

AAST Trauma Grading

David L. Smith, MD

Professor of Radiology

Professor of Medicine

Professor of Cell Biology & Anatomy



THE AMERICAN ASSOCIATION FOR THE
SURGERY OF TRAUMA

*ADVANCING TRAUMA AND ACUTE CARE SURGERY THROUGH
COMPASSION, DISCOVERY, AND DEDICATION*

<https://www.aast.org/resources-detail/injury-scoring-scale>

Table 1: Cervical Vascular Injury

Table 2: Chest Wall Injury

Table 3: Heart Injury

Table 4: Lung Injury

Table 5: Thoracic Vascular Injury

Table 6: Diaphragm Injury

Table 7: Spleen Injury

Table 8: Liver Injury

Table 9: Extrahepatic Biliary Tree Injury

Table 10: Pancreas Injury

Table 11: Esophagus Injury

Table 12: Stomach Injury

Table 13: Duodenum Injury

Table 14: Small Bowel Injury

Table 15: Colon Injury

Table 16: Rectum Injury

Table 17: Abdominal Vascular Injury

Table 18: Adrenal Organ Injury

Table 19: Kidney Injury

Table 20: Ureter Injury

Table 21: Bladder Injury

Table 22: Urethra Injury

Table 23: Uterus (non-pregnant) Injury

Table 24: Uterus (pregnant) Injury

Table 25: Fallopian Tube Injury

Table 26: Ovary Injury

Table 27: Vagina Injury

Table 28: Vulva Injury

Table 29: Testis Injury

Table 30: Scrotum Injury

Table 31: Penis Injury

Table 32: Peripheral Vascular Organ Injury



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AAST Trauma: Liver

- **Grade I**

- Subcapsular hematoma, <10% surface area
- Laceration <1 cm parenchymal depth

- **Grade II**

- Subcapsular hematoma 10-50% surface area
- Intraparenchymal hematoma <10 cm diameter
- Laceration 1-3 cm parenchymal depth, <10 cm length

- **Grade III**

- Subcapsular hematoma >50% surface area
- Intraparenchymal hematoma >10 cm
- Ruptured subcapsular or parenchymal hematoma
- Laceration >3 cm parenchymal depth
- Vascular injury with active bleeding contained within liver parenchyma

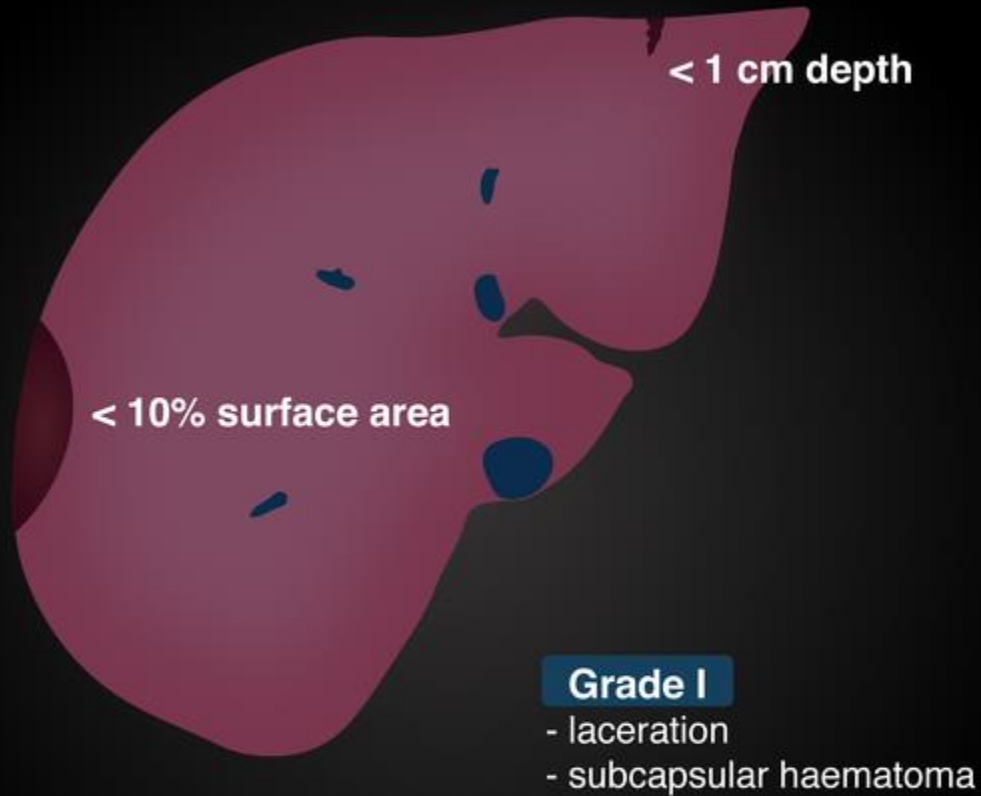
- **Grade IV**

- Parenchymal disruption involving 25-75% of a hepatic lobe
- Vascular injury with active bleeding breaching the liver parenchyma into the peritoneum

- **Grade V**

- Parenchymal disruption involving >75% of hepatic lobe
- Central or extrahepatic venous injuries (retrohepatic vena cava/ central major hepatic veins)

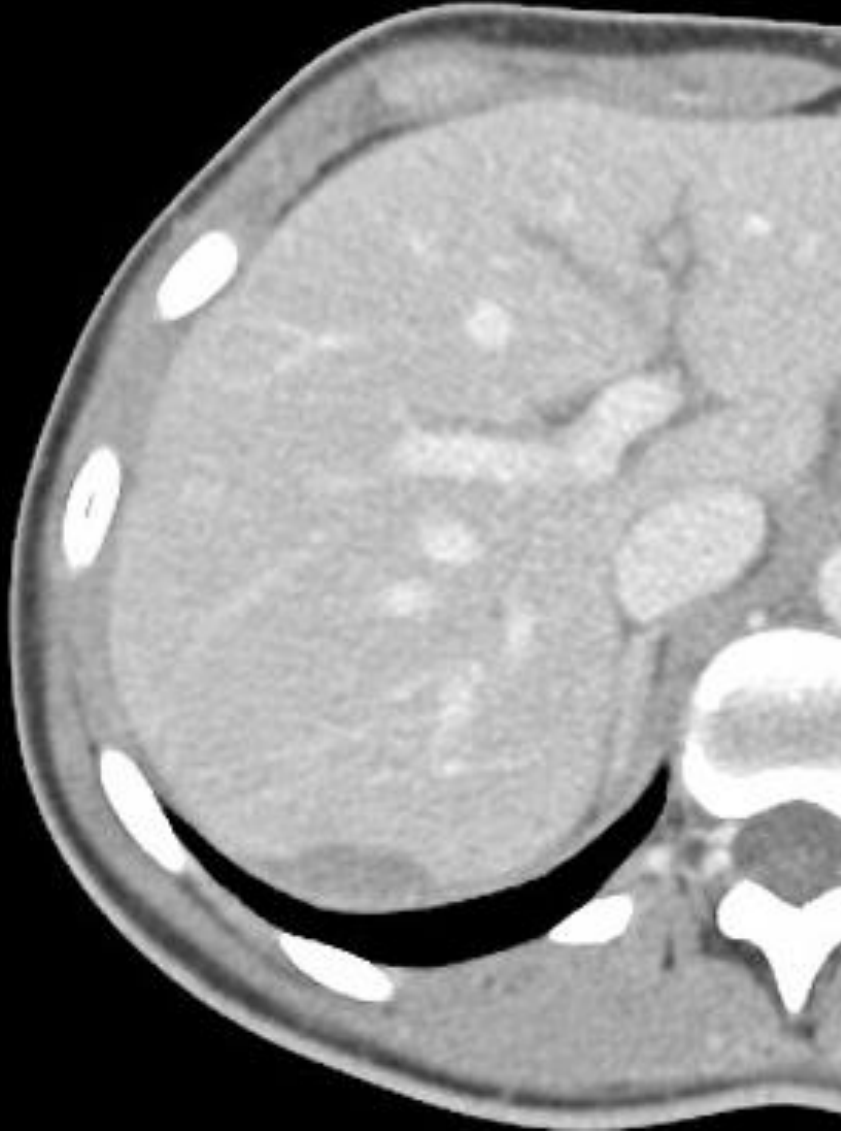
AAST Liver Grade 1



- Subcapsular hematoma, <10% surface area
- Laceration <1 cm parenchymal depth

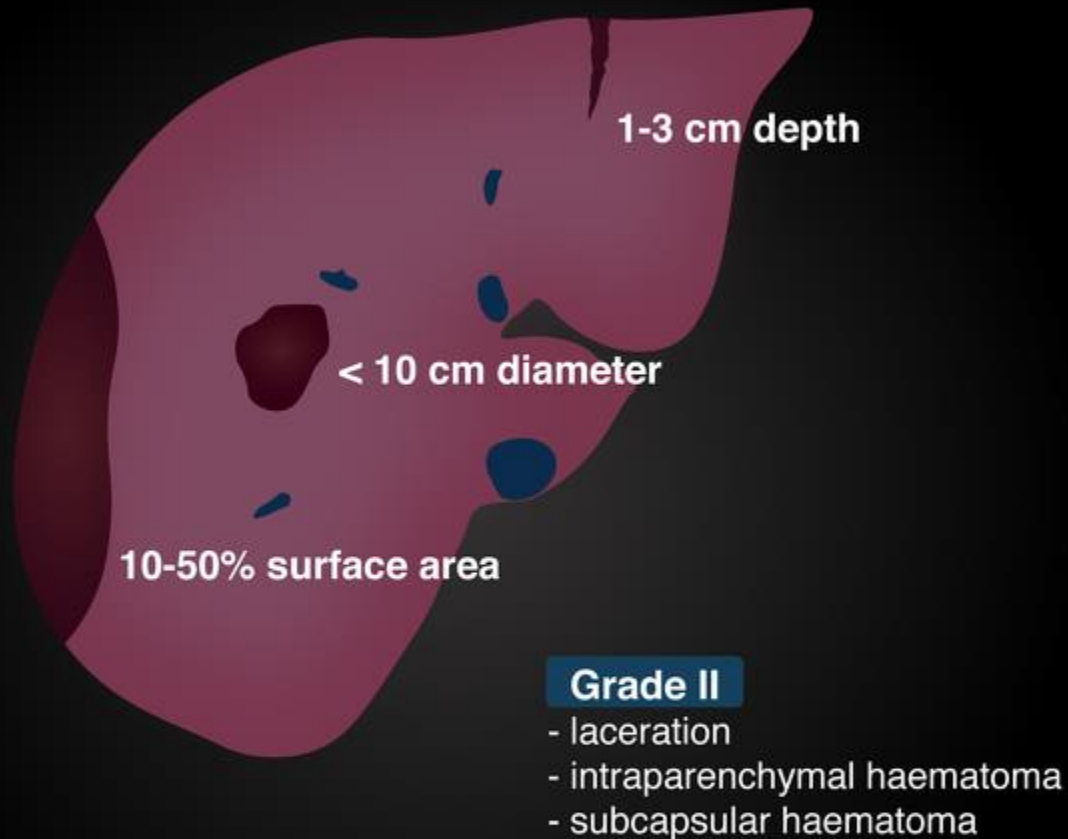
*Advance one grade for each additional injury upto grade III.

