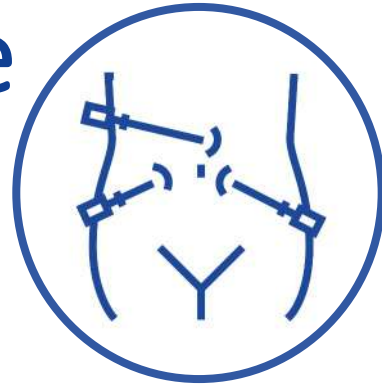
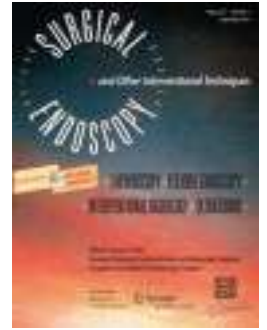


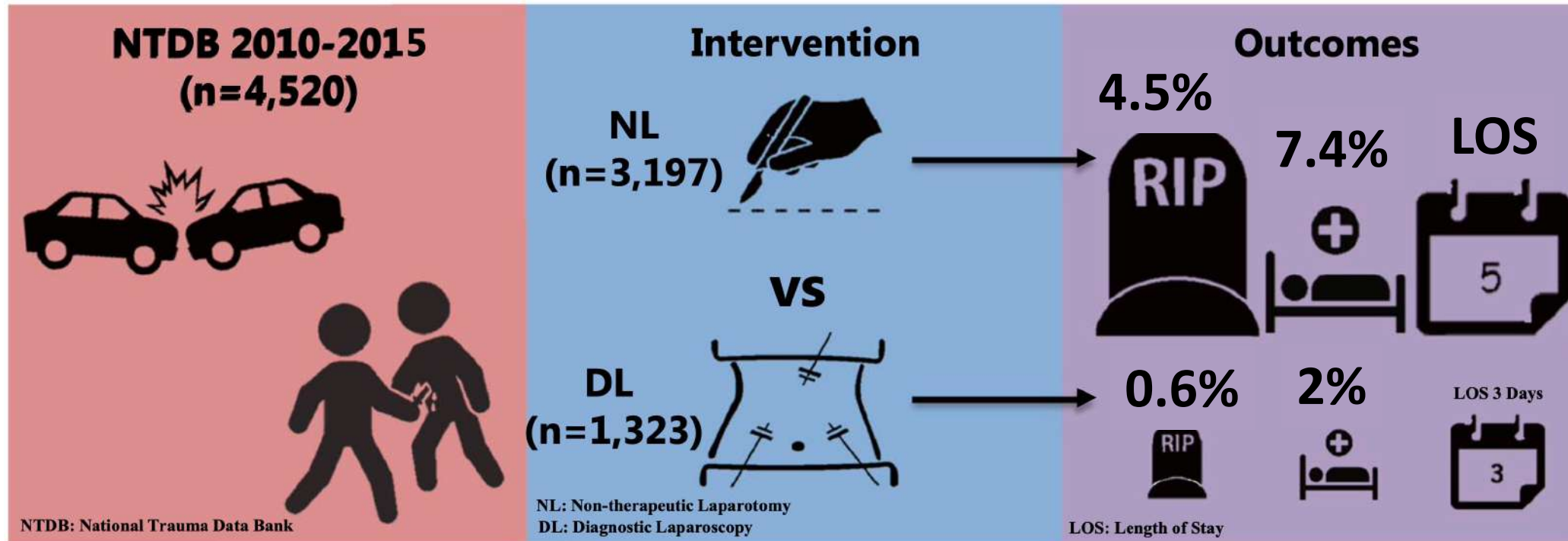
The role of laparoscopy in HPB trauma care



Why ?



Are we doing too many non-therapeutic laparotomies in trauma? An analysis of the National Trauma Data Bank



Why ?

Negative Laparotomy in Abdominal Gunshot Wounds

Potential Impact of Laparoscopy

Unnecessary Laparotomies for Trauma

A Prospective Study of Morbidity

Why (not) ?

Analysis of Laparoscopy in Trauma

Results: As a screening tool, laparoscopy missed 1% of injuries and helped prevent 63% of patients from having a trauma laparotomy. When used as a diagnostic tool, laparoscopy had a 41% to 77% missed injury rate per patient. Overall, laparoscopy carried a 1% procedure-related complication rate. Cost-effectiveness has not been uniformly proved in studies comparing laparoscopy and laparotomy.

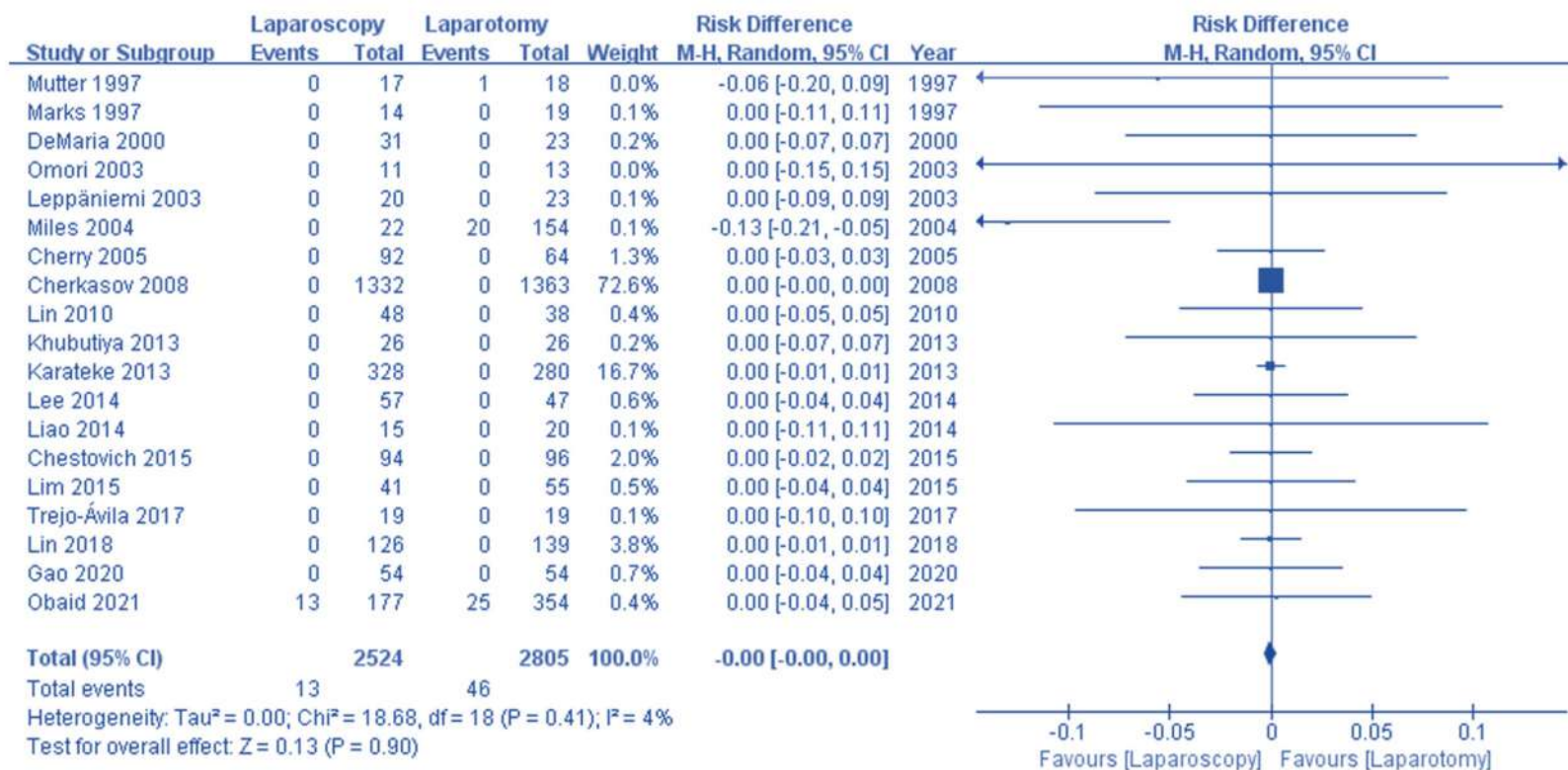


Why not?

Laparoscopy vs. Laparotomy for the Management of Abdominal Trauma: A Systematic Review and Meta-Analysis

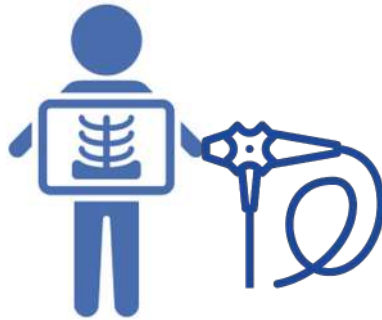
No difference
Missed injuries

Favors laparoscopy
Wound infection
Shorter hospitalization
Pneumonia



When ?

