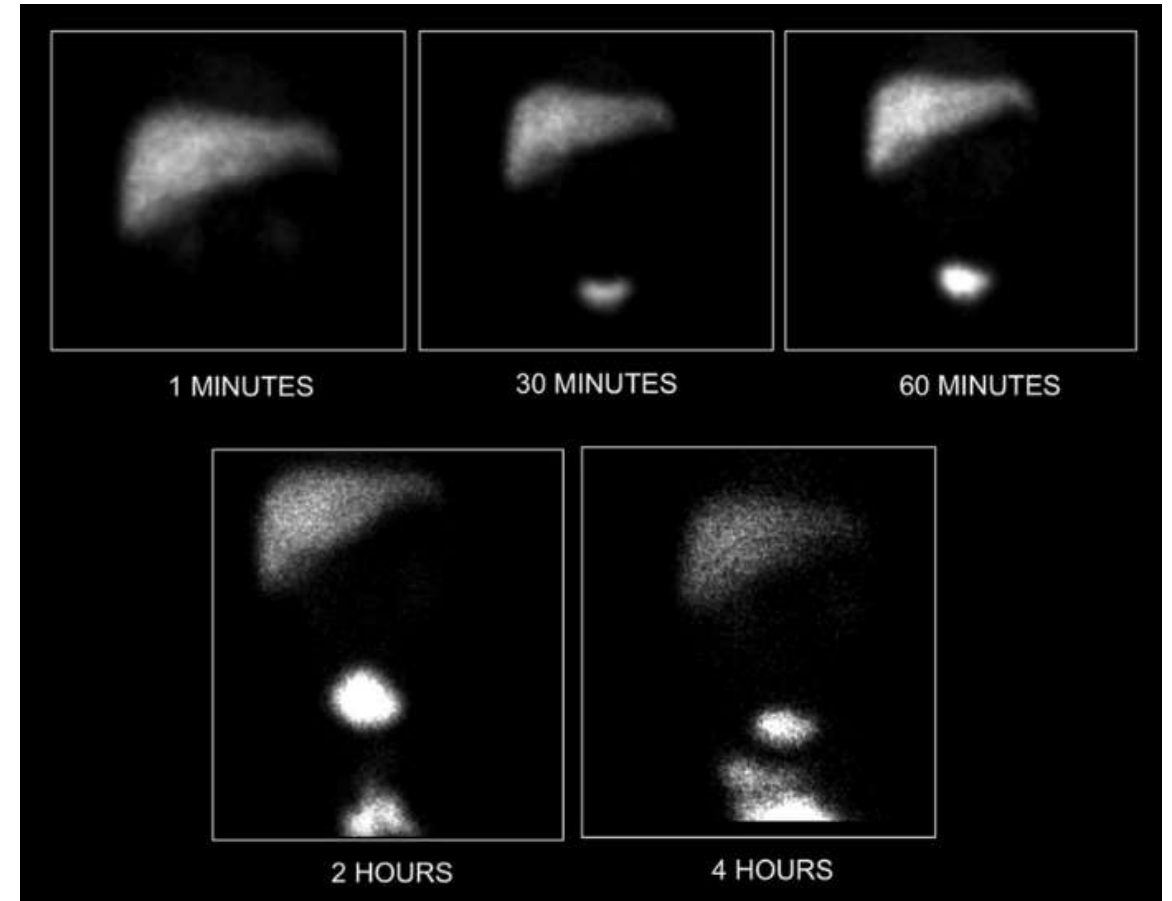




Diagnosis of Liver trauma



- History collection
- Physical collection
- LFT
- Hepatic scintigraphy-Hepatobiliary scintigraphy is a nuclear imaging technique that permits evaluation of the liver and biliary system (Selected images of Hepatobiliary Scintigraphy. 1-month-old female with jaundice. The images shows normal hepatic captation without representation of the biliary tree or intestine 4 hours after injection of the radionuclide, findings suggestive of biliary atresia.)
- CT scan- to measure the grade of the injury