AAST Liver Grade 1



- Subcapsular hematoma, <10% surface area
- Laceration <1 cm parenchymal depth

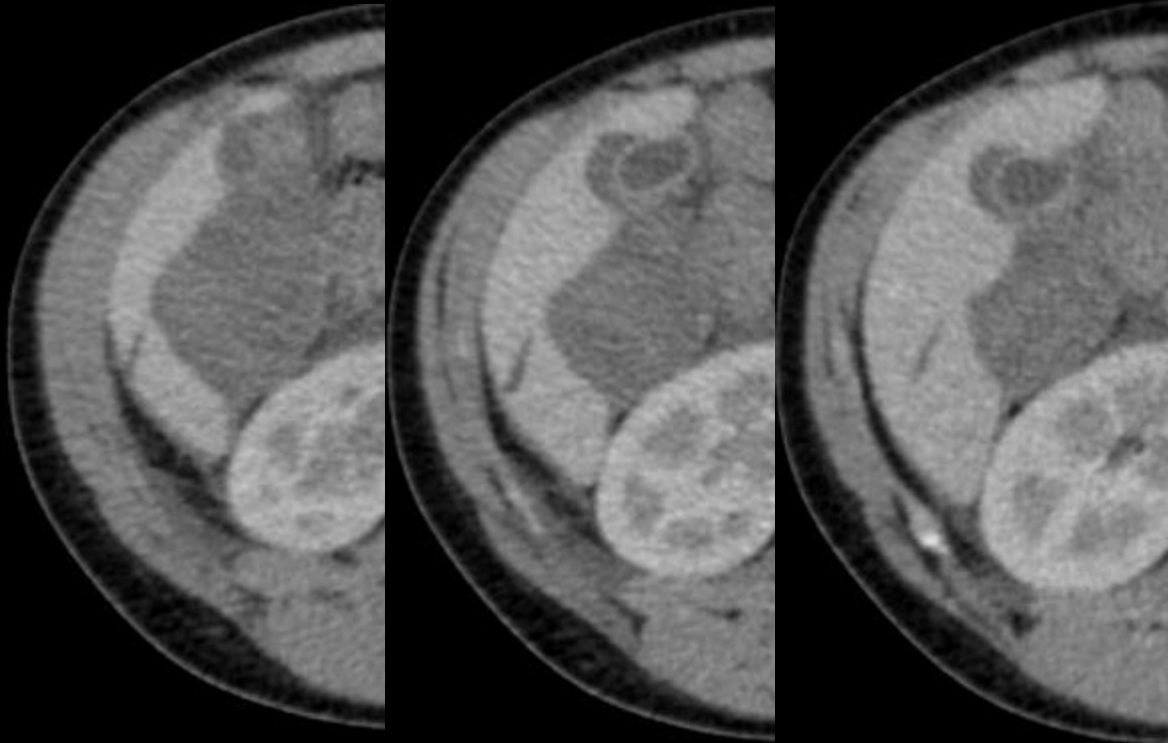
AAST Liver Grade 2



- Subcapsular hematoma 10-50% surface area
- Intraparenchymal hematoma <10 cm diameter
- Laceration 1-3 cm parenchymal depth, <10 cm length

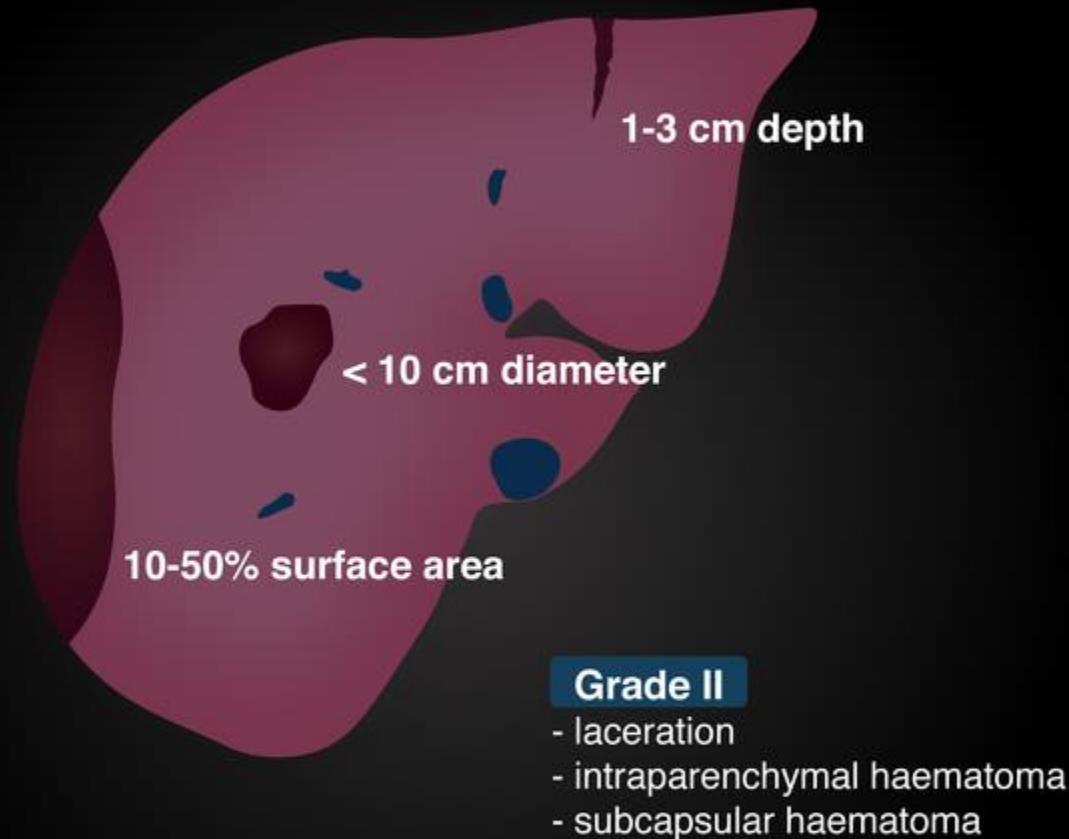
*Advance one grade for each additional injury upto grade III.

AAST Liver Grade 2



- Subcapsular hematoma 10-50% surface area
- Intraparenchymal hematoma <10 cm diameter
- Laceration 1-3 cm parenchymal depth, <10 cm length

AAST Liver Grade 3



- Subcapsular hematoma >50% surface area
- Intraparenchymal hematoma >10 cm
- Ruptured subcapsular or parenchymal hematoma
- Laceration >3 cm parenchymal depth
- Vascular injury with active bleeding contained within liver parenchyma

*Advance one grade for each additional injury upto grade III.

AAST Liver Grade 3



- Subcapsular hematoma >50% surface area
- Intraparenchymal hematoma >10 cm
- Ruptured subcapsular or parenchymal hematoma
- Laceration >3 cm parenchymal depth
- Vascular injury with active bleeding contained within liver parenchyma

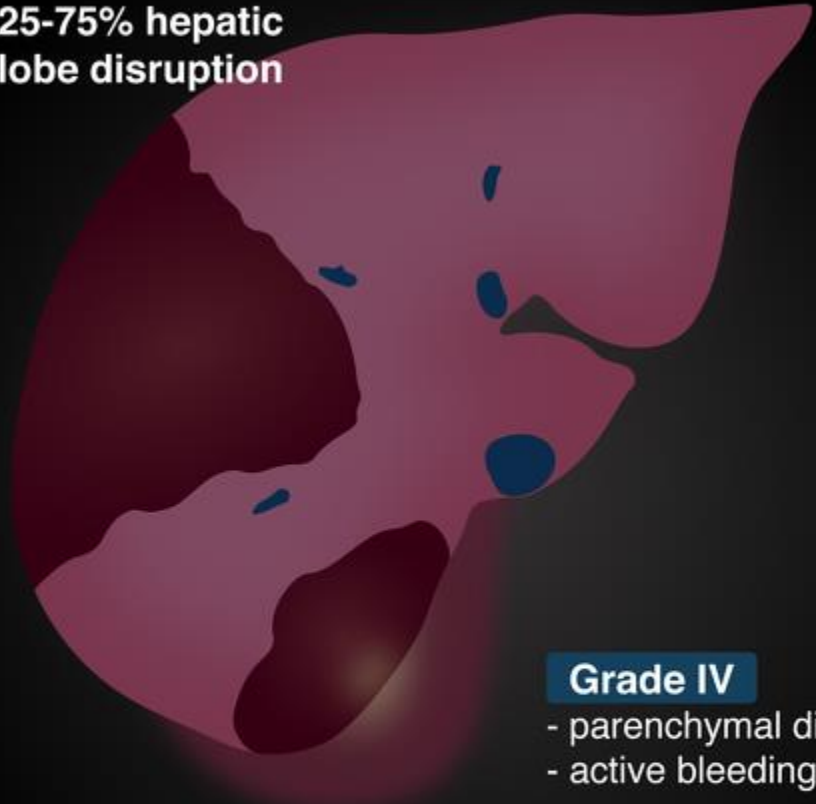
AAST Liver Grade 3



- Subcapsular hematoma >50% surface area
- Intraparenchymal hematoma >10 cm
- Ruptured subcapsular or parenchymal hematoma
- Laceration >3 cm parenchymal depth
- Vascular injury with active bleeding **contained** within liver parenchyma

AAST Liver Grade 4

25-75% hepatic
lobe disruption



Grade IV

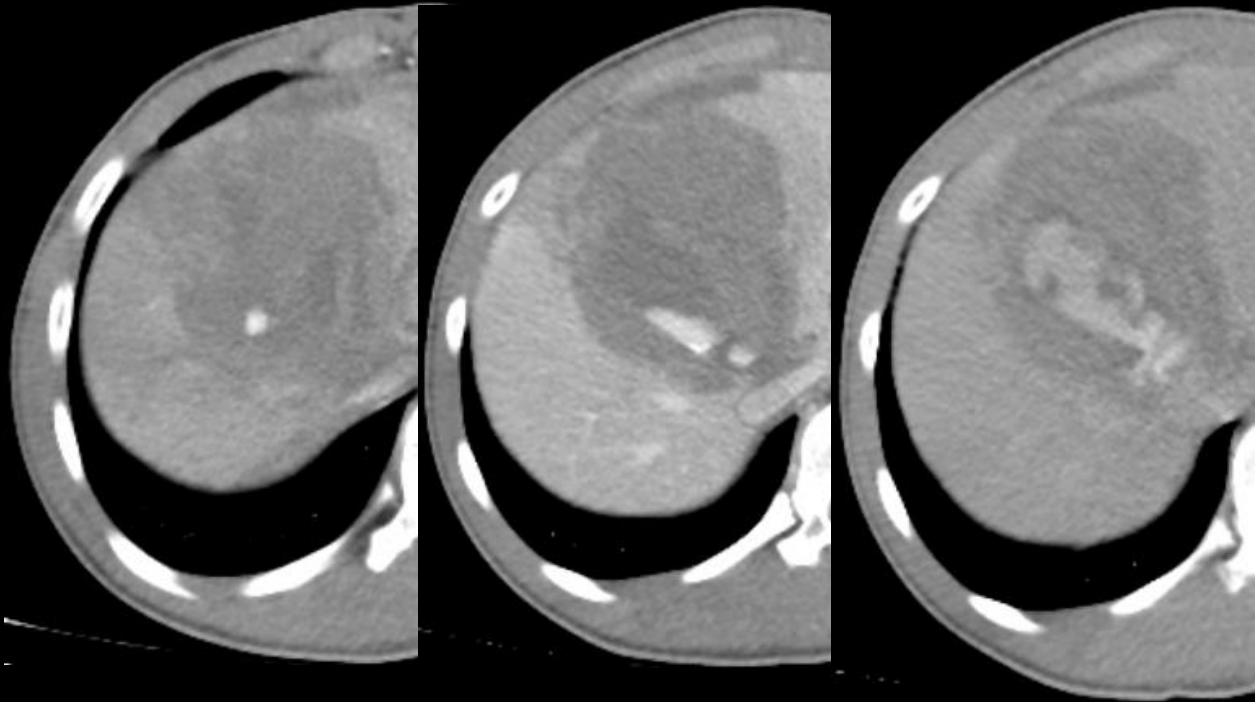
- parenchymal disruption
- active bleeding

Active bleed extending
into the peritoneum

- Parenchymal disruption involving 25-75% of a hepatic lobe
- Vascular injury with active bleeding outside the liver