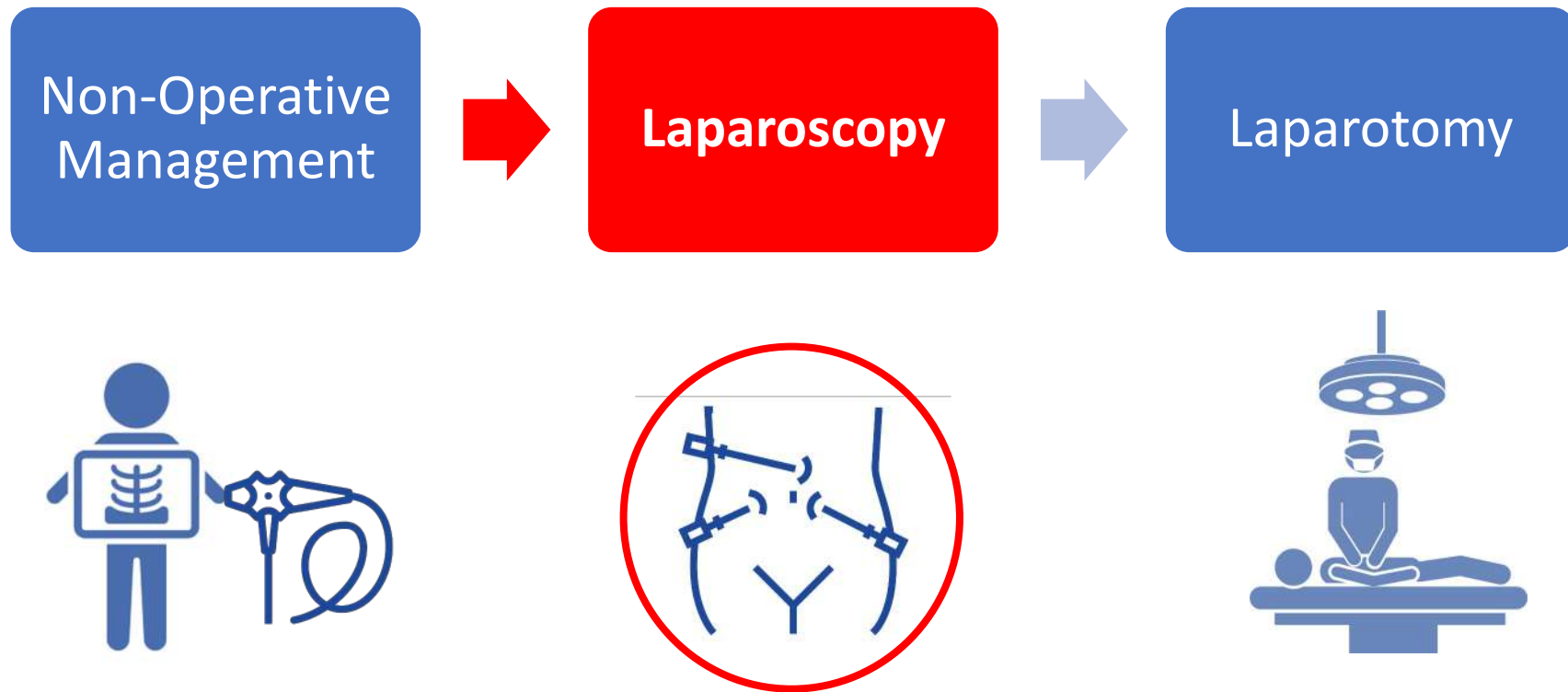
Non-Operative
Management



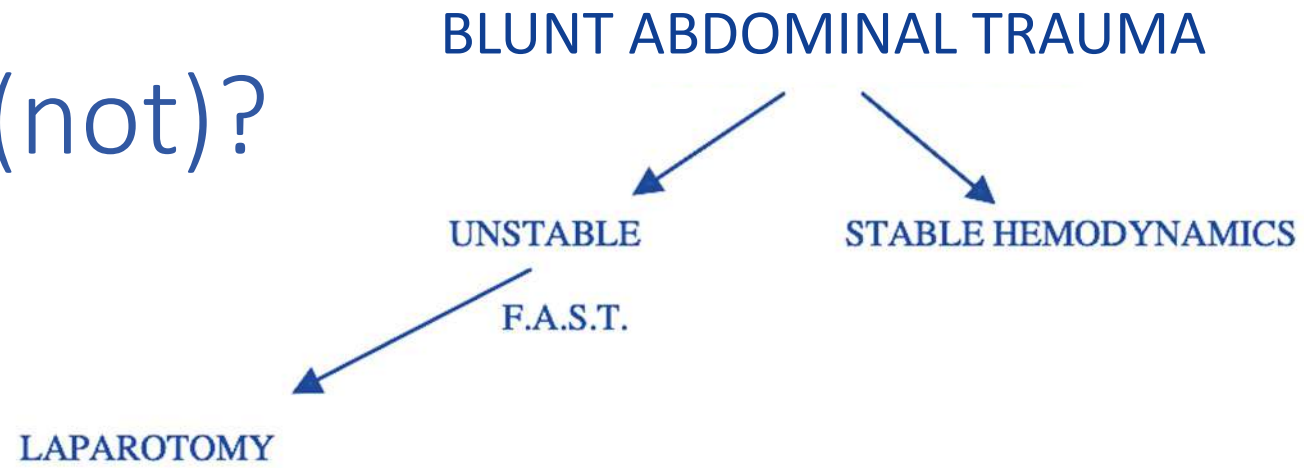
Laparotomy



When ?

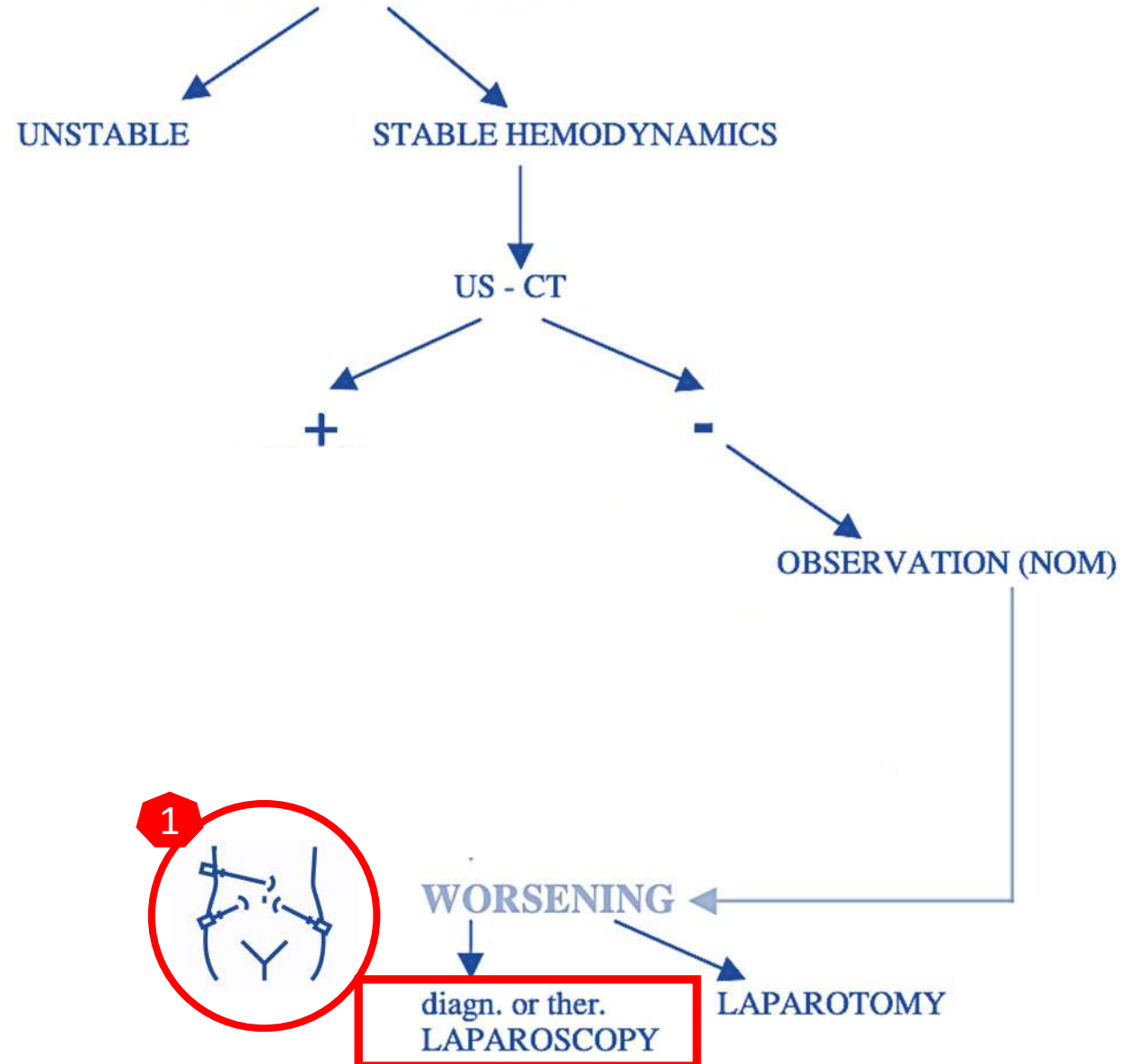


When (not)?