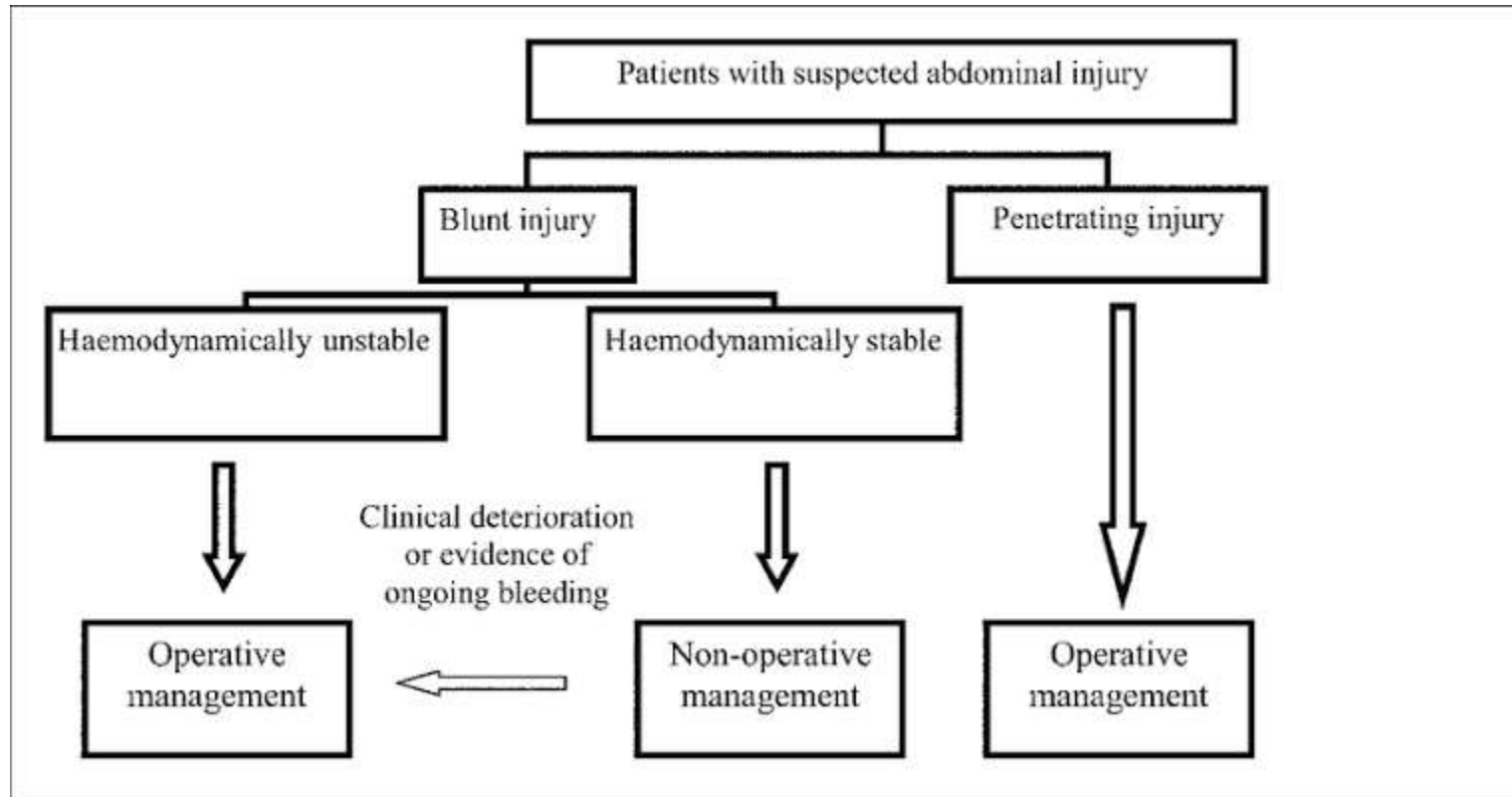
Assessment 2



1. What is Hepatic scintigraphy?
2. How many stages of liver trauma?
3. Write down the clinical manifestation of liver trauma