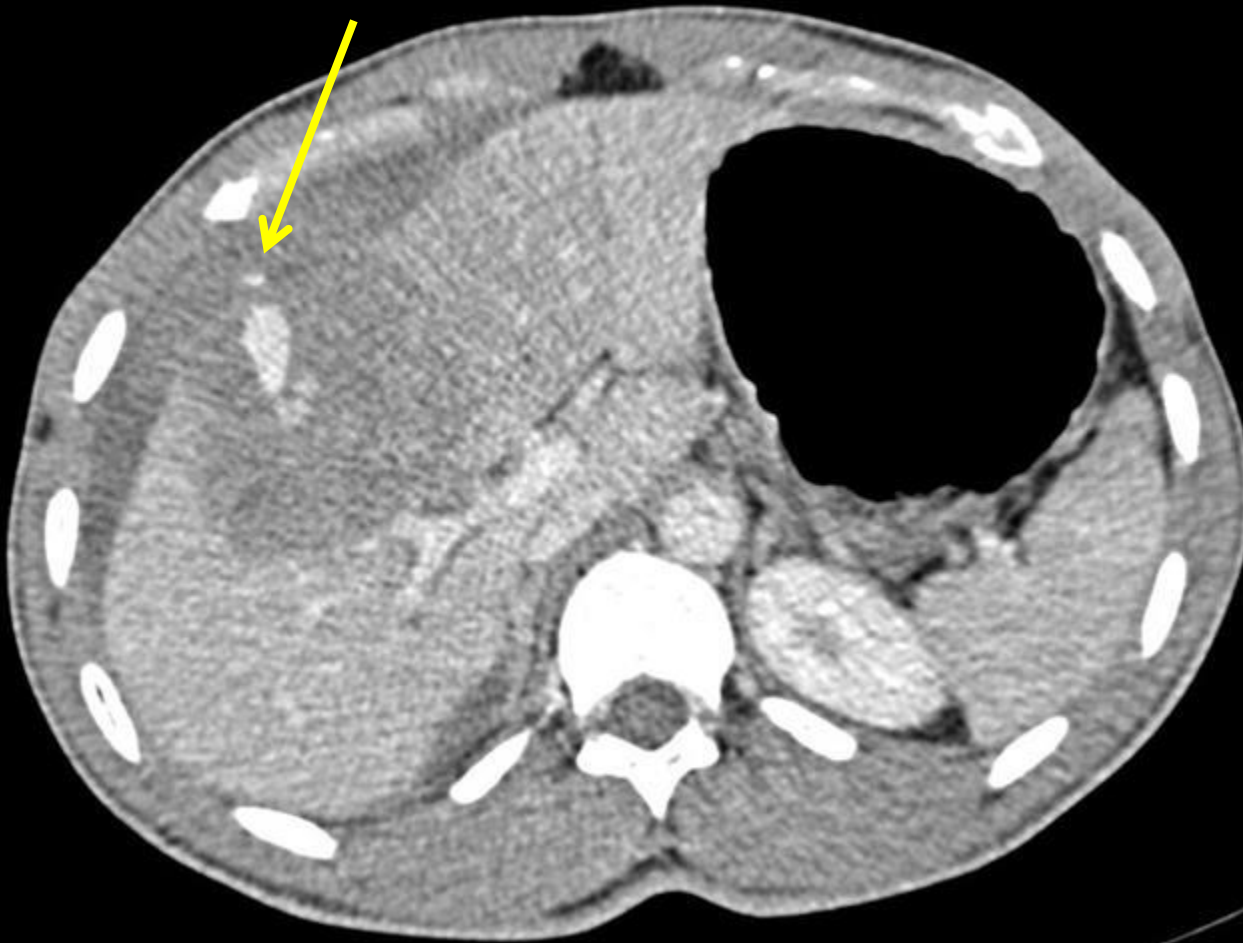
*Advance one grade for each additional injury upto grade III.

AAST Liver Grade 4



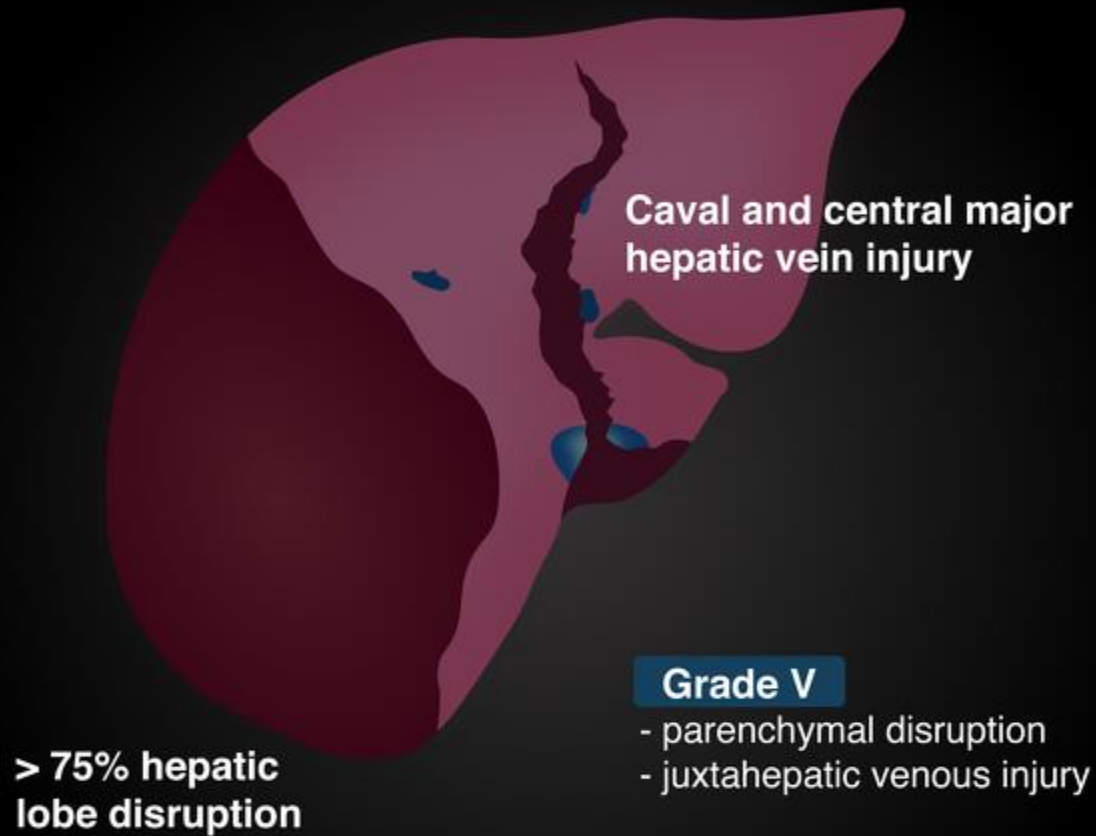
- Parenchymal disruption involving 25-75% of a hepatic lobe
- Vascular injury with active bleeding outside the liver

AAST Liver Grade 4



- Parenchymal disruption involving 25-75% of a hepatic lobe
- Vascular injury with active bleeding **outside** of the liver

AAST Liver Grade 5



- Parenchymal disruption involving >75% of hepatic lobe
- Central or extrahepatic venous injuries

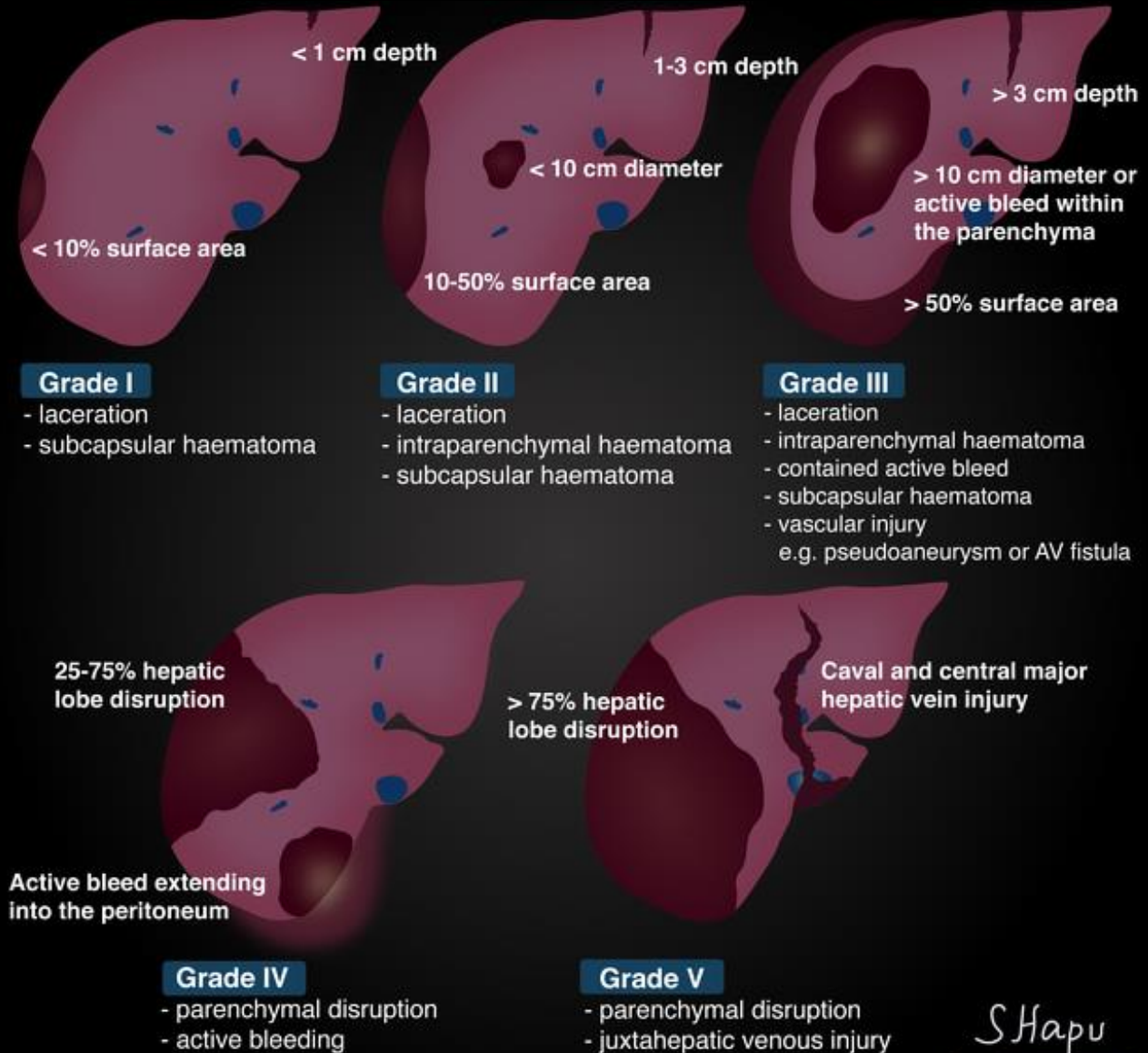
AAST Trauma



- Parenchymal disruption involving >75% of hepatic lobe
- Central or extrahepatic venous injuries

AAST Liver Take Home Points

- Extracapsular hematoma → 3
- Intrahepatic (contained) vascular injury → 3
- Active bleeding into peritoneal space → 4
- Central venous injury → 5



*Advance one grade for each additional injury upto grade III.

