

**ABDOMINAL
TRAUMA, GIT INJURY,
PARENCHYMATOUS
ORGAN INJURY,
HEMOPERITONEUM**

Abdominal trauma

- Prognosis is depend on extent of injury, early diagnose and treatment!!

Types of injuries

- Currently is abdominal trauma associated with head, limbs, pelvis, spine and chest injury very often.
- Blow injuries
 - gunshot and stab wounds due to criminality
- Blunt injuries
 - contusion, car accidents, polytrauma

Abdominal wall

- **Bruising (contusion)** of the abdominal wall is manifested by delimited petechiases and hematomas. Intraabdominal injury elimination is essential!!
- **Decolement** of the skin and subcutaneous tissue is accompanied by a larger blood sprain that is punctured or incised in case of coagulum, then drainage.
- **Muscle rupture** arises from excessive strain

Blunt injuries

Organ damage is caused by:

- **1. direct blunt violence** acting across the abdominal wall
- **2. indirect deceleration** in the event of falls from a height or in motor vehicle accidents
- Spleen, liver, mesenterium and diaphragm rupture is the most often

Diagnostics

- Search for a sign of hemoperitoneum
- Search for a sign of external violence on the abdominal wall
- Observe arching of the abdominal wall, pain localization, symptoms of peritoneal irritation, percussion - Plénies, auscultation – accelerated bowel movement in bleeding, stoppage of the bowel movement in stomach perforation, p.r. examination
- USG
- CT scan
- Diagnostic laparoscopy/laparotomy

Blow injuries

- Stub wounds
- Laceration caused by blunt objects (handlebars, branches etc.)
- Gunshot wounds
- Splinter wound

Blow abdominal injuries

- Immediate operation
- ICU
- FF checking
- Fluid balance
- Care of surgical wound and drains
- Lab checking
- Monitoring the overall condition

„Damage control“

- **Damage control surgery (DCS)** is a technique of surgery used to care for critically ill patients. This technique places emphasis on preventing the "lethal triad", rather than correcting the anatomy. Damage control surgery is meant to save lives. A multi-disciplinary group of individuals is required: nurses, respiratory therapist, surgical-medicine intensivists, blood bank personnel and others. This procedure is generally indicated when a person sustains a severe injury that impairs the ability to maintain homeostasis due to severe hemorrhage leading to metabolic acidosis, hypothermia, and increased coagulopathy. The approach would provide a limited surgical intervention to control hemorrhage and contamination. This subsequently lets clinicians focus on reversing the physiologic insult prior to completing a definitive repair. While the temptation to perform a definitive operation exists, surgeons should avoid this practice because of the deleterious effects on patients can result them succumbing to the physiologic effects of the injury, despite the anatomical correction.

„Damage control“

- Initial laparotomy – life-saving procedures
- ICU resuscitation
- Definitive reconstruction