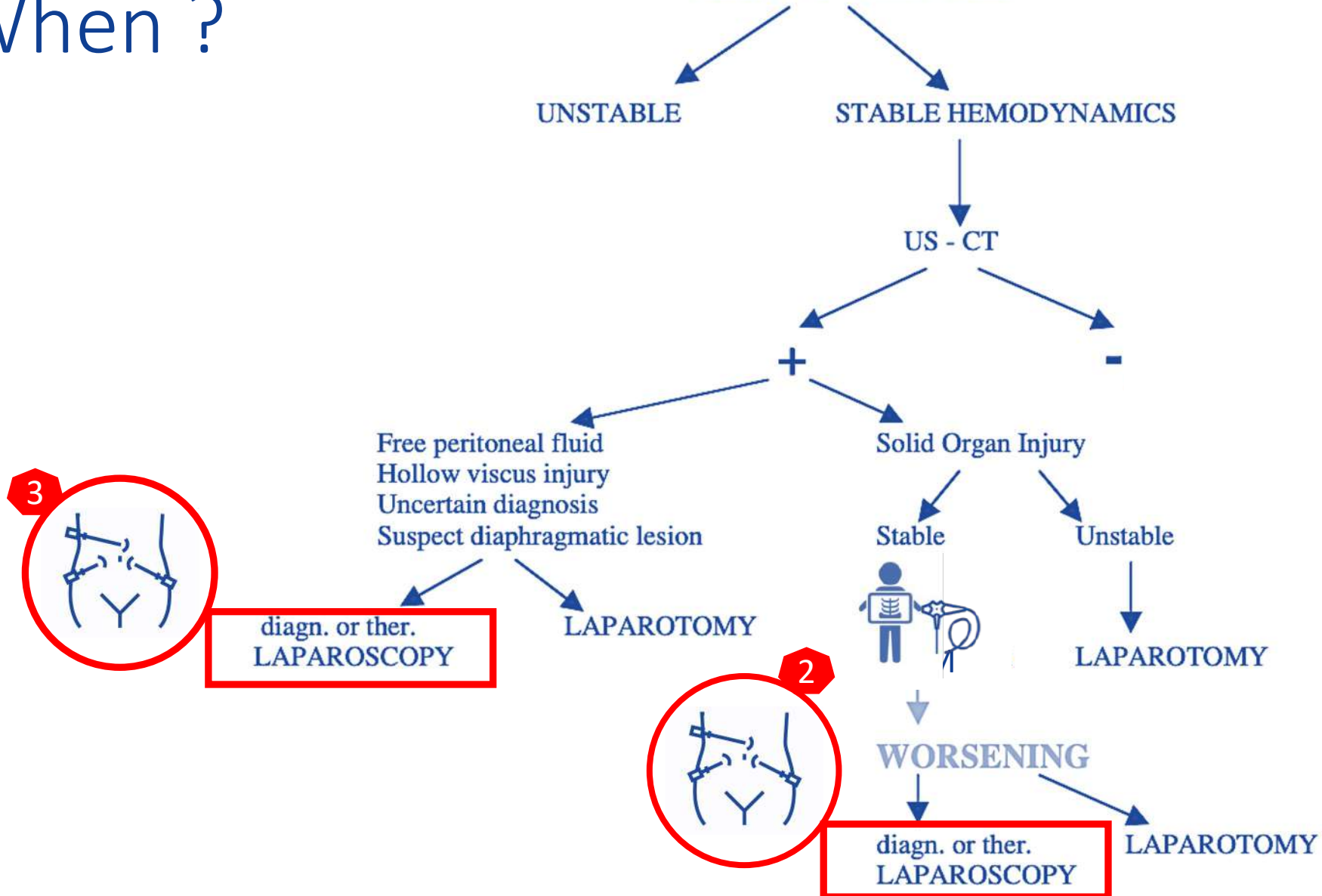
When ?

BLUNT ABDOMINAL TRAUMA



When ?

BLUNT ABDOMINAL TRAUMA



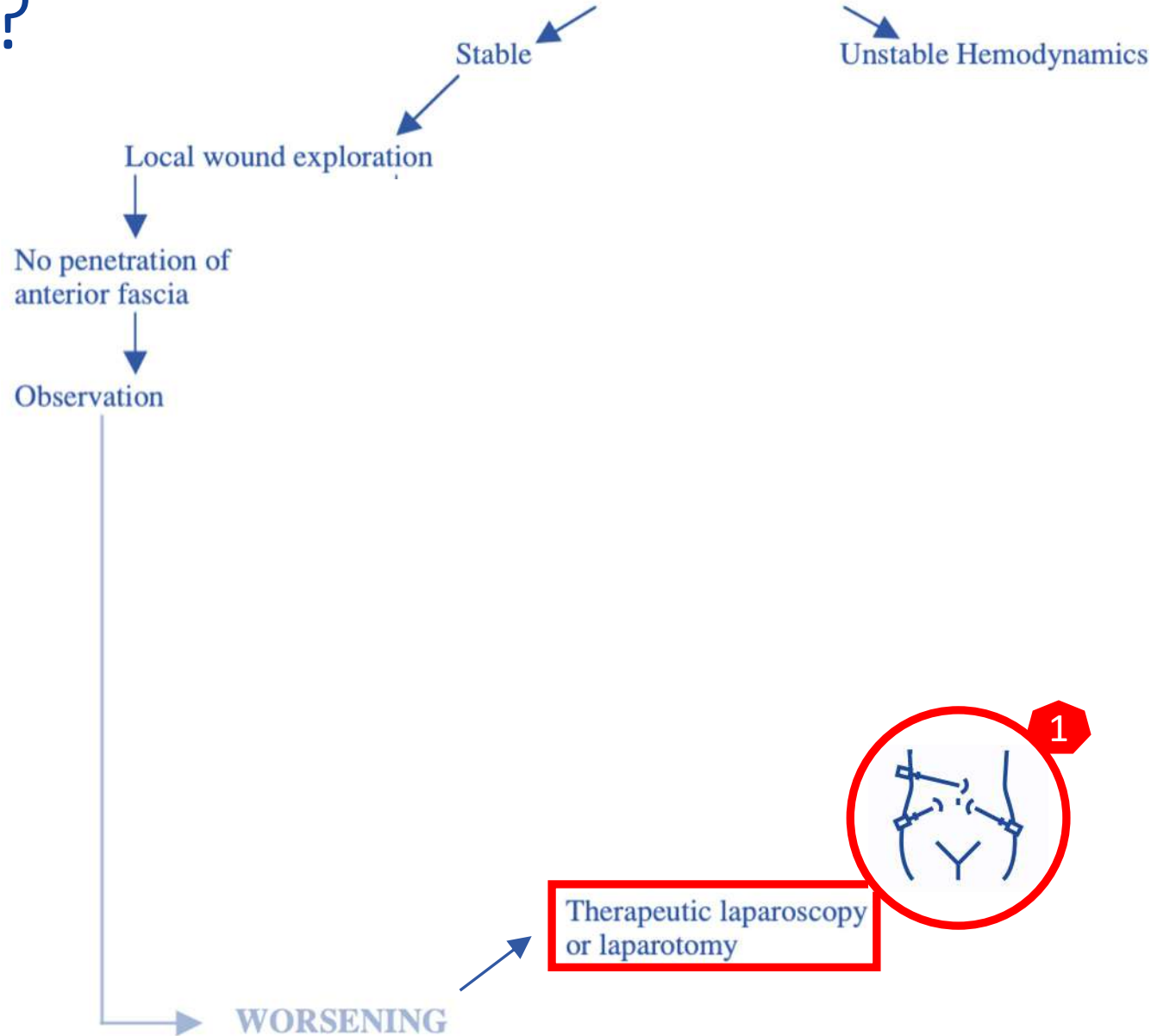
When ?

