



# Urology Emergency, Part One : Trauma

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## Urological Emergencies

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graph TD; A[Urological Emergencies] --> B[Traumatic]; A --> C[Non-Traumatic]; B --> B1[Renal]; B --> B2[Ureteral]; B --> B3[Bladder]; B --> B4[Urethral]; B --> B5[Genital]; C --> C1[Hematuria]; C --> C2[Renal Colic]; C --> C3[Urinary Retention]; C --> C4[Acute Scrotum]; C --> C5[Urosepsis];
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### Traumatic

- Renal
- Ureteral
- Bladder
- Urethral
- Genital

### Non-Traumatic

- Hematuria
- Renal Colic
- Urinary Retention
- Acute Scrotum
- Urosepsis

# Trauma Emergency

## Number of Accident, Dead victim, Severe injury, Mild Injury, and Material Loss from 1992-2011

Tahun	Number of Accident	Death	Severe injury	Mild Injury	Material Loss (Million IDR)
2002	12,267	8,762	6,012	8,929	41,030
2003	13,399	9,856	6,142	8,694	45,778
2004	17,732	11,204	8,983	12,084	53,044
2005	91,623	16,115	35,891	51,317	51,556
2006	87,020	15,762	33,282	52,310	81,848
2007	49,553	16,955	20,181	46,827	103,289
2008	59,164	20,188	23,440	55,731	131,207
2009	62,960	19,979	23,469	62,936	136,285
2010	66,488	19,873	26,196	63,809	158,259
2011	108,696	31,195	35,285	108,945	217,435

Source : Kantor Kepolisian Republik Indonesia

Home > Otomotif > Motor

## Setiap Tahun, 36 Ribu Pengendara Motor Tewas Kecelakaan

Senin, 16 Juli 2012, 00:13 WIB

Komentar : 0

0



Antara/Yudhi Mahatma

Pengendara sepeda motor.

A+ | Reset | A-

### Jadwal Sholat

untuk DKI Jakarta & sekitarnya

Wilayah: Jakarta

Rabu, 20 Feb 2013  
20:51:42

Embed: <iframe src=""