Spleen injury

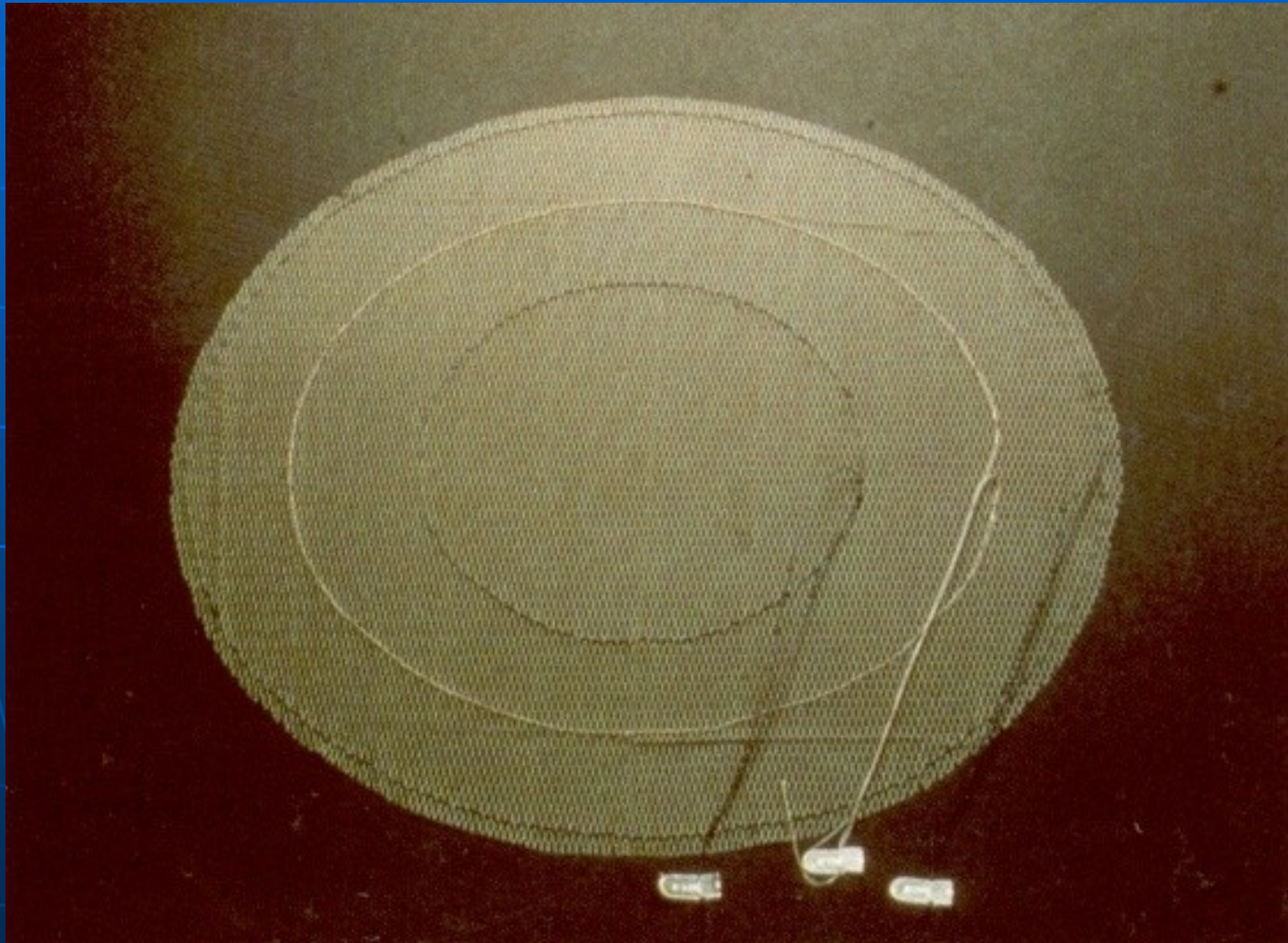
- The most often cause of hemoperitoneum
- Diagnostics
 - Physical exam - inspection, auscultation, percussion, palpation, p.r. examination
 - USG
 - CT scan
- Therapy
 - conservative treatment – superficial rupture
 - Laparotomy – splenectomy, prolen mesh

Spleen injury classification

Splenic CT Injury Grading Scale	
Grade I	Laceration(s) < 1 cm deep Subcapsular hematoma < 1cm diameter
Grade II	Laceration(s) 1-3 cm deep Subcapsular or central hematoma 1-3cm diameter
Grade III	Laceration(s) 3-10 cm deep Subcapsular or central hematoma 3-10 cm diameter
Grade IV	Laceration(s) > 10 cm deep Subcapsular or central hematoma > 10cm diameter
Grade V	Splenic tissue maceration or devascularization

CAVE! Delayed spleen rupture

Vicryl mesh



Spleen injury

- Post-operating
 - ICU monitoring
 - FF checking
 - Care of surgical wound and drains
 - Lab – blood count
 - ATB, miniheparinization
 - Dispensarization in Hematology and infections diseases departement (**OPSI**)

Liver injury

- Associated with polytrauma very often
- Diagnostics
 - Physical exam
 - Circulatory instability
 - Anaemia, pain in right part of the belly
 - hemorrhagic shock
 - USG
 - CT scan