PENETRATING ABDOMINAL TRAUMA



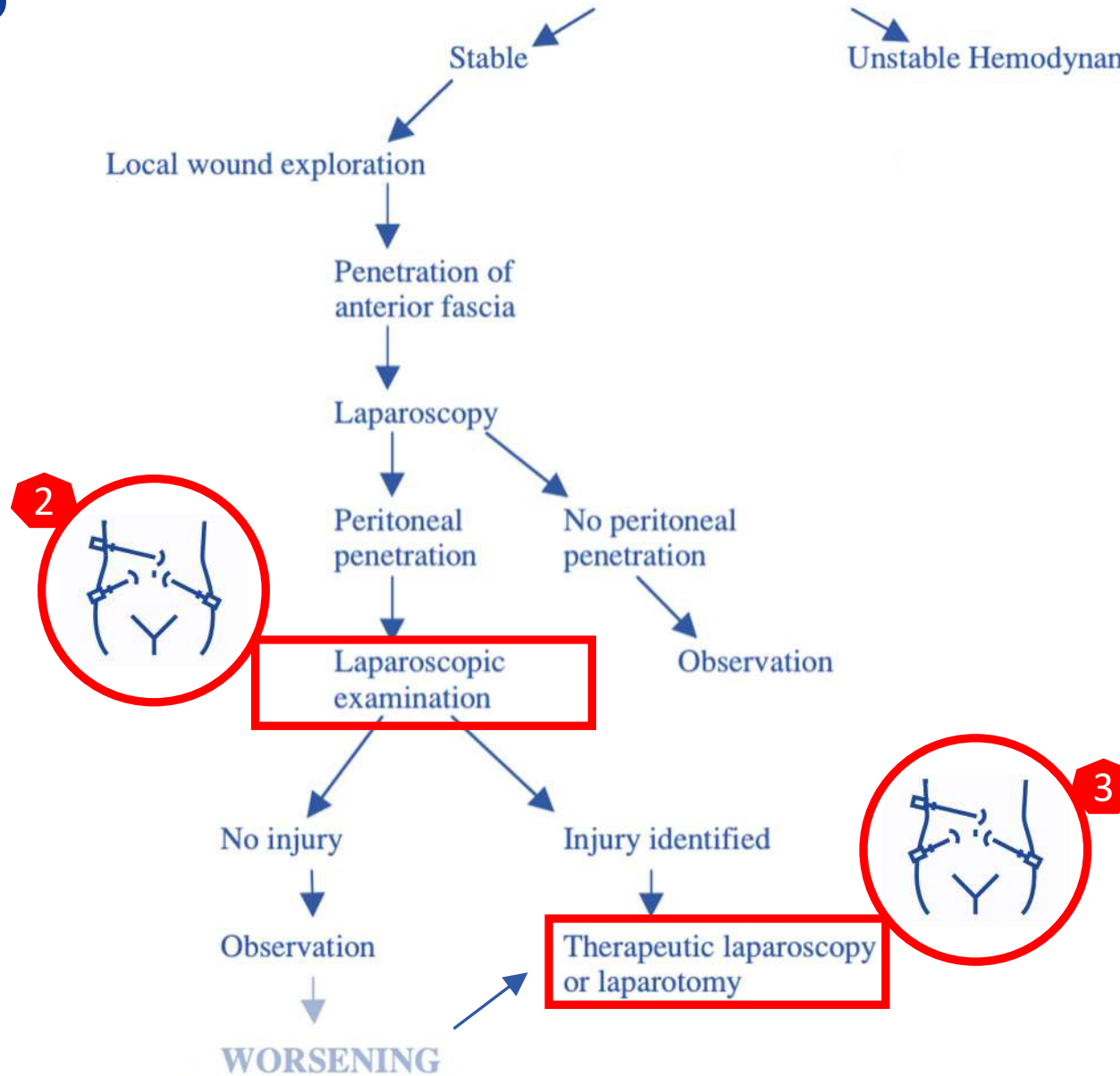
When ?

PENETRATING ABDOMINAL TRAUMA

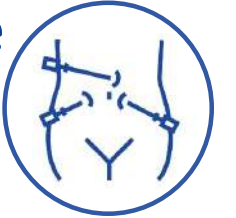


When ?

PENETRATING ABDOMINAL TRAUMA



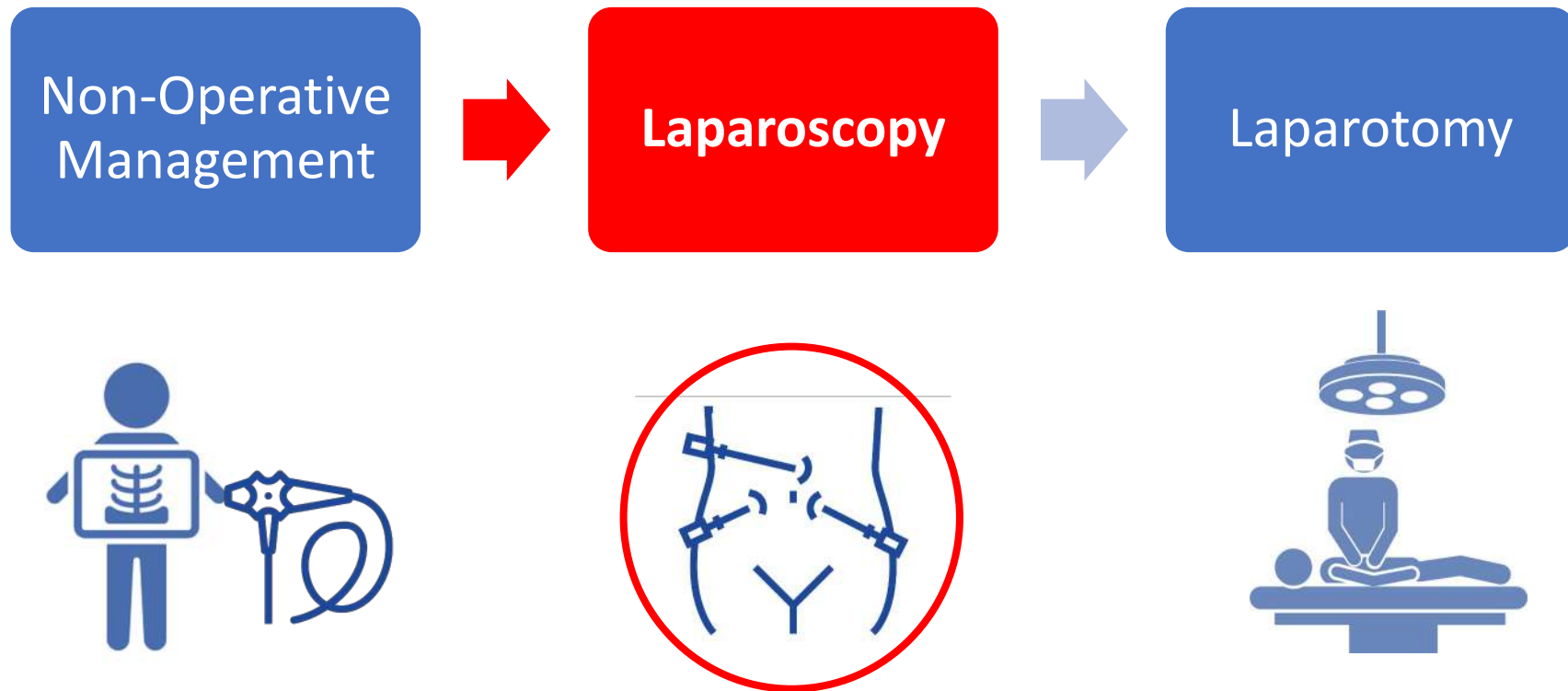
The role of laparoscopy in HPB trauma care



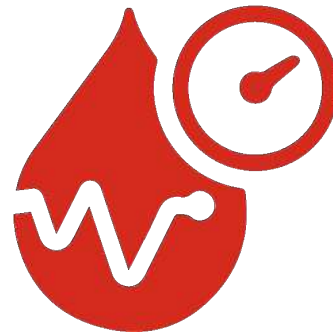
In case of failure of NOM or associated injuries

Reduce negative laparotomy rate

Who ?



Who (not)?



Who (not) ?

Laparoscopy versus laparotomy in management of abdominal trauma

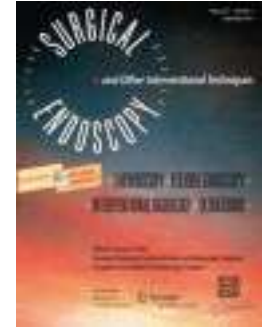
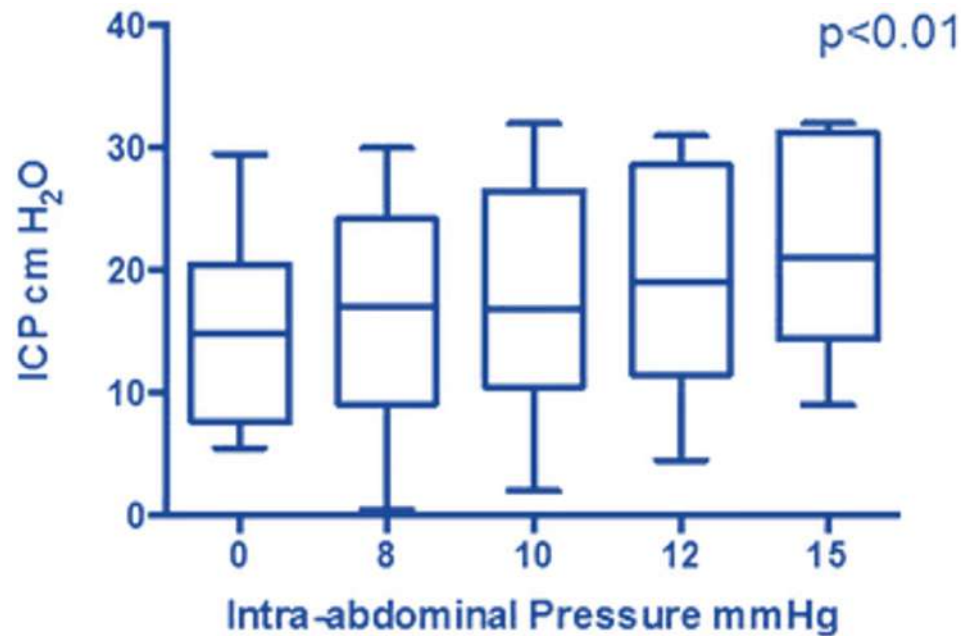
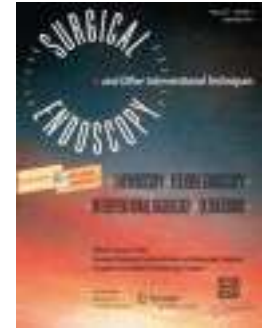