Subuh 04:41:42

Dhuhur 12:09:41

Ashar 15:18:57

Maghrib 18:18:17





## 72 PERSEN KECELAKAAN JALAN RAYA MELIBATKAN SEPEDA MOTOR

Selasa, 05 Juni 2012 11:13 Admin1



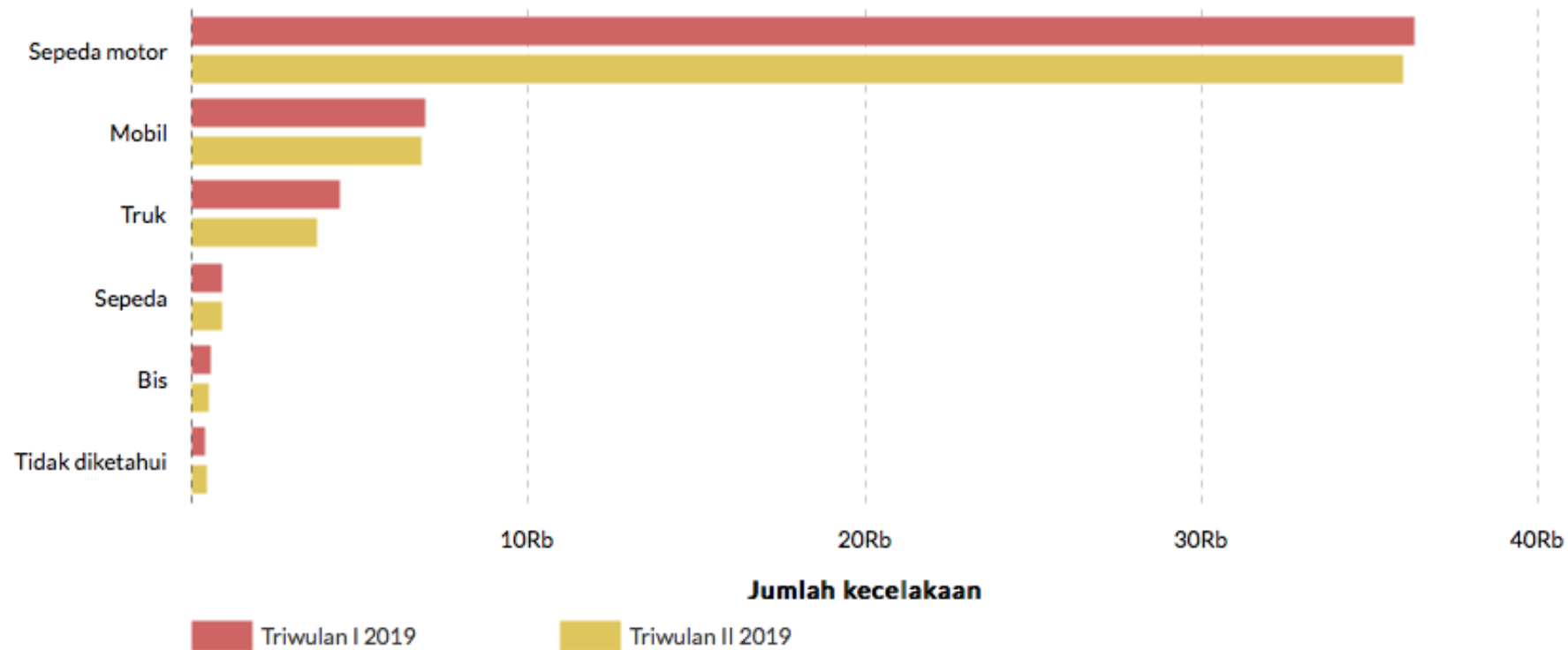
(Jakarta, 1/6/2012) Berdasarkan data kecelakaan lalu lintas pada tahun 2011, terungkap bahwa 72% dari kecelakaan lalu lintas jalan di Indonesia melibatkan sepeda motor. Data tersebut mengemuka pada saat Acara Diskusi Sehari Forum Wartawan Perhubungan yang mengambil tajuk "Upaya Melindungi Pengendara Sepeda Motor dari Ancaman Maut di Jalan Raya" pada Jumat, (1/6) di Ruang Nanggala, Kementerian Perhubungan.

Dirjen Perhubungan Darat, Suroyo Alimoeso, dalam sambutan pembukaan diskusi mengharapkan agar diskusi ini dapat melahirkan suatu rekomendasi yang dapat dijadikan acuan dalam mendukung upaya pemerintah melindungi pengendara sepeda motor dari ancaman maut di jalan raya. "Harus ada langkah nyata dan dimulai dari sekarang tanpa menunggu lebih banyak lagi korban dari pengendara sepeda motor," ungkap Suroyo.

Menurut Dirjen Suroyo, saat ini belum ada kebijakan yang komprehensif lintas sektor yang jelas dalam penanganan dampak negatif sepeda motor. "Satu sisi industri sepeda motor turut berdampak positif terhadap peningkatan perekonomian nasional, namun di sisi lain, tingginya angka kecelakaan lalu lintas, kesemrawutan lalu lintas, dan