Liver injury

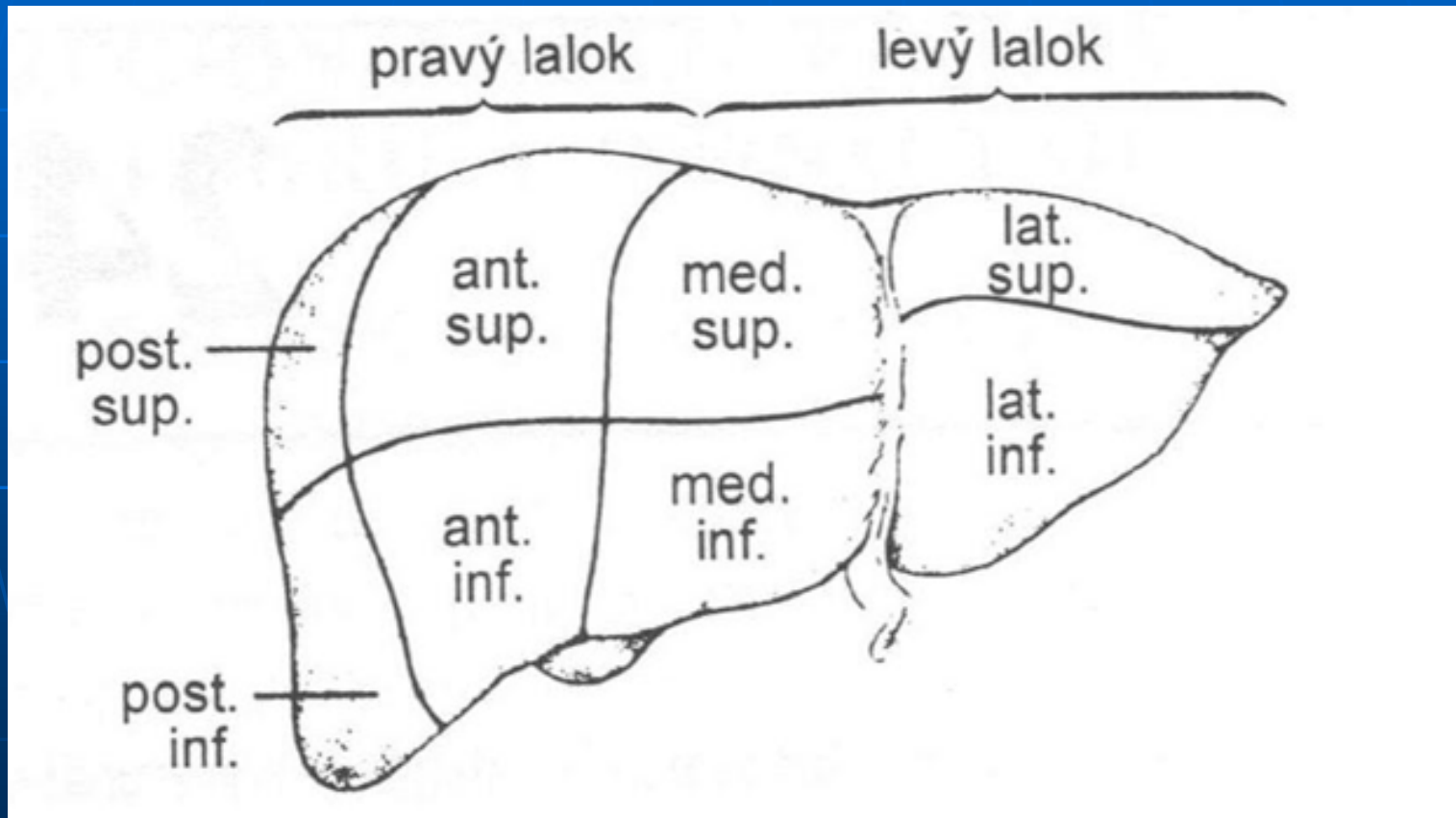
	Extent of damage	Description
I	Hematoma	Subcapsular, non-expansive, < 10% of surface
	Laceration	Non-bleeding, < 1 cm deep
II	Hematoma	Subcapsular, non-expansive, 10 - 50% of surface
	Laceration	1 - 3 cm deep, < 10 cm in size
III	Hematoma	Subcapsular, expansive, > 50% of surface or intraparenchymal > 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)