Table 3 Injuries associated with abdominal trauma

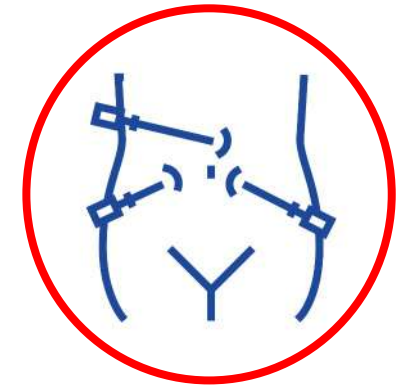
Part of the body involved	Percentage of patients
Head	42.3
Chest	39.8
Musculoskeletal system	29.3
Pelvic bones	21.8
Vertebral column	3.8

Who (not) ?

Abdominal insufflation for laparoscopy increases intracranial and intrathoracic pressure in human subjects



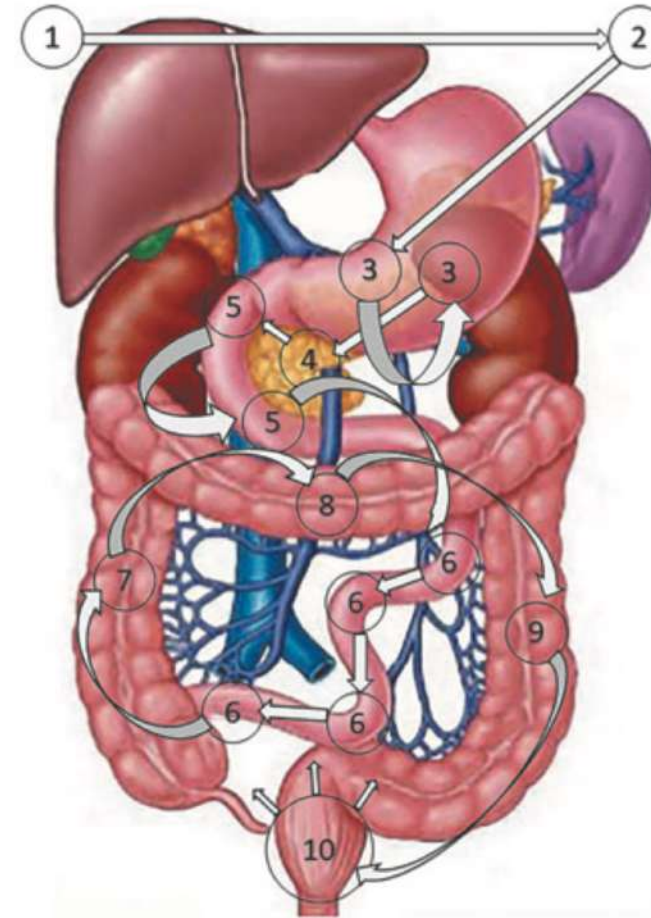
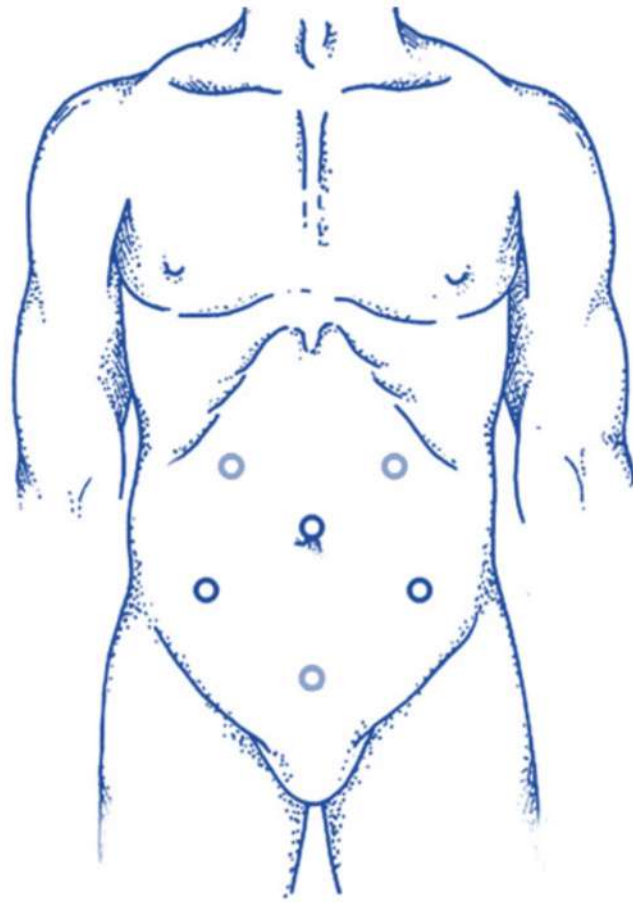
Who (not) ?



Diagnostic Laparoscopy for Penetrating Trauma: CO2 Embolus Causing Hemodynamic Collapse

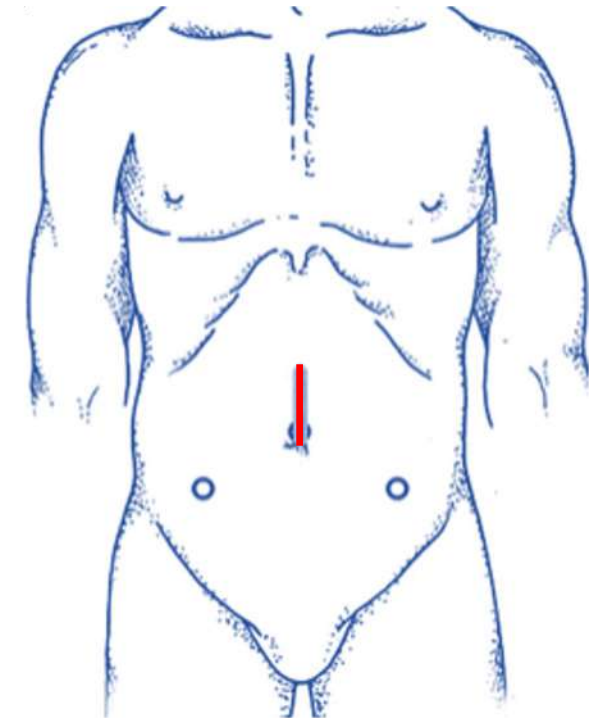
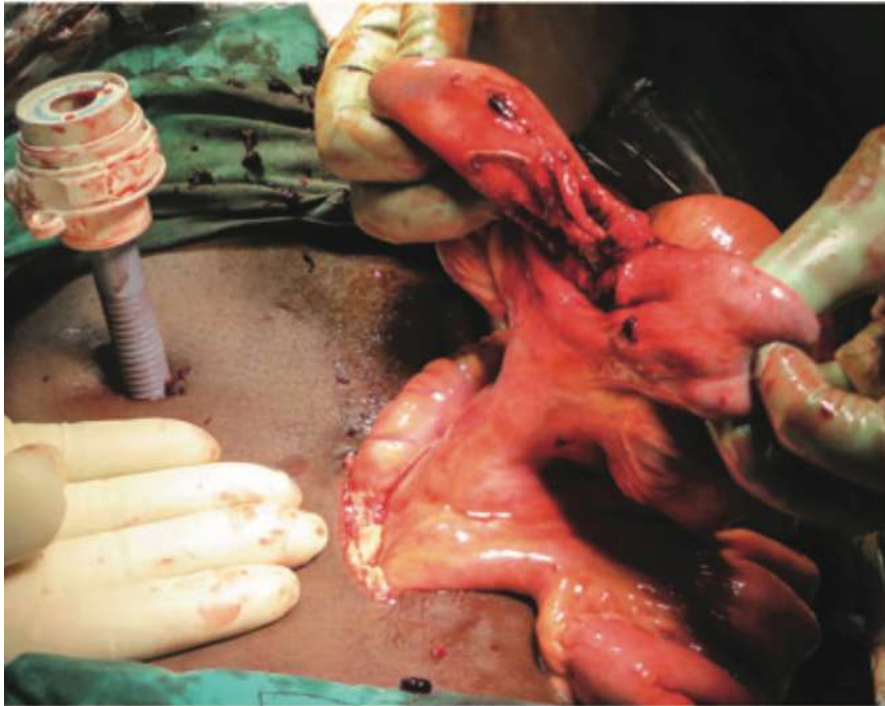
To our knowledge, this is currently the **only described case of carbon dioxide embolism during trauma laparoscopy** in literature; therefore, we do not recommend abandoning this useful technique for fear of this rare complication.