# ANGKA KEMATIAN DBD DI INDONESIA

## Jumlah kecelakaan di Indonesia, Triwulan I dan II 2019



Sumber : Korlantas Polri

lokadata









- Principle of evaluation and management of urogenital trauma

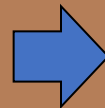
—————→ **ATLS**

**Initial Assessment**



**Primary Survey**

- A Airway**
- B Breathing**
- C Circulation**
- D Disability**
- E Exposure**



**Secondary Survey**

- Anamnesis**
- Physical Examination**
- Radiologic and laboratory**

## Initial Assessment

- 1 liter of fluid, judicious approach

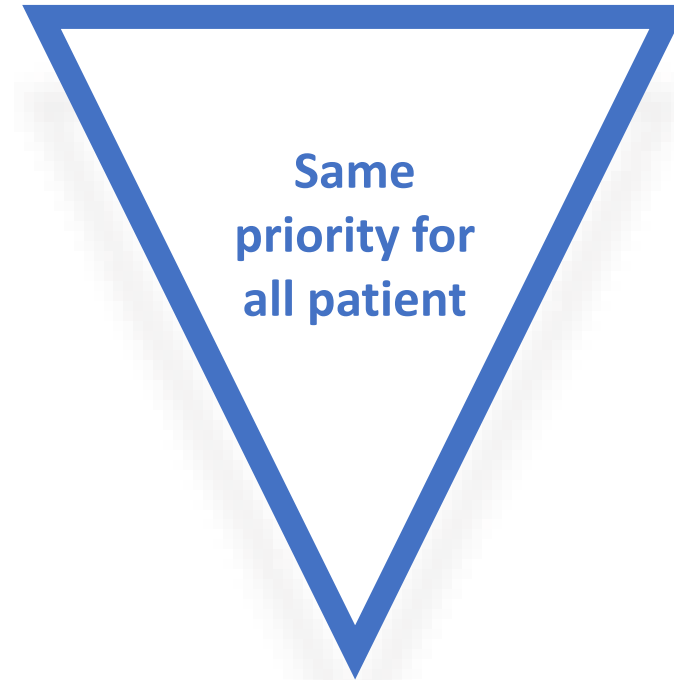
A bolus of isotonic solution **1 L for adults** and **20 mL/kg for paediatric < 40 kg** may be administered judiciously, as aggressive resuscitation before control of bleeding has been demonstrated. If a patient is unresponsive to initial crystalloid therapy → blood transfusion.

Aggressive and continued volume resuscitation is not a substitute for definitive control of haemorrhage.

- Focus on massive transfusion protocols
- Tranexamic acid
- Coagulopathy
- Canadian C Spine Rule
- Trauma team

# Advanced Trauma Life Support (ATLS)

- A** Airway maintenance with restriction of cervical spine motion
- B** Breathing
- C** Circulation, with hemorrhage control
- D** Disability
- E** Exposure / Environment

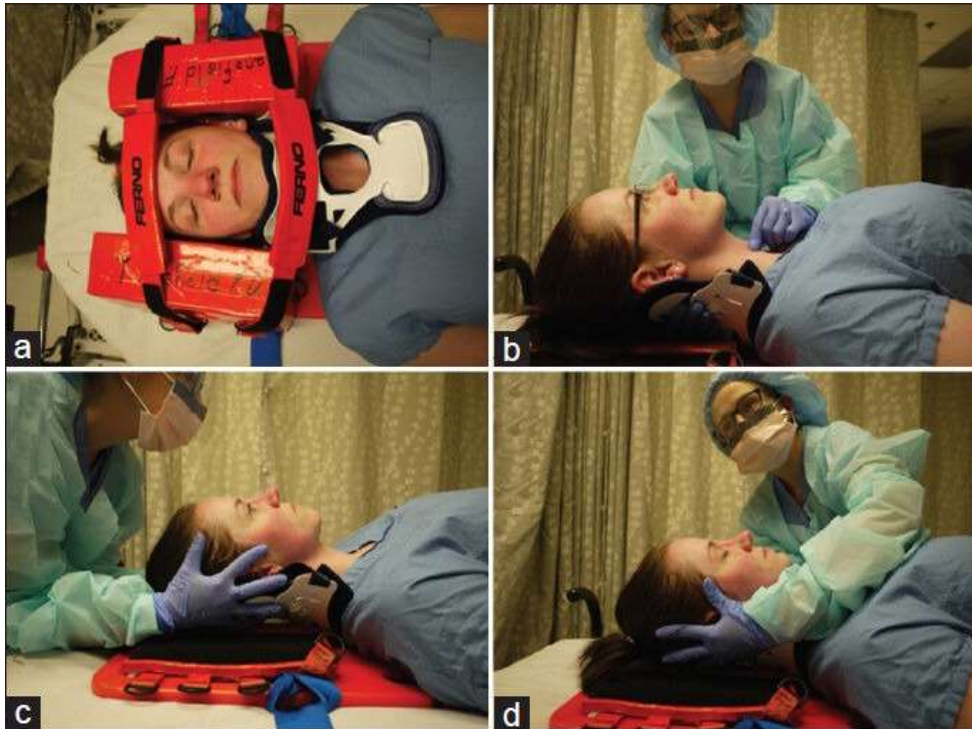


# A

## Airway maintenance with restriction of cervical spine motion

First assess the airway to ascertain patency.

Includes inspecting for foreign bodies; identifying facial, mandibular, and/or tracheal/laryngeal fractures and other injuries that can result in airway obstruction; and suctioning to clear accumulated blood or secretions that may lead to or be causing airway obstruction. Begin measures to establish a patent airway while restricting cervical spine motion.