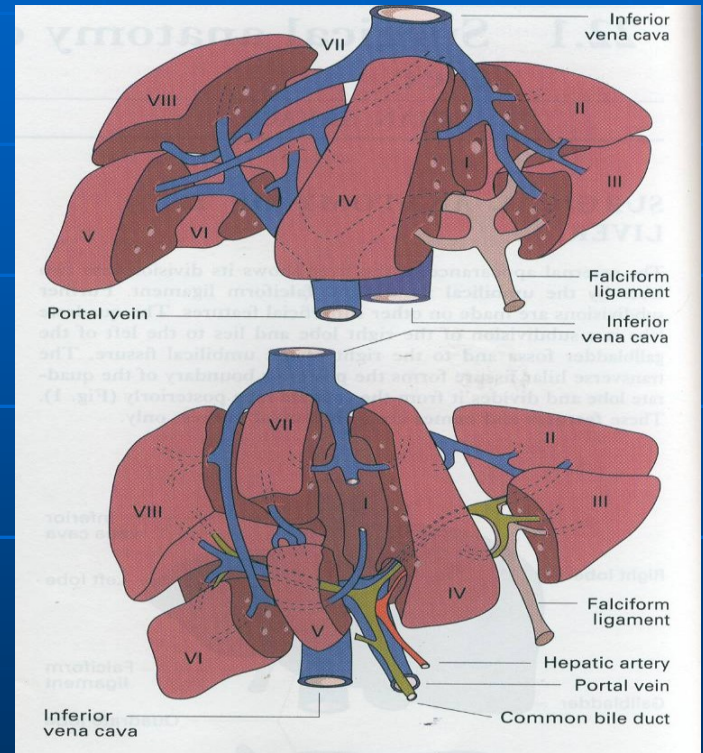
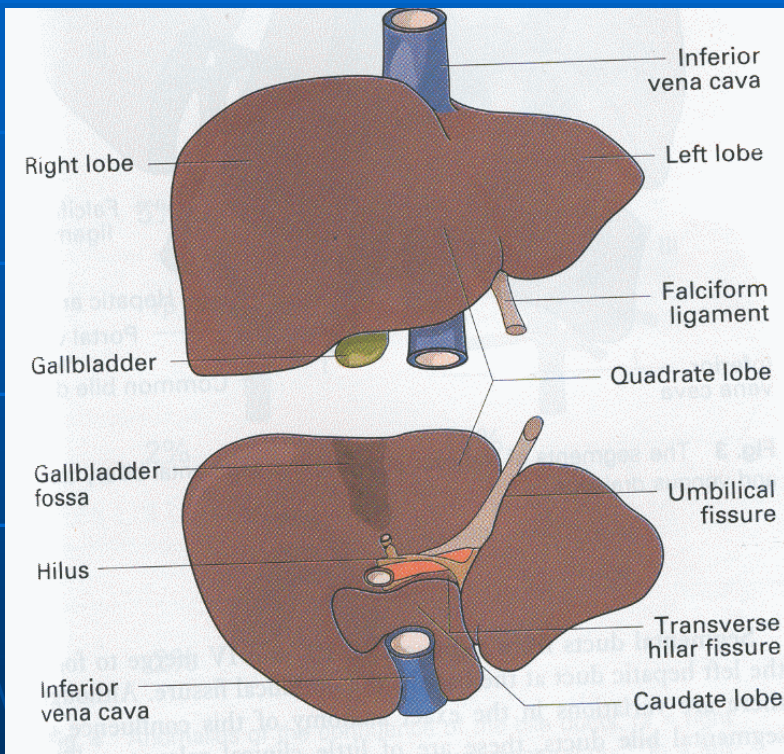
Liver injury

- Therapy
 - conservative treatment
 - angiography with selective thrombotization
 - Urgent surgery
 - suture, ligature, mesh, resection
 - Packing of the liver, laparostoma
 - Second look, parcial resection
- Postoperatively
 - monitoring
 - Surgical wound, drains
 - lab – blood count, liver enzymes
 - diet
 - USG checking, CT scan

Couinaud's segments of the liver



Liver lobes and segments



Other possible injuries

- Stomach injury
 - Blow injury, stab wound
- Bowel injury
 - blow
 - blunt – bruising of the abdominal wall, risk of necrosis
- Duodenal injury
- Pancreatic injury
- Urogenital injury