How ?



How ?

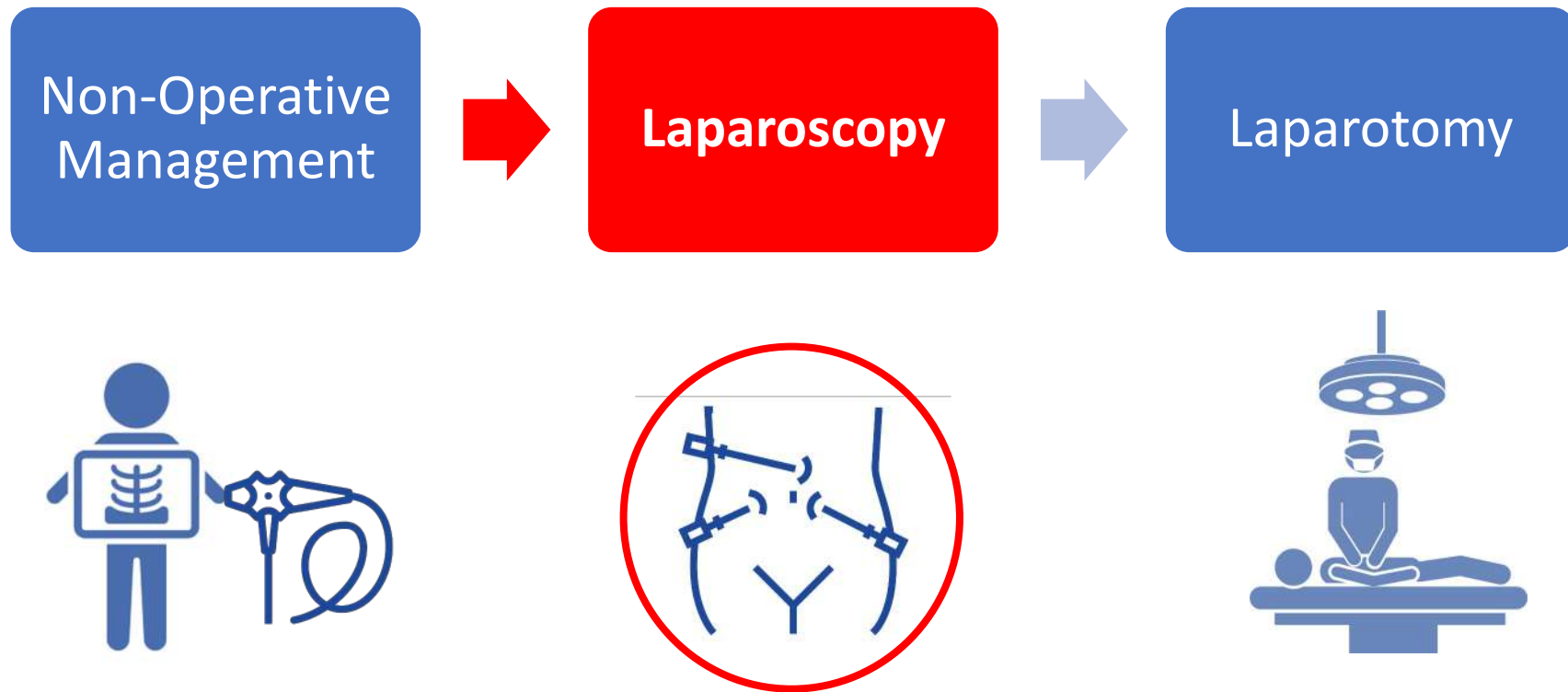
Laparoscopic-Assisted Approach
for Penetrating Abdominal Trauma:
An Underutilized Technique



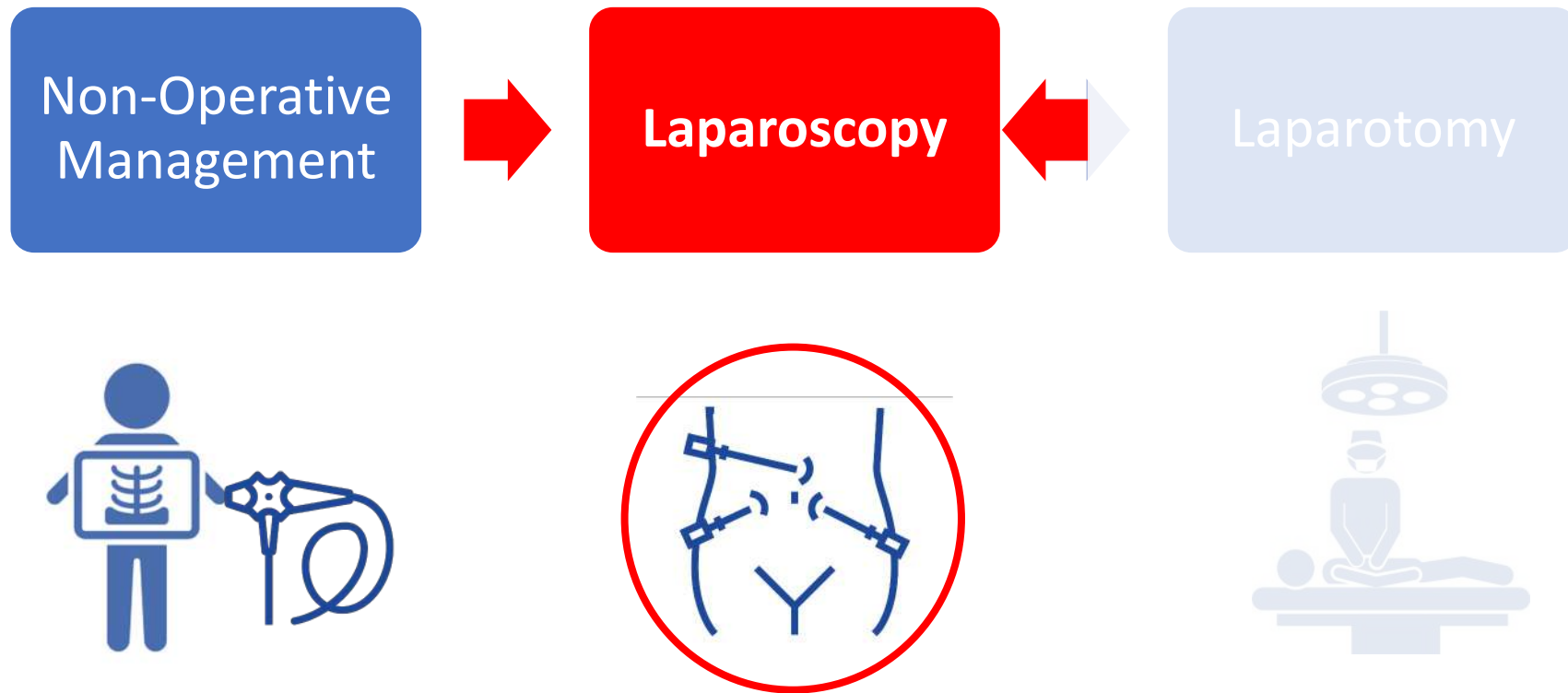
How (not) ?



What ?

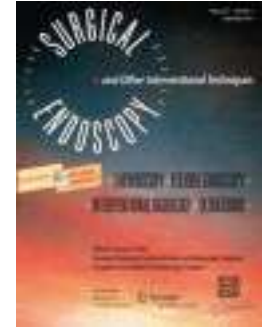


What ?



What ?

Laparoscopy versus laparotomy in management of abdominal trauma



Organs	Percentage of patients
Spleen	30.9
Small intestine	22.1
Liver	19.1
Large intestine	16.1
Mesentery	15.2
Duodenum	10.3
Stomach	7.3
Diaphragm	5.9
Peritoneum	5.3
Pancreas	4.3
Omentum and ligaments	3.9

What ?