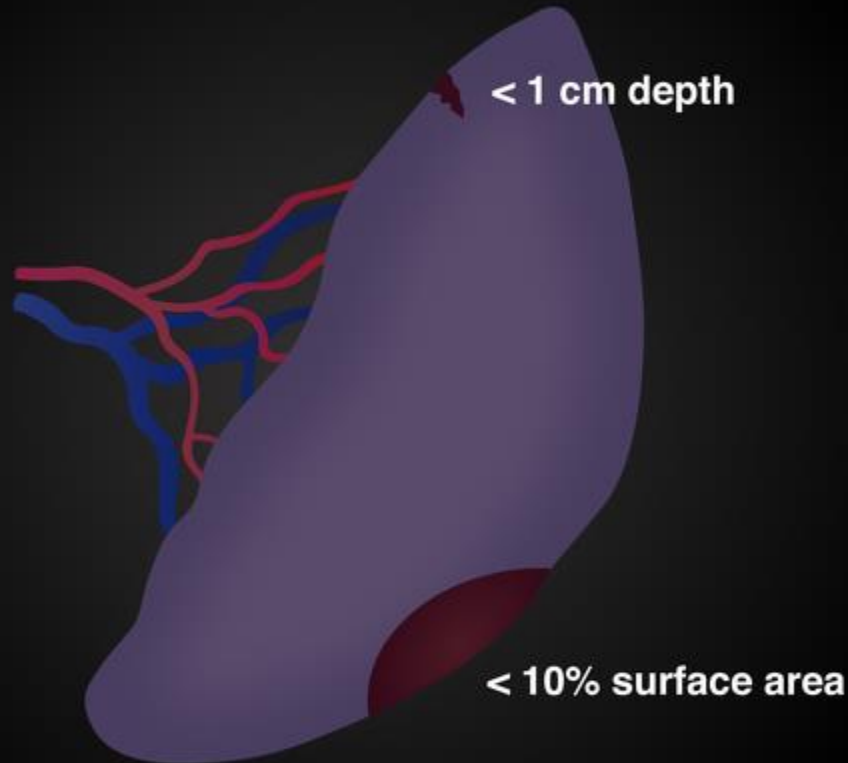
AAST Trauma: Spleen

- **Grade I**
 - Subcapsular hematoma <10% of surface area
 - Parenchymal laceration <1 cm depth
 - Capsular tear
- **Grade II**
 - Subcapsular hematoma 10-50% of surface area
 - Intraparenchymal hematoma <5 cm
 - Parenchymal laceration 1-3 cm in depth
- **Grade III**
 - Subcapsular hematoma >50% of surface area
 - Intraparenchymal hematoma \geq 5 cm
 - Parenchymal laceration >3 cm in depth
 - Ruptured subcapsular or intraparenchymal hematoma
- **Grade IV**
 - Any injury in the presence of a splenic vascular injury or active bleeding confined within splenic capsule
 - Parenchymal laceration involving segmental or hilar vessels producing >25% devascularisation
- **Grade V**
 - Shattered spleen
 - Any injury in the presence of splenic vascular injury with active bleeding extending beyond the spleen into the peritoneum

AAST Spleen Grade 1

Grade I

- laceration or capsular tear
- subcapsular haematoma



- Subcapsular hematoma <10% of surface area
- Parenchymal laceration <1 cm depth
- Capsular tear

*Advance one grade for each additional injury upto grade III.

AAST Spleen Grade 1

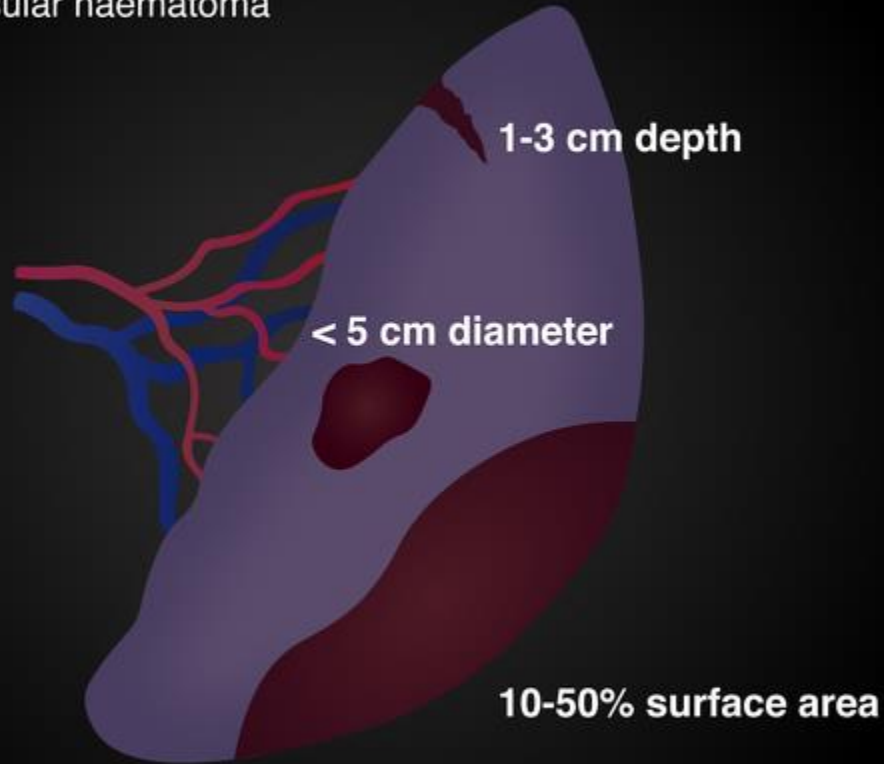


- Subcapsular hematoma <10% of surface area
- Parenchymal laceration <1 cm depth
- Capsular tear

AAST Spleen Grade 2

Grade II

- laceration
- intraparenchymal haematoma
- subcapsular haematoma



- Subcapsular hematoma 10-50% of surface area
- Intraparenchymal hematoma <5 cm
- Parenchymal laceration 1-3 cm in depth

*Advance one grade for each additional injury upto grade III.

AAST Spleen Grade 2



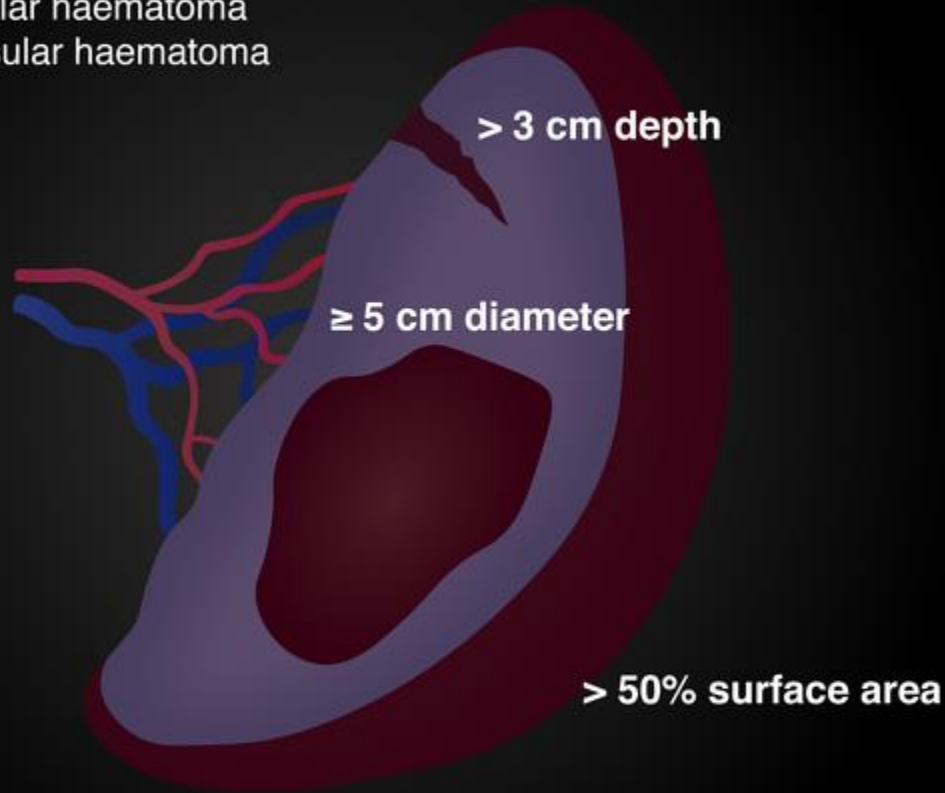
- Subcapsular hematoma 10-50% of surface area
- Intraparenchymal hematoma <5 cm
- Parenchymal laceration 1-3 cm in depth



AAST Trauma

Grade III

- laceration
- intraparenchymal or ruptured subcapsular haematoma
- subcapsular haematoma



- Subcapsular hematoma >50% of surface area
- Intraparenchymal hematoma ≥5 cm
- Parenchymal laceration >3 cm in depth
- Ruptured subcapsular or intraparenchymal hematoma

*Advance one grade for each additional injury upto grade III.

AAST Spleen Grade 3



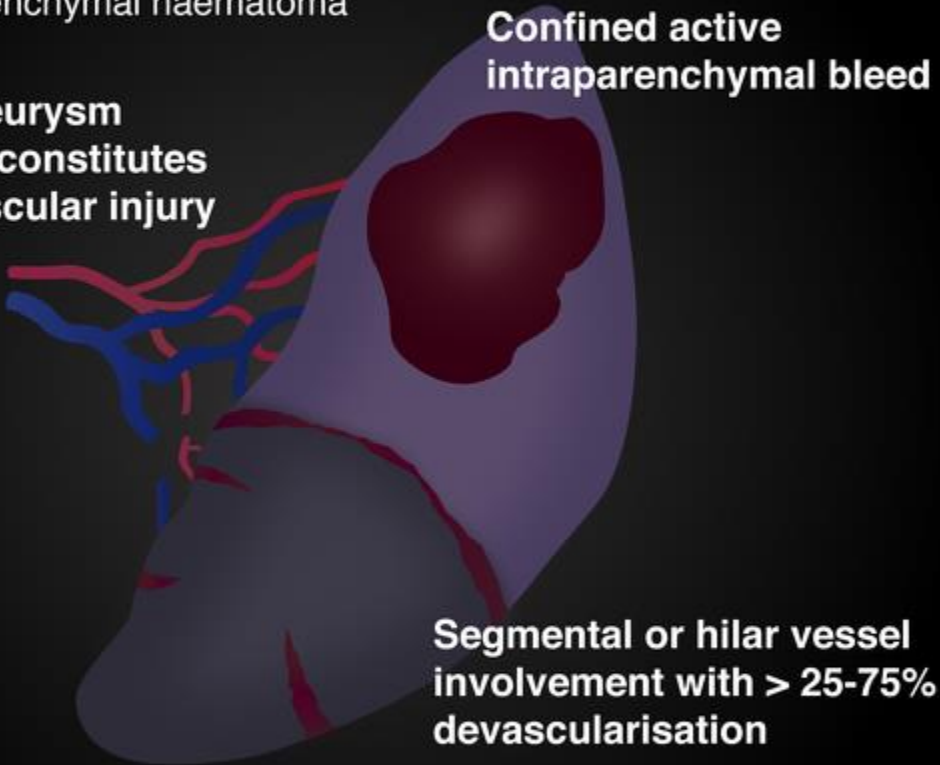
- Subcapsular hematoma >50% of surface area
- Intraparenchymal hematoma ≥ 5 cm
- Parenchymal laceration >3 cm in depth
- Ruptured subcapsular or intraparenchymal hematoma