# B

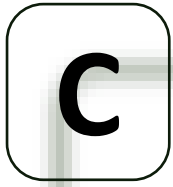
## Breathing

Airway patency alone does not ensure adequate ventilation. Adequate gas exchange is required to maximize oxygenation and carbon dioxide elimination. Ventilation requires adequate function of the lungs, chest wall, and diaphragm; therefore, clinicians must rapidly examine and evaluate each component.

Expose the patient's neck and chest → assess jugular venous distention, position of the trachea, and chest wall excursion → detect injuries to the chest wall that may be compromising ventilation

Intubation may be required





## Circulation, with hemorrhage control

Identifying, quickly controlling haemorrhage, and initiating resuscitation are therefore crucial steps in assessing and managing such patients.

The elements of clinical observation that yield important information within seconds are:

- **Level of Consciousness**—When circulating blood volume is reduced, cerebral perfusion may be critically impaired, resulting in an altered level of consciousness.
- **Skin Perfusion**—This sign can be helpful in evaluating injured hypovolemic patients. A patient with pink skin, especially in the face and extremities, rarely has critical hypovolemia after injury. Conversely, a patient with hypovolemia may have ashen, grey facial skin and pale extremities.
- **Pulse**—A rapid, thready pulse is typically a sign of hypovolemia. Assess a central pulse (e.g., femoral or carotid artery) bilaterally for quality, rate, and regularity. Absent central pulses that cannot be attributed to local factors signify the need for immediate resuscitative action.

Identify the source of bleeding as external or internal

The major areas of internal haemorrhage are the chest, abdomen, retroperitoneum, pelvis, and long bones

**TABLE 3-1 SIGNS AND SYMPTOMS OF HEMORRHAGE BY CLASS**

PARAMETER	CLASS I	CLASS II (MILD)	CLASS III (MODERATE)	CLASS IV (SEVERE)
Approximate blood loss	<15%	15-30%	31-40%	>40%
Heart rate	↔	↔/↑	↑	↑/↑↑
Blood pressure	↔	↔	↔/↓	↓
Pulse pressure	↔	↓	↓	↓
Respiratory rate	↔	↔	↔/↑	↑
Urine output	↔	↔	↓	↓↓
Glasgow Coma Scale score	↔	↔	↓	↓
Base deficit*	0 to -2 mEq/L	-2 to -6 mEq/L	-6 to -10 mEq/L	-10 mEq/L or less
Need for blood products	Monitor	Possible	Yes	Massive Transfusion

# Shock Management

- Classification of Hemorrhagic shock
- Use of blood and blood component
  - Early Resuscitation using blood and blood component must be considered in patient with evidence of class III and IV
  - Earlier use of PRC can prevent coagulopathy and thrombocytopenia
- Coagulopathy management
- Tranexamic Acid
  - Improve survival → TXA administration more than 10 minutes in 3 hours of injury.
  - Continued with TAX 1 gram infusion within 8 hours.
- Trauma team



# D

## Disability

A rapid neurologic evaluation establishes the patient's level of consciousness and pupillary size and reaction; identifies the presence of lateralizing signs; and determines spinal cord injury level, if present.

The GCS is a quick, simple, and objective method of determining the level of consciousness.

Glasgow Coma Scale						
	1	2	3	4	5	6
Eye	Does not open eyes	Opens eyes in response to pain	Opens eyes in response to voice	Opens eyes spontaneously	N/A	N/A
Verbal	Makes no sounds	Makes sounds	Words	Confused, disoriented	Oriented, converses normally	N/A
Motor	Makes no movements	Extension to painful stimuli ( <a href="#">decerebrate response</a> )	Abnormal flexion to painful stimuli ( <a href="#">decorticate response</a> )	Flexion / Withdrawal to painful stimuli	Localizes to painful stimuli	Obeys commands

# E

## Exposure / Environment

During the primary survey, completely undress the patient, usually by cutting off his or her garments to facilitate a thorough examination and assessment. After completing the assessment, cover the patient with warm blankets or an external warming device to prevent him or her from developing hypothermia in the trauma receiving area. Warm intravenous fluids before infusing them, and maintain a warm environment.