Laparoscopic surgery for trauma: the realm of therapeutic management

Surgery	patients	Percentage
Diaphragm repair	176	19.2
Gastrostomy	132	14.4
Peritoneal lavage	74	8.1
Repair of large bowel laceration	74	8.1
Repair of small bowel laceration	69	7.5
Small bowel resection	64	7.0
Repair of liver laceration	49	5.3
Splenectomy	48	5.2
Repair of stomach laceration	44	4.8
Large bowel resection	44	4.8
Repair of mesentery	37	4.0
Appendectomy	36	3.9
Foreign body removal	31	3.4
Cholecystectomy	26	2.8

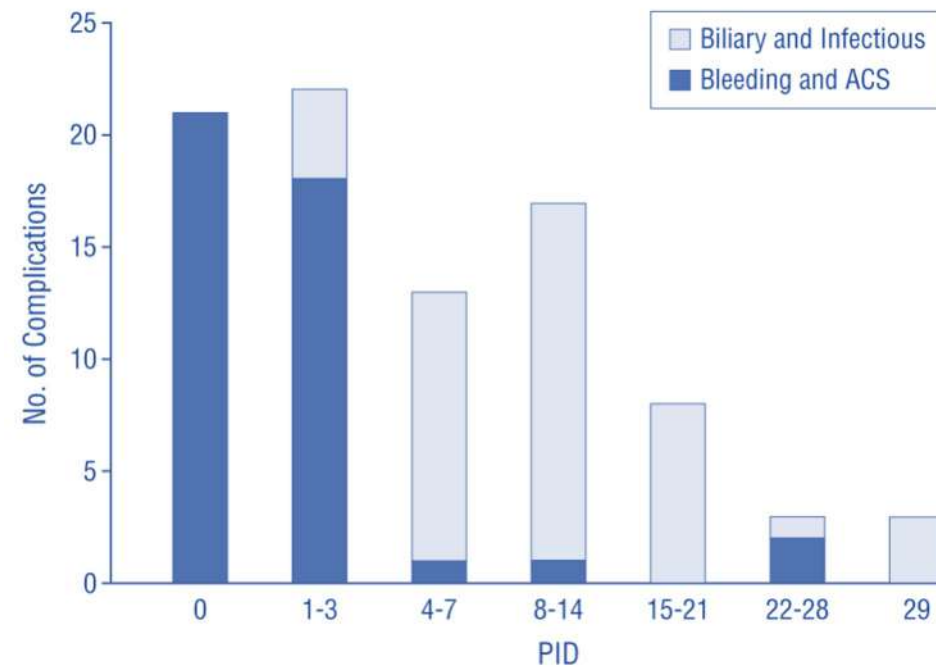
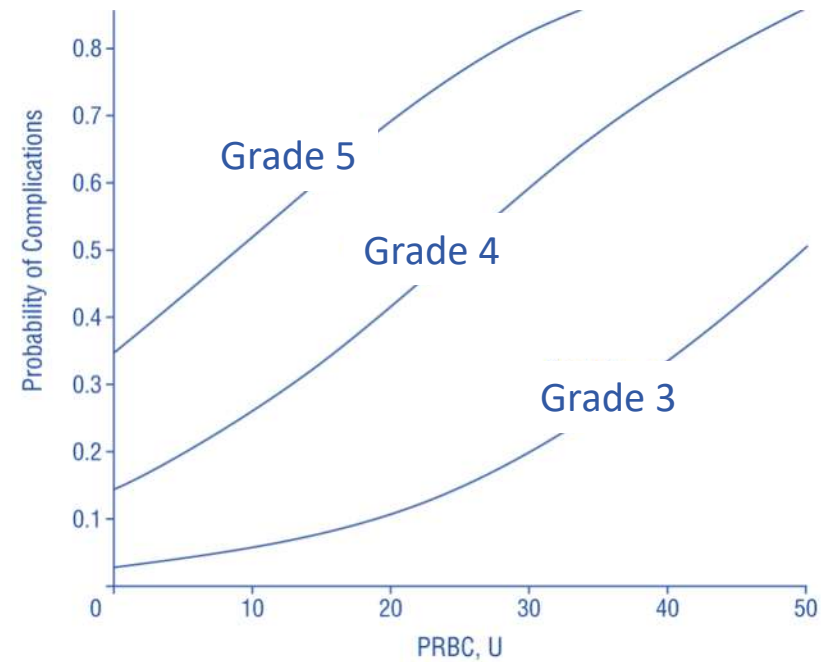
Liver Trauma

- Non-operative irrespective of degree of injury
- Laparotomy in case of hemodynamic instability
- **Laparoscopy as part of NOM**



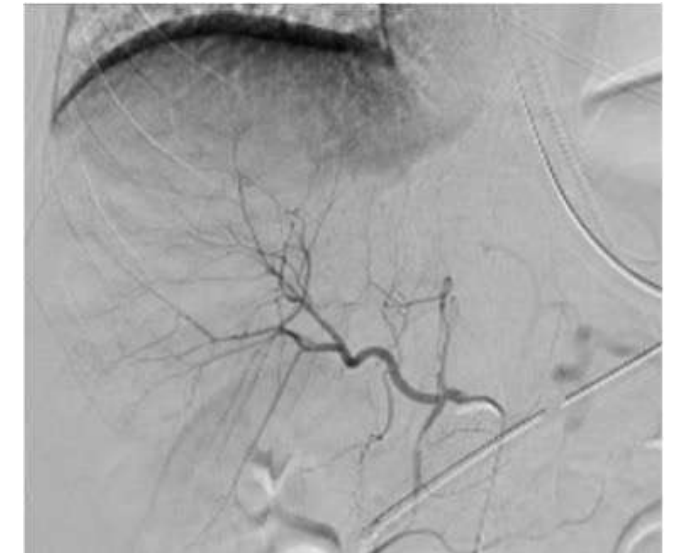
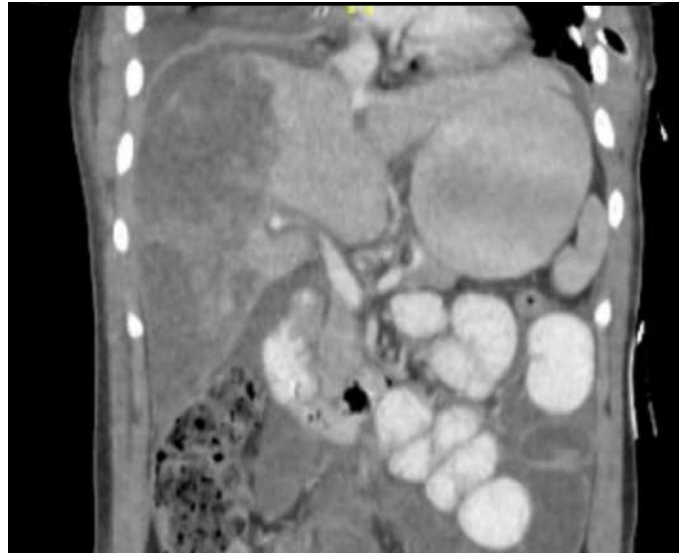
Liver Trauma

Risk Factors for Hepatic Morbidity Following Nonoperative Management Multicenter Study