AAST Trauma

Grade IV

- laceration
- vascular injury
- intraparenchymal haematoma

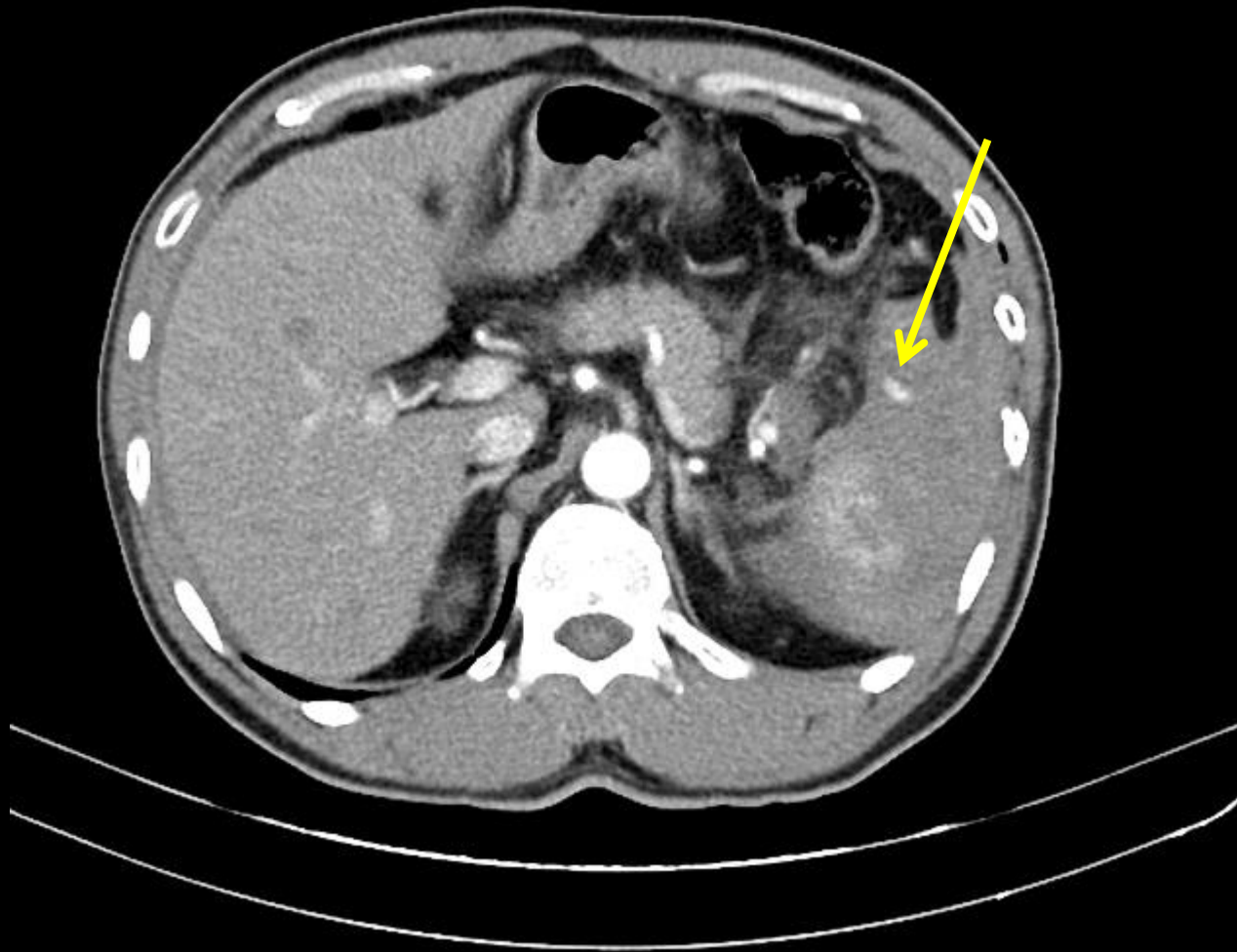
A pseudoaneurysm
or AV fistula constitutes
a splenic vascular injury



- Any injury in the presence of a splenic vascular injury or active bleeding confined within splenic capsule
- Parenchymal laceration involving segmental or hilar vessels producing >25% devascularisation

*Advance one grade for each additional injury upto grade III.

AAST Trauma



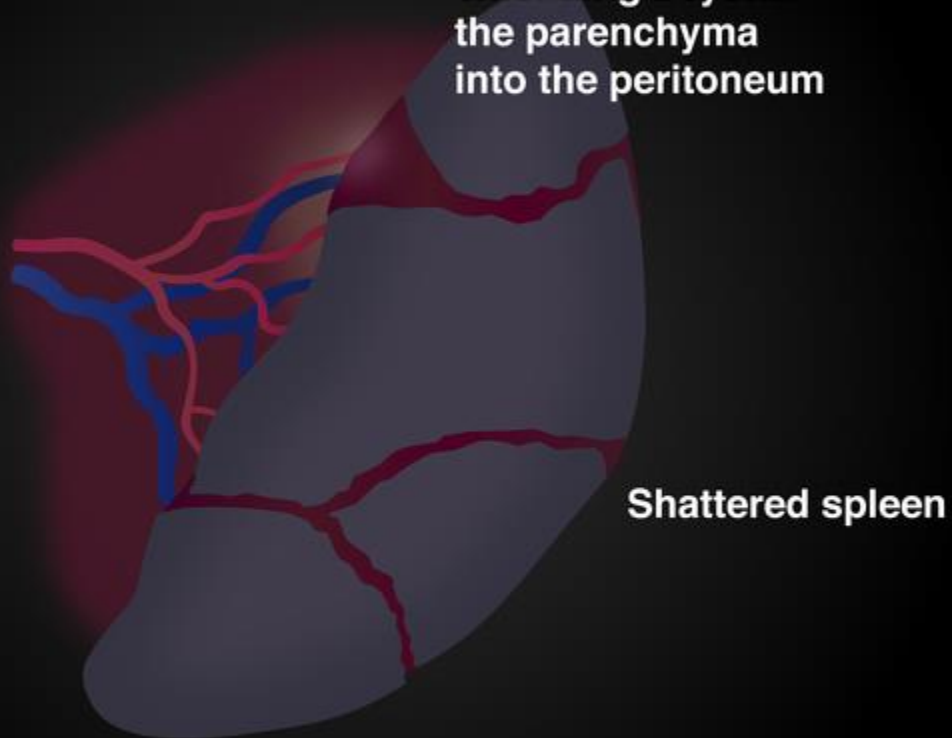
- Any injury in the presence of a splenic vascular injury or active bleeding confined within splenic capsule
- Parenchymal laceration involving segmental or hilar vessels producing >25% devascularisation

AAST Trauma

Grade V

- vascular injury
- shattered spleen

Vascular injury
and active bleed
extending beyond
the parenchyma
into the peritoneum



- Shattered spleen
- Any injury in the presence of splenic vascular injury with active bleeding extending beyond the spleen into the peritoneum

*Advance one grade for each additional injury upto grade III.

AAST Spleen Grade 5



- Shattered spleen
- Any injury in the presence of splenic vascular injury with active bleeding extending beyond the spleen into the peritoneum

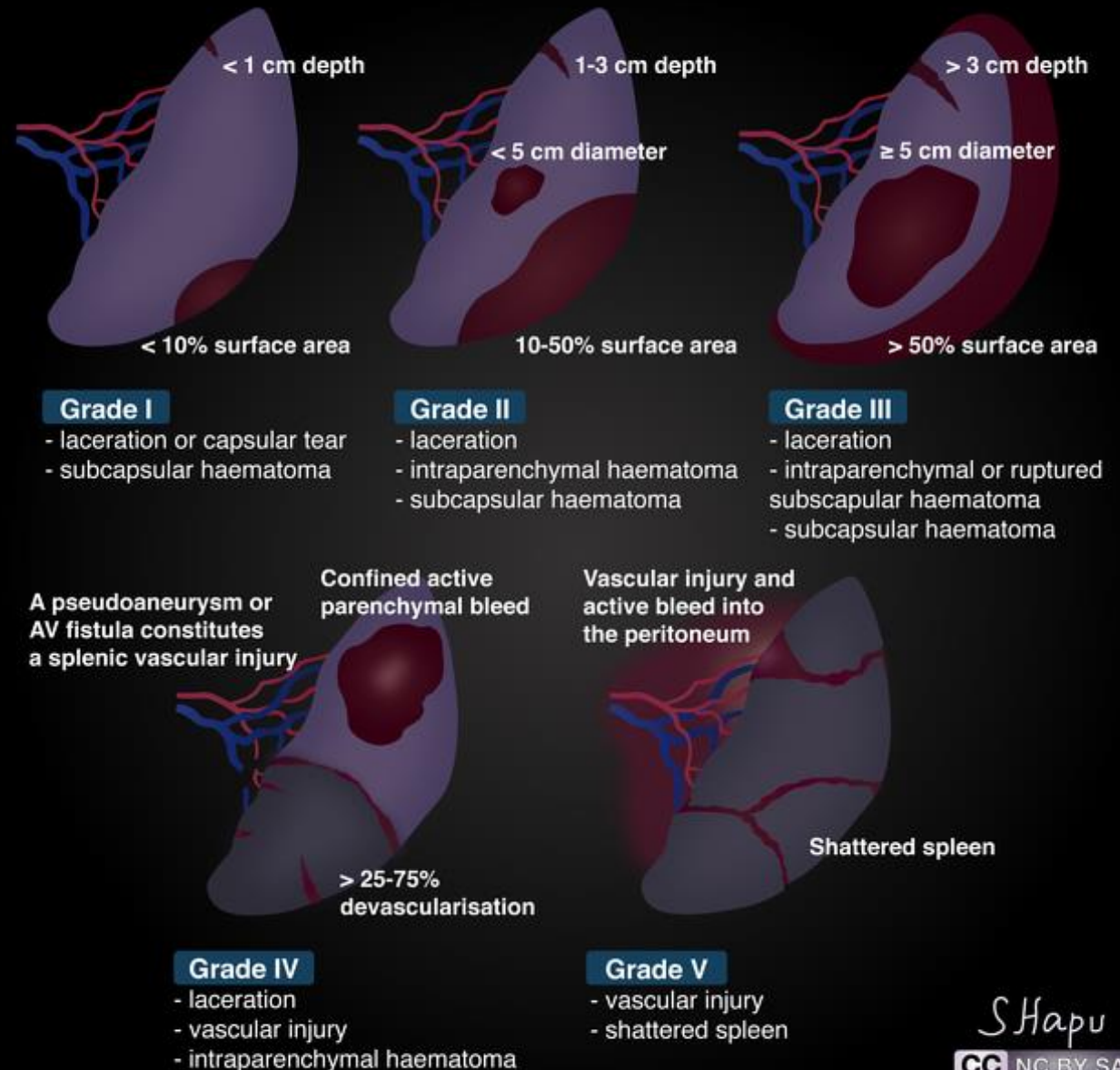
AAST Spleen Grade 5



- Shattered spleen
- Any injury in the presence of splenic vascular injury with active bleeding extending beyond the spleen into the peritoneum

AAST Spleen Take Home Points

- Extrasplenic hematoma → 3
- Vascular injury confined within capsule → 4
- Active bleeding beyond capsule → 5

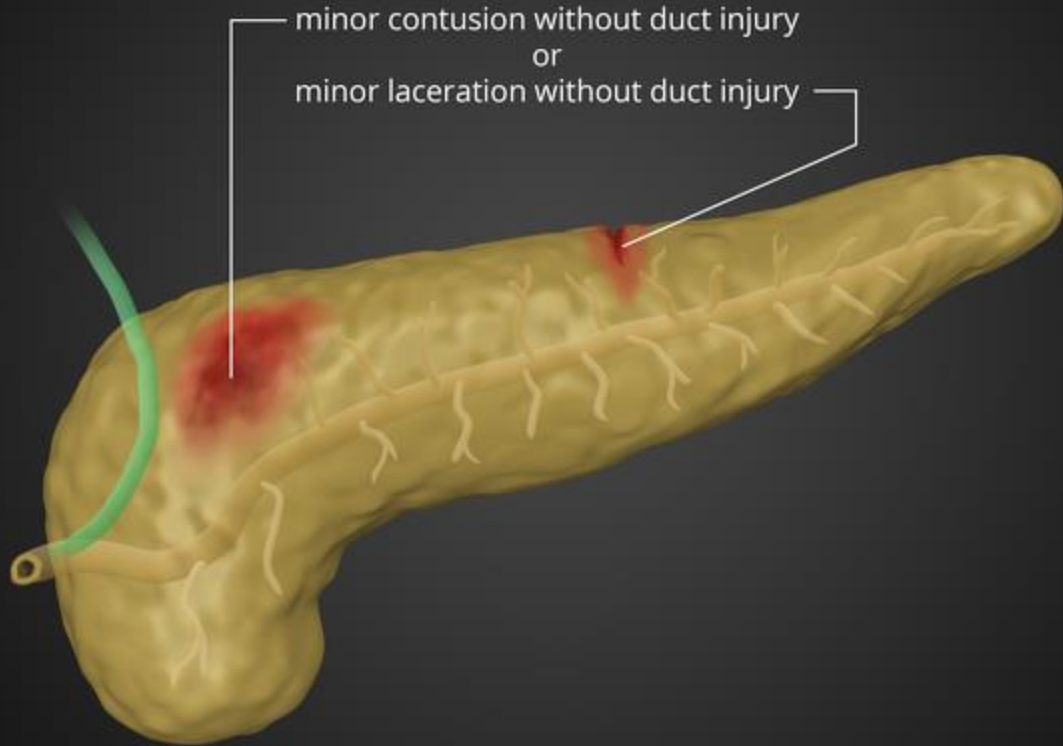


*Advance one grade for each additional injury upto grade III.