- **Trauma**

- About 5 – 10% of abdominal trauma causes urogenital trauma

- Based on affected organ

- Renal

- Ureter

- Bladder

- Urethra

- Penis

- Testis

# Renal Trauma

Renal trauma is present in to up **5%** of all trauma cases. It is most common in young males and has an overall population incidence of **4.9 per 100,000**

## 1. Blunt Injuries

Result from MVAs (Motor Vehicle Accidents), falls, sporting injuries, and assault. The kidney and/or hilar structures are directly crushed as a result. Less commonly, sudden deceleration may result in an avulsion injury affecting the vascular structures of the hilum or the ureteropelvic junction

## 2. Penetrating Injuries

Due to stab and gunshot wounds. They tend to be more severe and less predictable than blunt trauma. The prevalence is higher in urban settings [33]. Penetrating injury produces direct tissue disruption of the parenchyma, vascular pedicles, or collecting system. High-velocity bullets or fragments have the potential for greatest parenchymal destruction and are most often associated with multiple- organ injuries

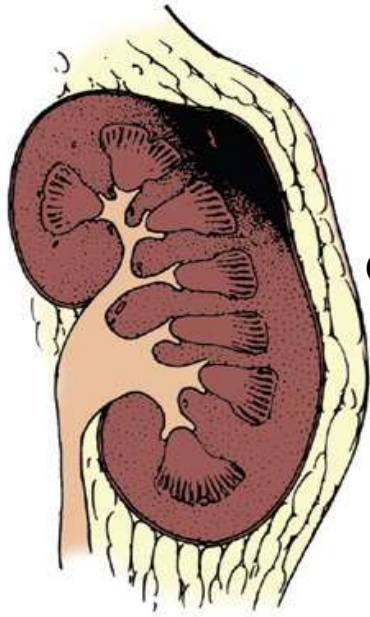


## American Association for the Surgery of Trauma (AAST) Renal Injury Grading Scale

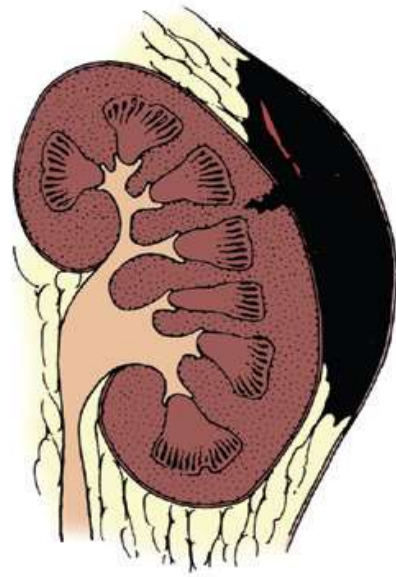
Grade*	Description of injury
1	Contusion or non-expanding sub-capsular haematoma
	No laceration
2	Non-expanding peri-renal haematoma
	Cortical laceration < 1 cm deep without extravasation
3	Cortical laceration > 1 cm without urinary extravasation
4	Parenchymal laceration: through corticomedullary junction into collecting system <i>or</i>
	Vascular: segmental renal artery or vein injury with contained haematoma, or partial vessel laceration, or vessel thrombosis
5	Parenchymal: shattered kidney <i>or</i>
	Vascular: renal pedicle or avulsion