Management methods

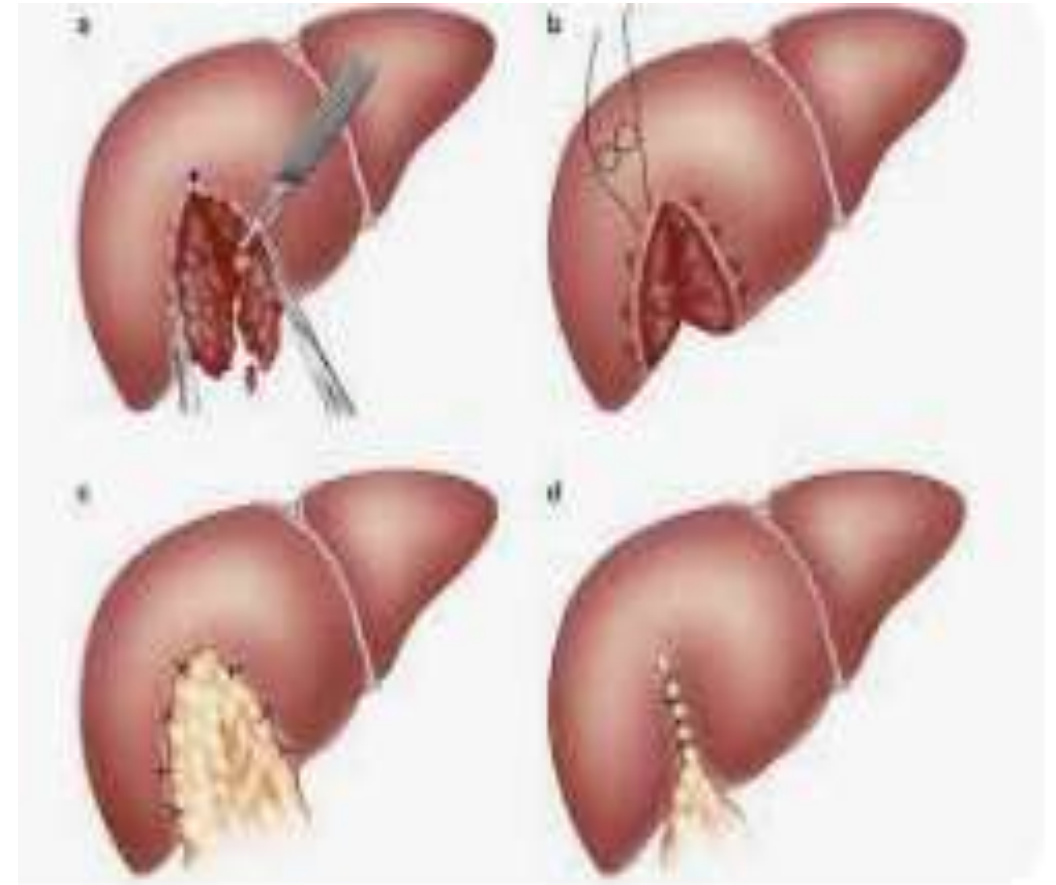




Surgical management of Liver Trauma



- extensive hepatotomy with selective deep vessel ligation
- hepatorrhaphies-suture of a wound or injury to the liver
- selective hepatic artery ligation
- non-anatomic resection
- debridement
- hepatectomy