AAST Trauma: Pancreas

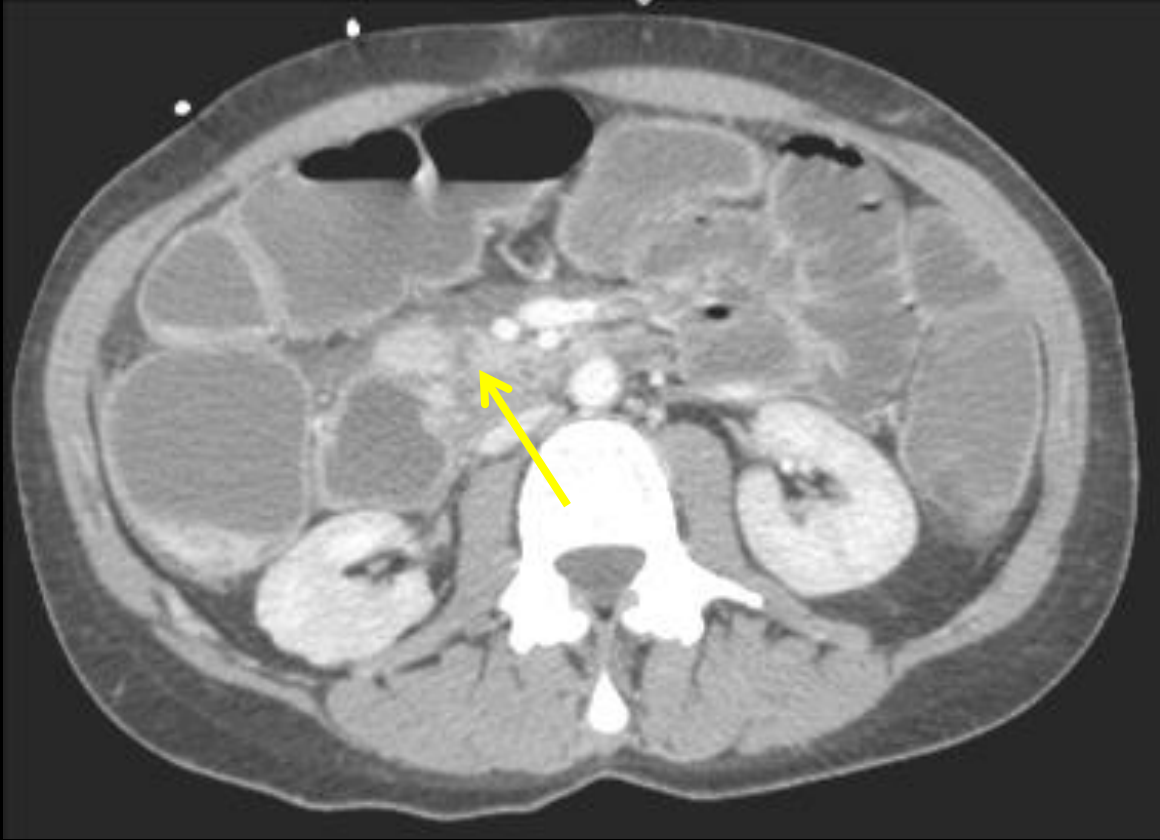
- **Grade I:** hematoma with minor contusion or superficial laceration without duct injury
- **Grade II:** major contusion or laceration without duct injury
- **Grade III:** distal transection or deep parenchymal injury with duct injury
- **Grade IV:** proximal transection or deep parenchymal injury involving the ampulla and/or intrapancreatic common bile duct
- **Grade V:** massive disruption of the pancreatic head