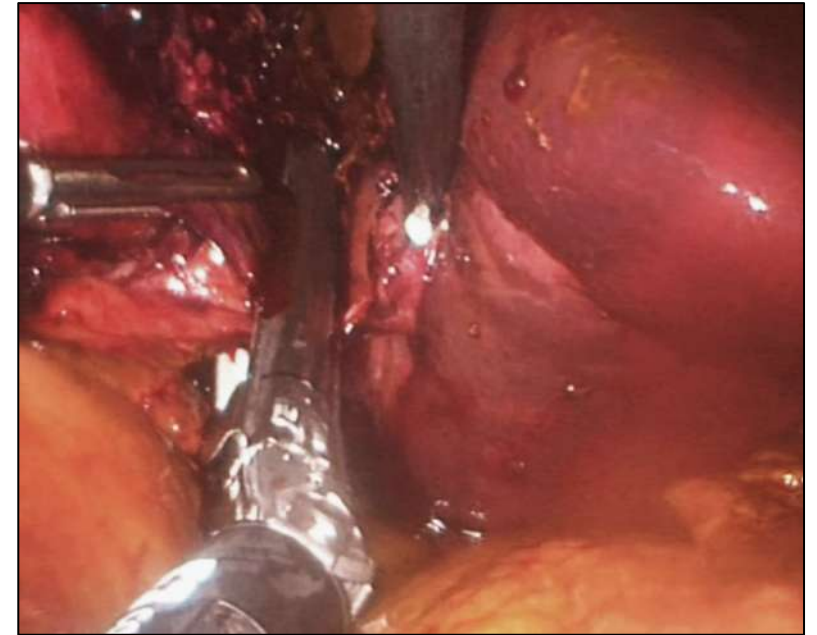
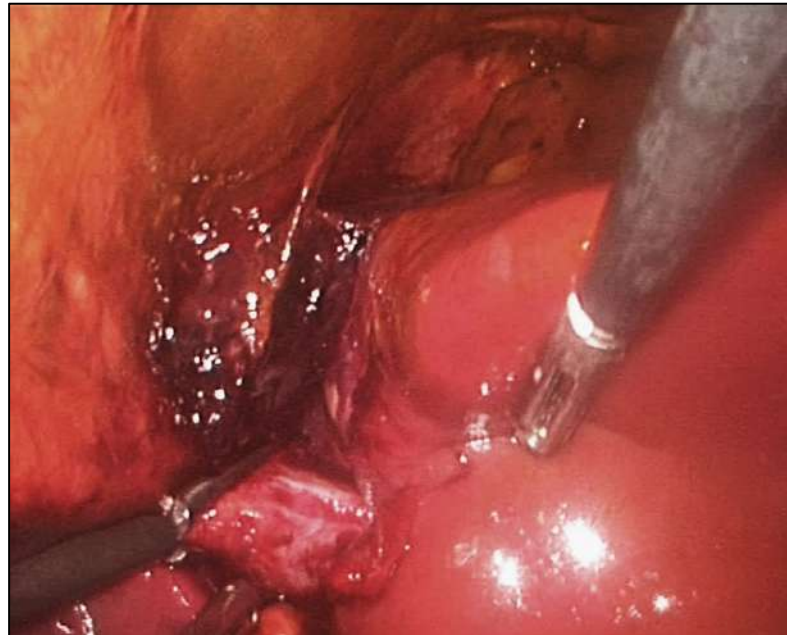
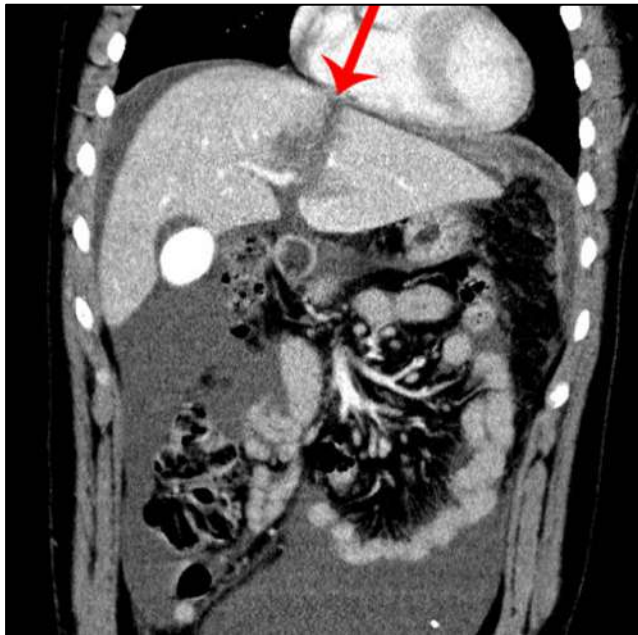
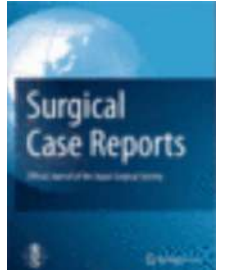
Liver Trauma

Delayed laparoscopic peritoneal washout
in non-operative management of blunt
abdominal trauma: a scoping review



Liver Trauma

Laparoscopic anatomical liver resection
after complex blunt liver trauma: a case
report



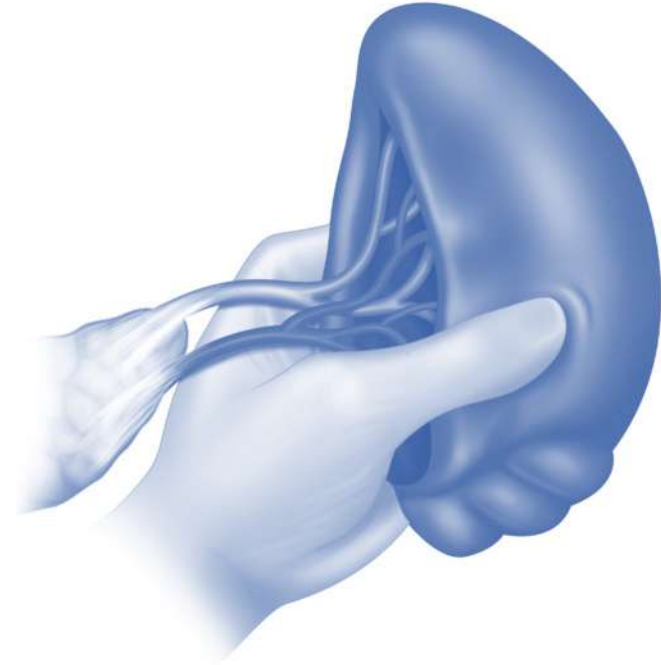
Liver Trauma

High Success With Nonoperative Management of Blunt Hepatic Trauma The Liver Is a Sturdy Organ

Patient No.	Reason for the Operation	Procedures
1	Decreasing hemoglobin level	Splenectomy
2	Decreasing hemoglobin level and hypotension	Splenectomy
3	Persistent abdominal tenderness and small-bowel thickening on CT	Nontherapeutic laparotomy
4	Abdominal compartment syndrome	Nephrectomy
5	Decreasing hemoglobin level	Nontherapeutic laparotomy
6	Worsening metabolic acidosis	Enterectomy and diaphragmatic repair
7	Abdominal compartment syndrome	Abdominal decompression
8	Small-bowel thickening on CT	Nontherapeutic laparotomy

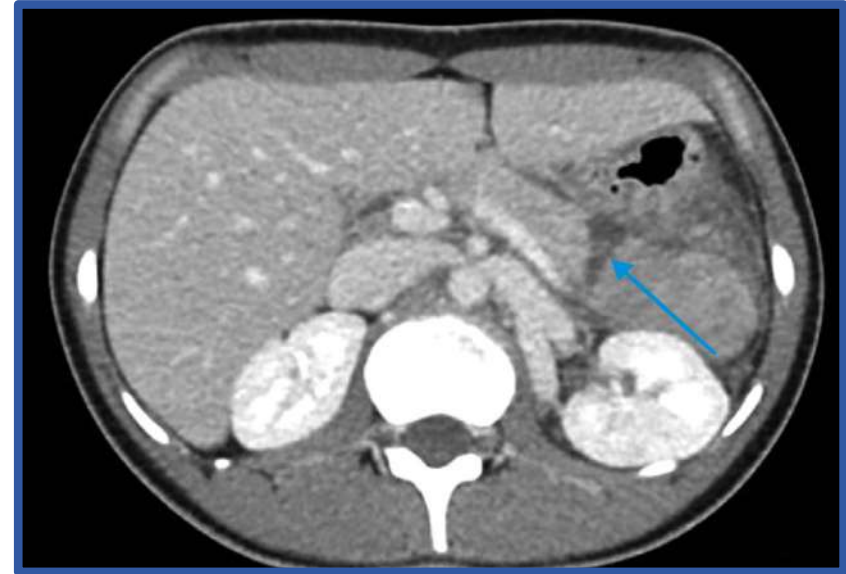
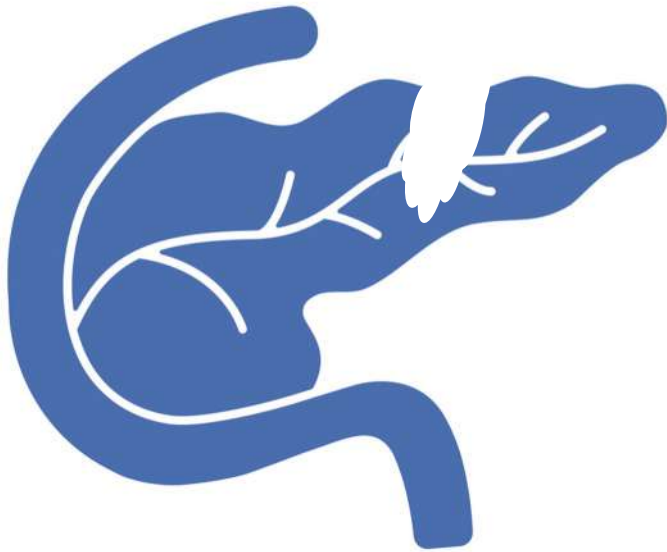
Splenic Trauma

- Non-operative irrespective of degree of injury
- Laparotomy in case of hemodynamic instability
- Spleen preservation
- **Laparoscopy as part of NOM**



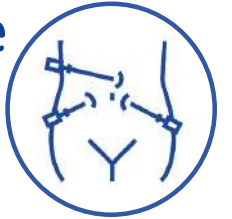
Pancreatic Trauma

- Laparoscopy for isolated Grade 3 injuries



Conclusions

The role of laparoscopy
in HPB trauma care



Stable patient without contra-indications

WHO **WHAT**
WHEN

Based on severity of trauma and surgeon's expertise
In case of failure of NOM or associated injuries

WHY

Reduce negative laparotomy rate

Standardized in order not to miss injuries

HOW

The role of laparoscopy in HPB trauma care