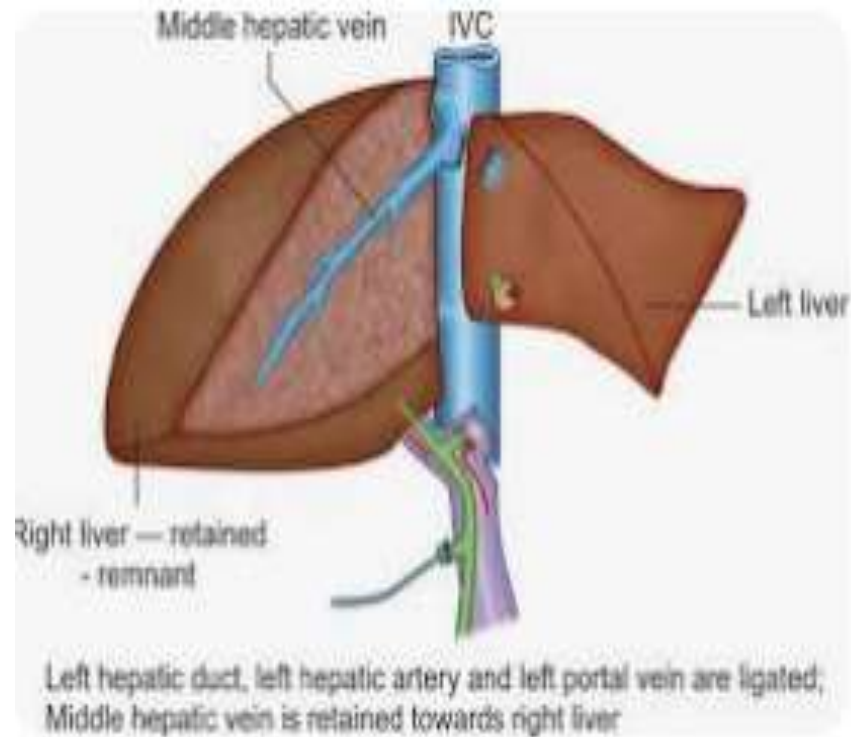




Surgical procedure

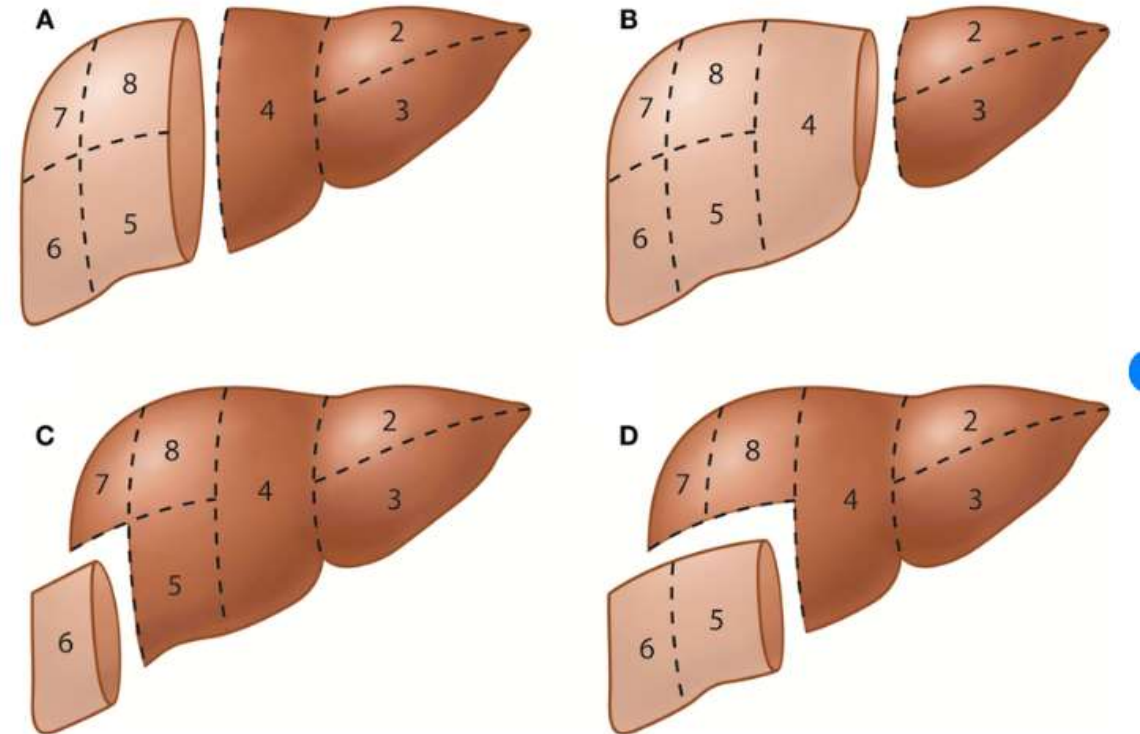


- hepatic artery ligation



Hepatectomy

- Hepatic resection
- (A) Right hepatectomy or right hemihepatectomy (resection of segments 5–8) and left hepatectomy or left hemihepatectomy (resection of segments 2–4). (B) Right trisectionectomy or extended right hepatectomy (resection of segments 4–8) and left lateral sectionectomy or bisegmentectomy 2 and 3 (resection of segments 2 and 3). (C) Segmentectomy 6 (resection of segment 6). (D) Bisegmentectomy 5 and 6 (resection of segments 5 and 6).

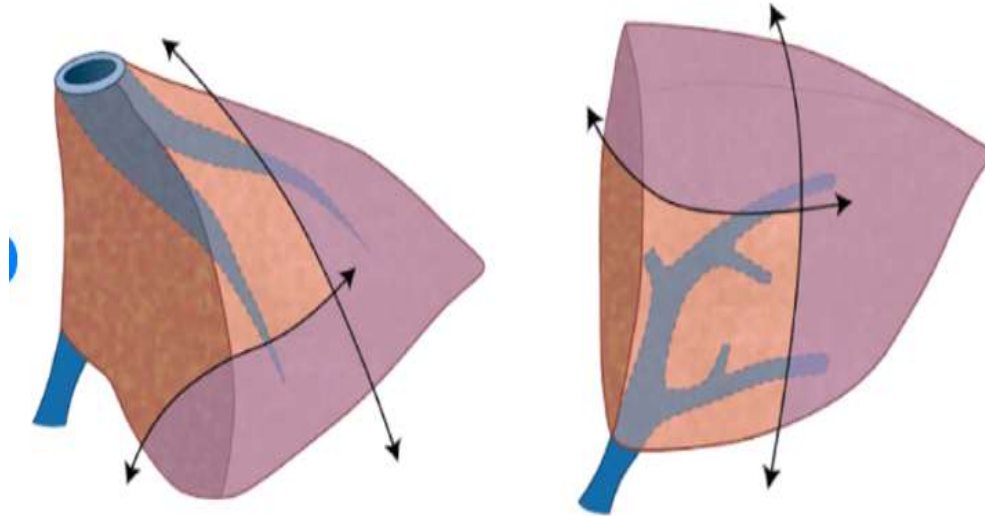




Non anatomic resection of liver



- Non anatomic resection





Reference



- The Text Book of Pathology author Nithin chawla
- For further reference –https://youtu.be/IjVuxaktH_Y?si=j1YR3tJPl9-H5D9E