AAST Pancreas Grade 1

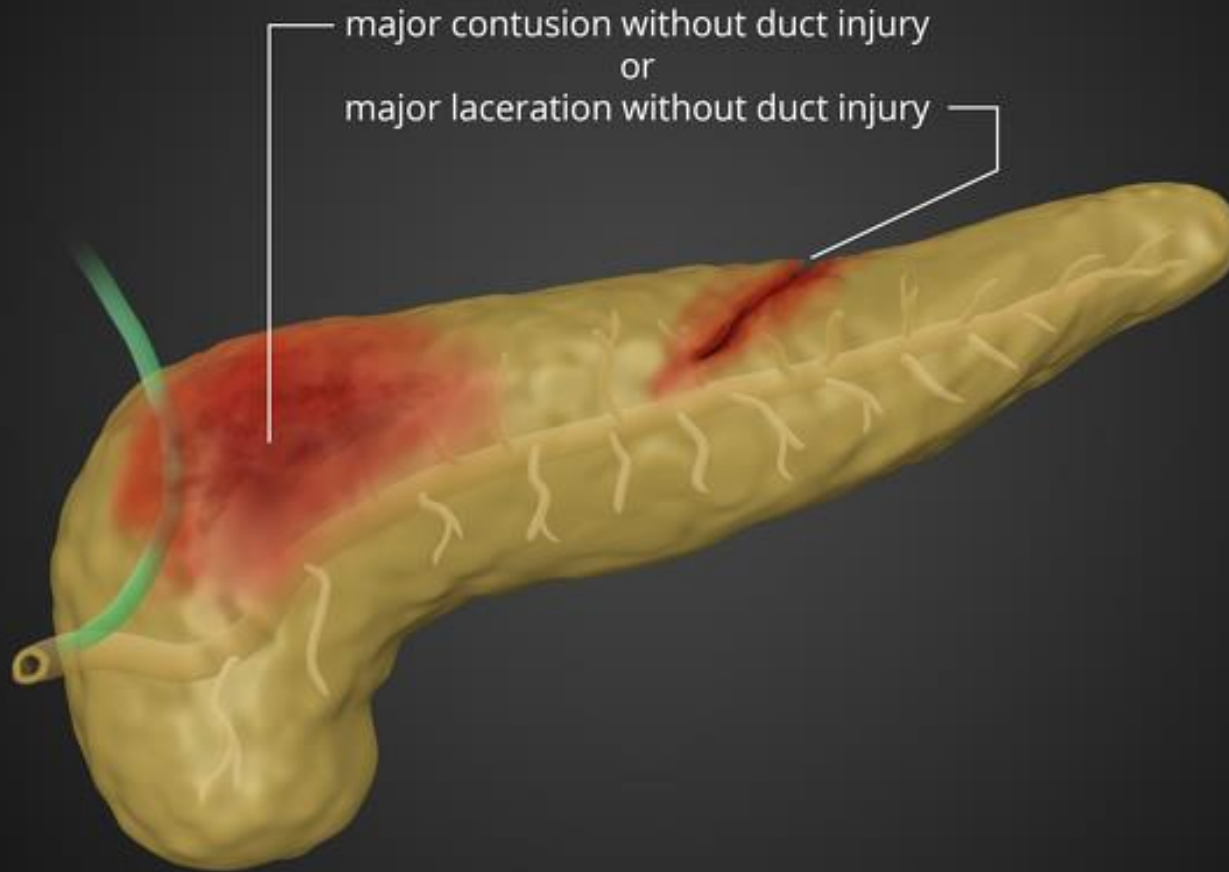


- Hematoma with minor contusion or superficial laceration without duct injury

AAST Pancreas Grade 1



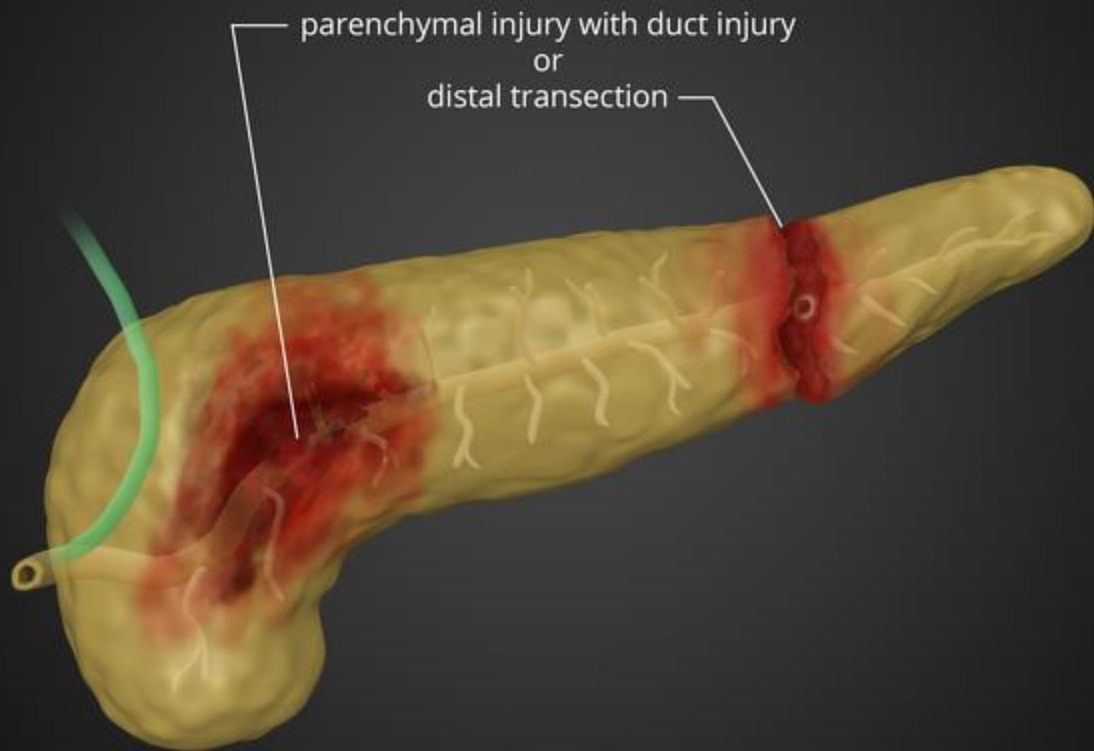
AAST Pancreas Grade 2



M. Skalski



AAST Pancreas Grade 3



- Distal transection or deep parenchymal injury with duct injury

*Distal indicates to the left of the SMV/PV confluence

M. Skalski

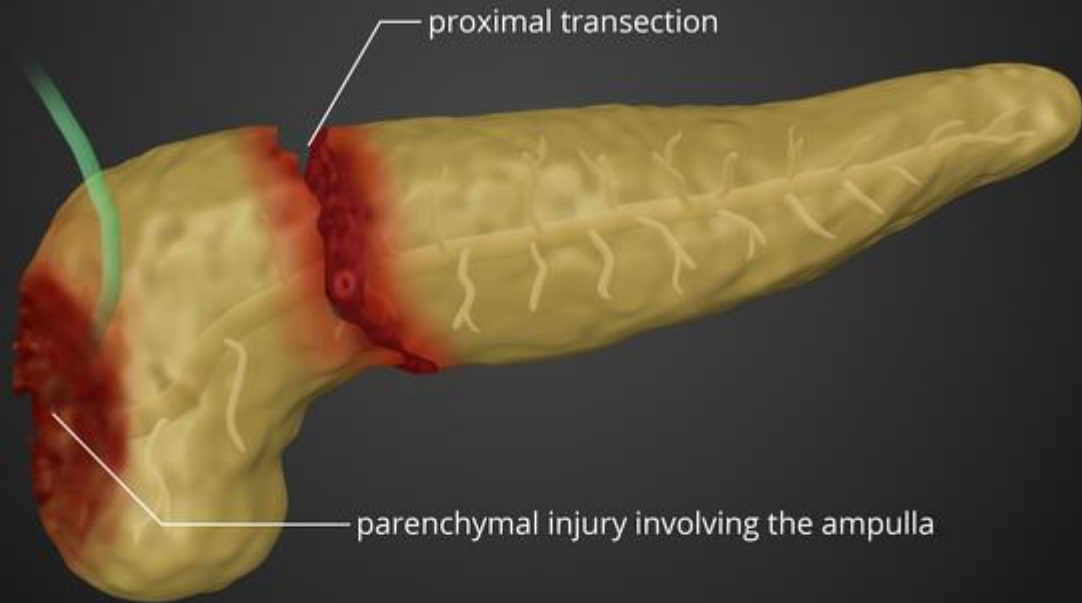


AAST Pancreas Grade 3



- Distal transection or deep parenchymal injury with duct injury

AAST Pancreas Grade 4

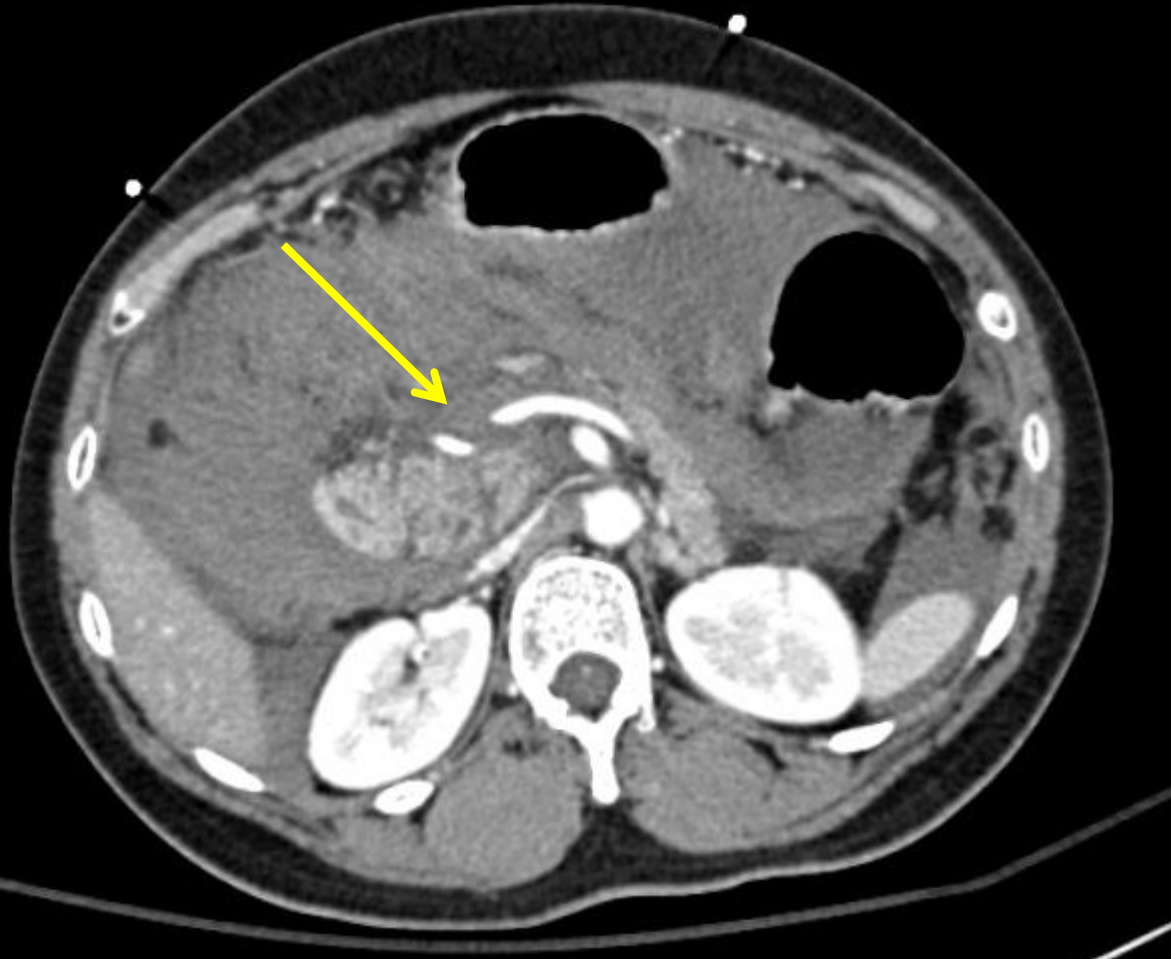


- Proximal transection
- Deep parenchymal injury involving the ampulla and/or intrapancreatic common bile duct
- *Proximal is right of the SMV

A. Skalski

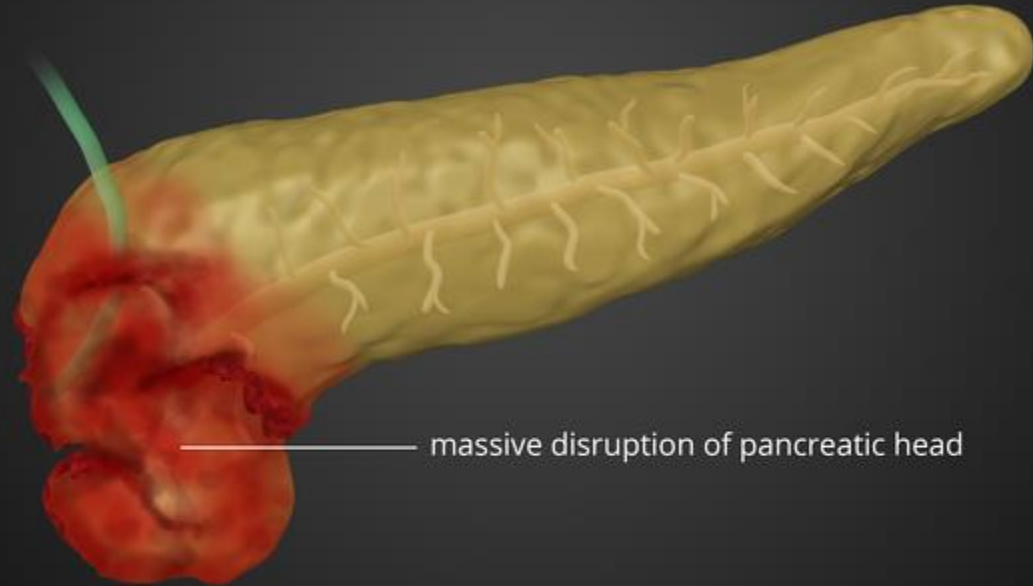


AAST Pancreas Grade 4



- Proximal transection
- Deep parenchymal injury involving the ampulla and/or intrapancreatic common bile duct

AAST Pancreas Grade 5



- Massive disruption of the pancreatic head

M. Skalski



AAST Pancreas Grade 5



- Massive disruption of the pancreatic head

AAST Pancreas Take Home Points

- Distal transection → 3
- Proximal transection → 4
- Head disruption → 5

AAST Trauma: Renal

- **Grade I**

- Subcapsular hematoma and/or contusion, without laceration

- **Grade II**

- Laceration ≤ 1 cm depth not involving the collecting system
- Perinephric hematoma confined within the fascia

- **Grade III**

- Laceration >1 cm not involving the collecting system
- Vascular injury or active bleeding confined within the fascia

- **Grade IV**

- Laceration involving the collecting system with urinary extravasation
- Laceration of the renal pelvis and/or complete ureteropelvic disruption
- Vascular injury to segmental renal artery or vein
- Segmental infarctions without associated active bleeding (i.e. due to vessel thrombosis)
- Active bleeding extending beyond the perirenal fascia

- **Grade V**

- Shattered kidney
- Avulsion of renal hilum or laceration of the main renal artery or vein
- Devascularisation of a kidney due to hilar injury
- Devascularised kidney with active bleeding

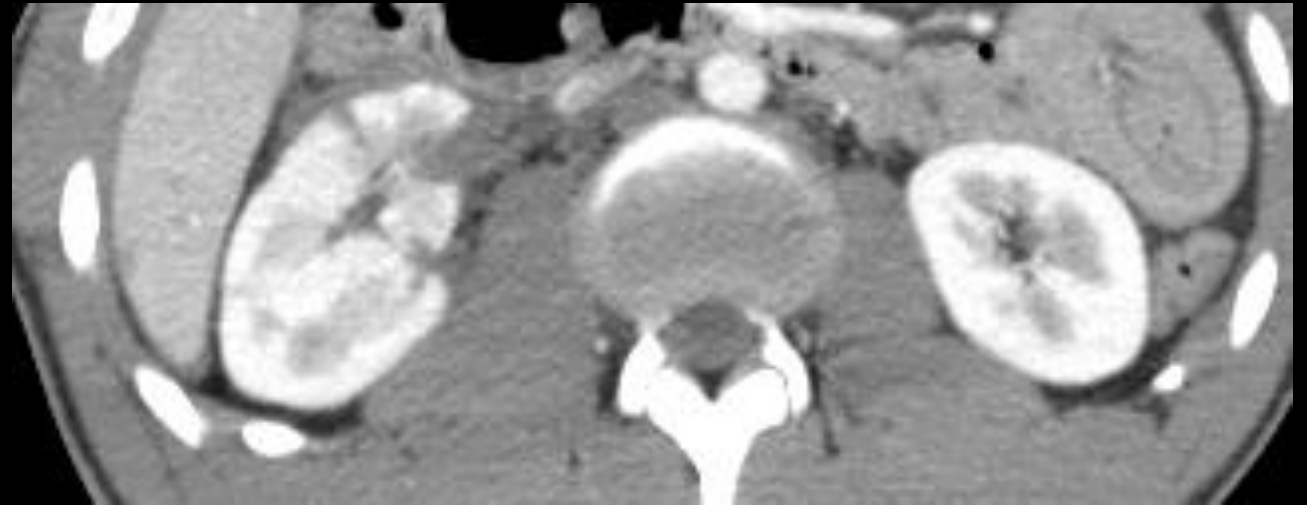
AAST Renal Grade 1

- Subcapsular hematoma and/or contusion, without laceration



AAST Renal Grade 2

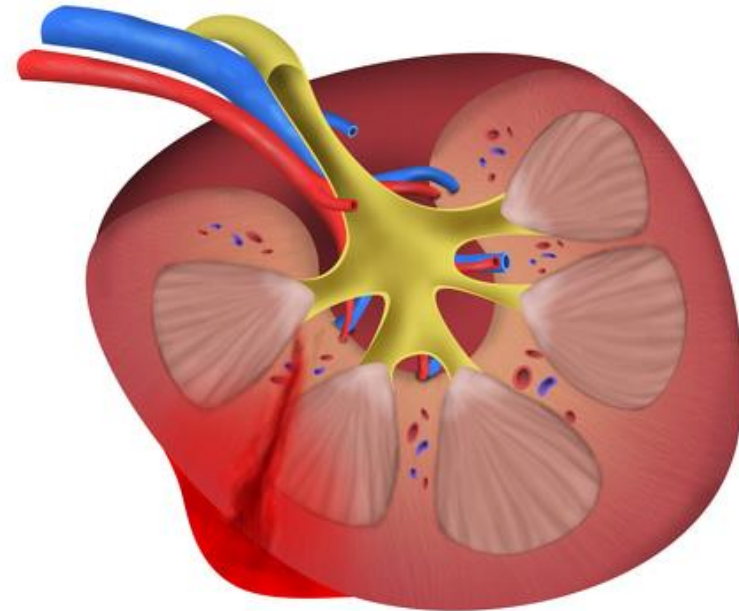
- Laceration ≤ 1 cm depth not involving the collecting system
- Perinephric hematoma confined within the fascia



AAST Trauma 3

- Laceration >1 cm not involving the collecting system
- Vascular injury or active bleeding confined within the fascia

Grade 3

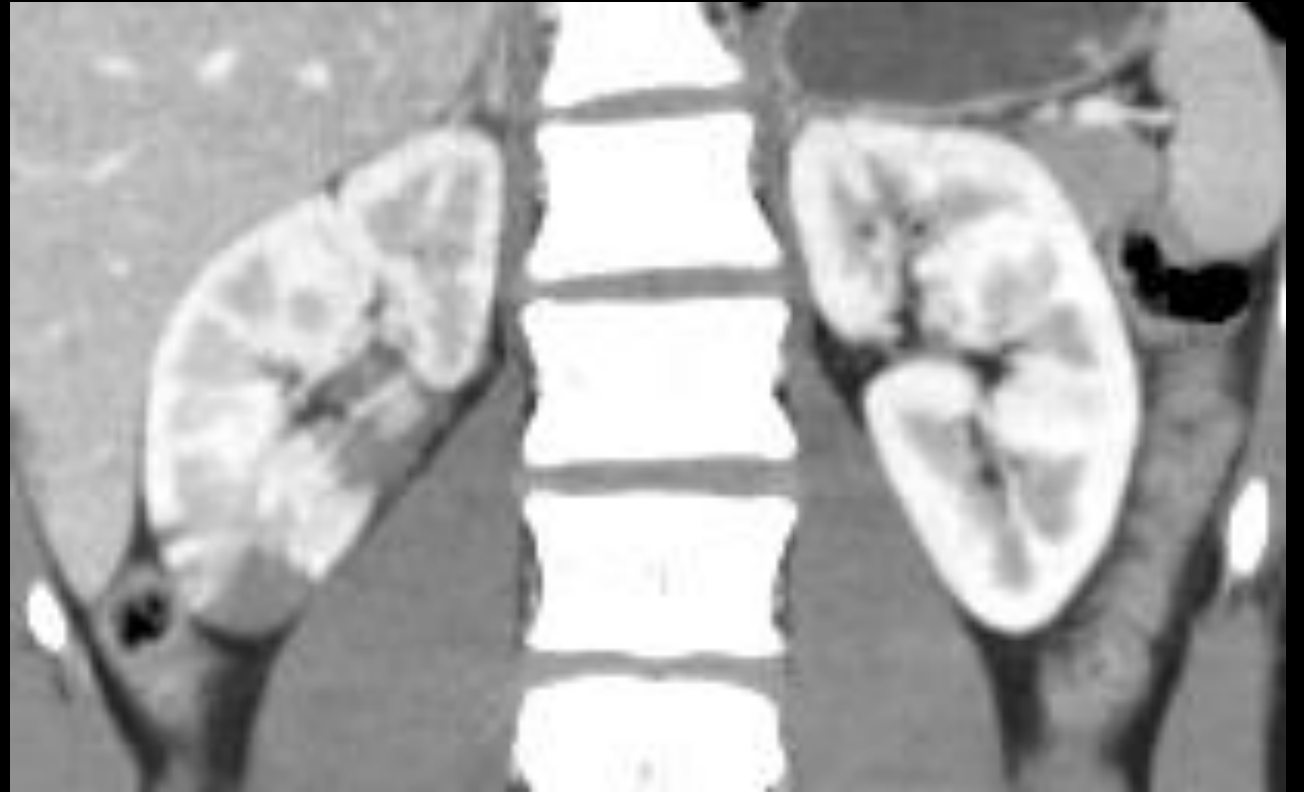


M. Skalski



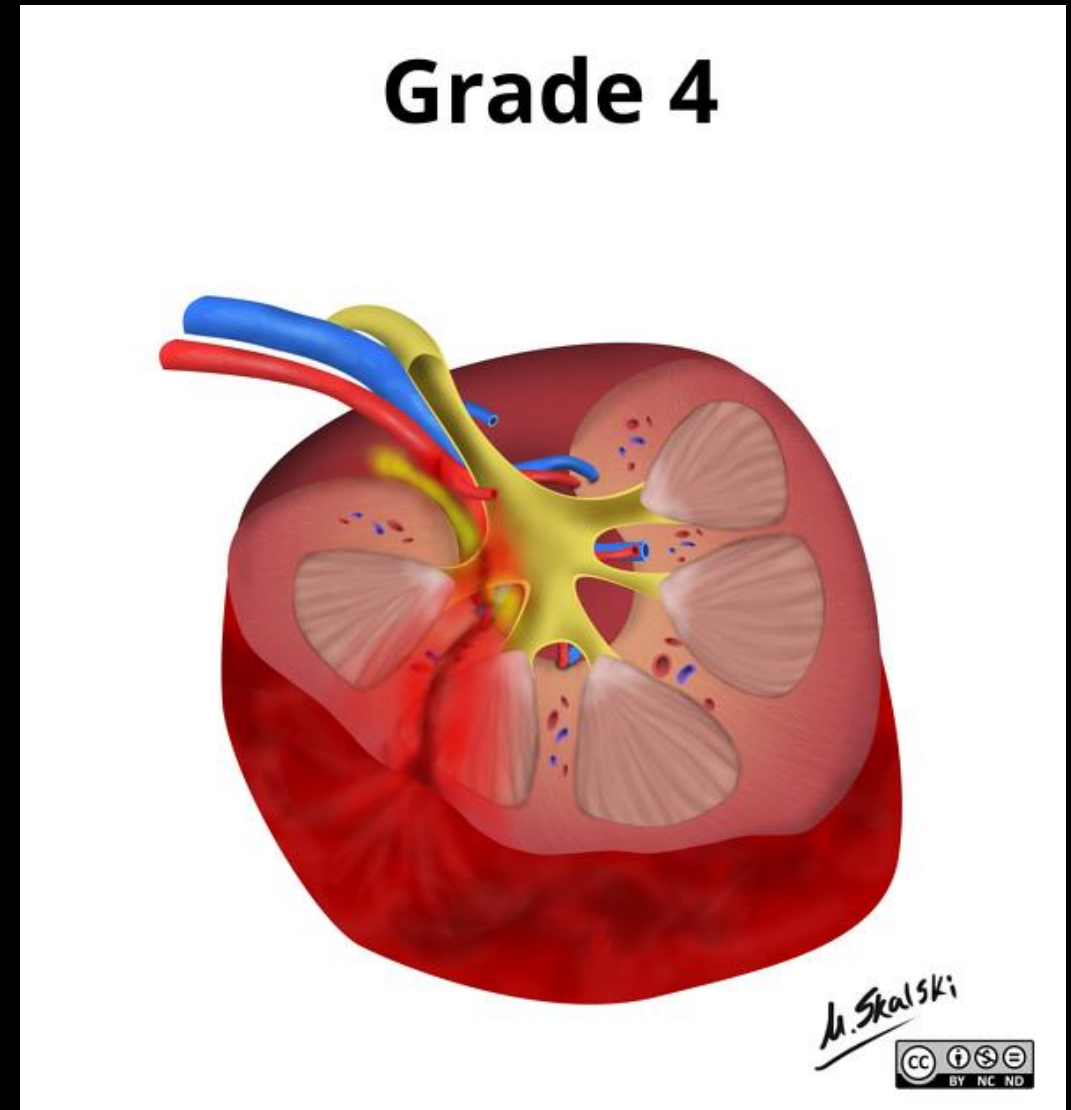
AAST Renal Grade 3

- Laceration >1 cm not involving the collecting system
- Vascular injury or active bleeding confined within the fascia



AAST Renal Grade 4

- Laceration involving the **collecting system with urinary extravasation**
- Laceration of the **renal pelvis** and/or complete ureteropelvic disruption
- Vascular injury to segmental renal artery or vein
- Segmental infarctions without associated active bleeding (i.e. due to vessel thrombosis)
- Active bleeding extending beyond the perirenal fascia



AAST Renal Grade 4

- Laceration involving the **collecting system with urinary extravasation**
- Laceration of the **renal pelvis** and/or complete ureteropelvic disruption
- Vascular injury to segmental renal artery or vein
- Segmental infarctions without associated active bleeding (i.e. due to vessel thrombosis)
- Active bleeding extending beyond the perirenal fascia



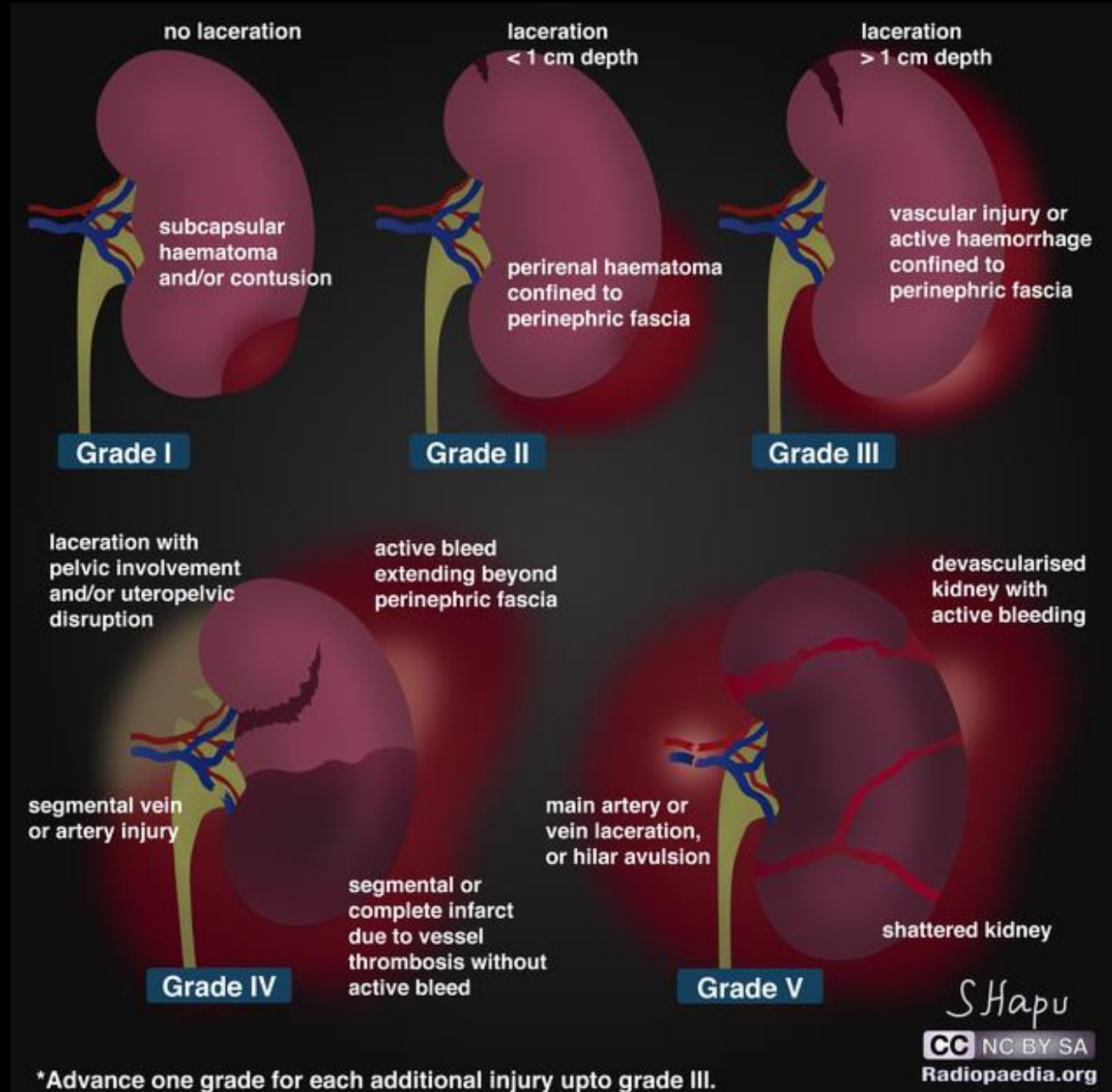
AAST Renal Grade 5

- Shattered kidney
- Avulsion of renal hilum or laceration of the main renal artery or vein
- Devascularisation of a kidney due to hilar injury
- Devascularised kidney with active bleeding



AAST Kidney Take Home Points

- Urinary injury → 4
- Segmental vascular injury → 4
- Bleeding beyond the fascia → 4
- Central vascular injury → 5



Thanks!



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