*\*Advance one grade for bilateral injuries up to grade III.*

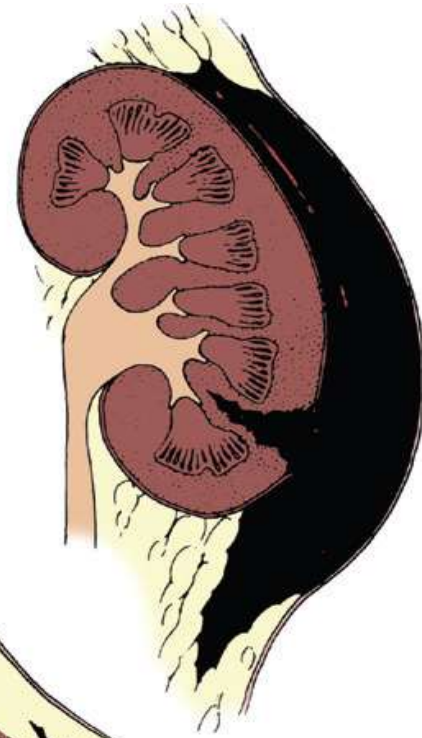
**Grade I**



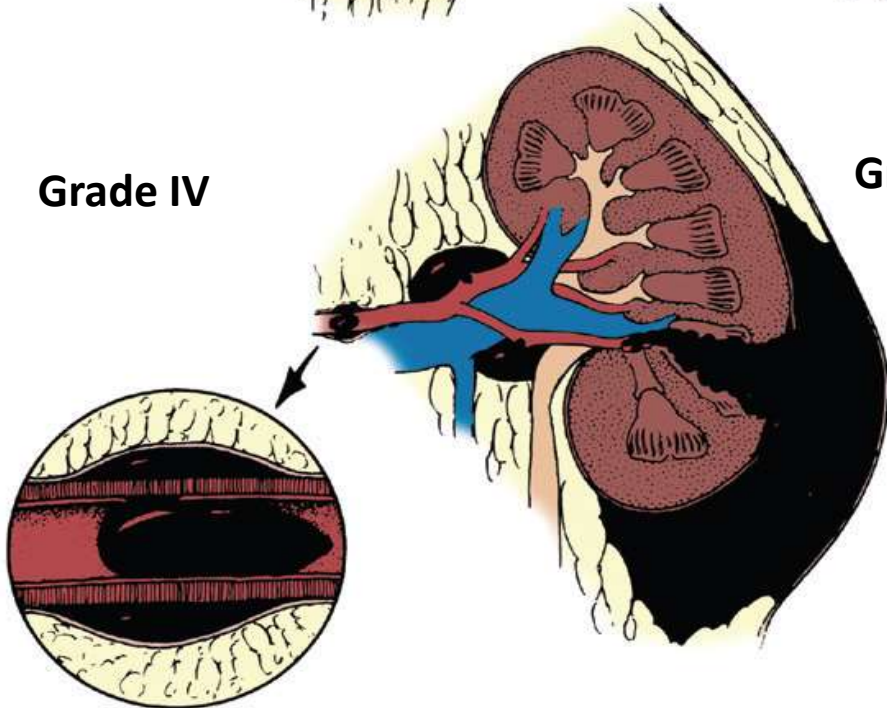
**Grade II**



**Grade III**



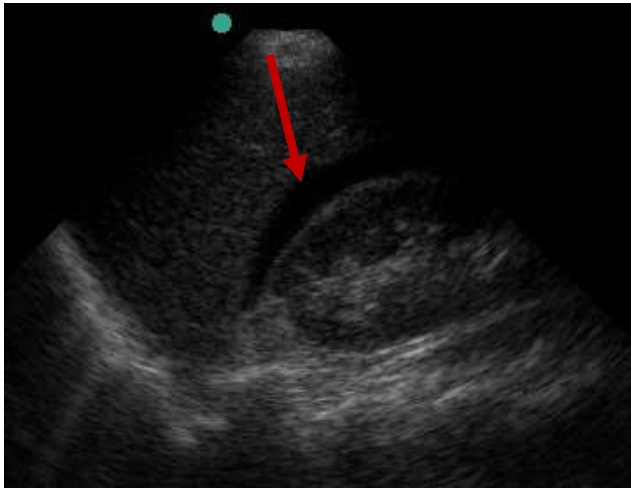
**Grade IV**



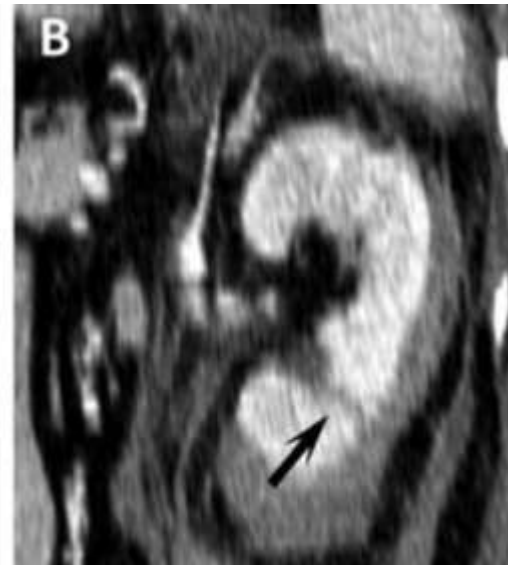
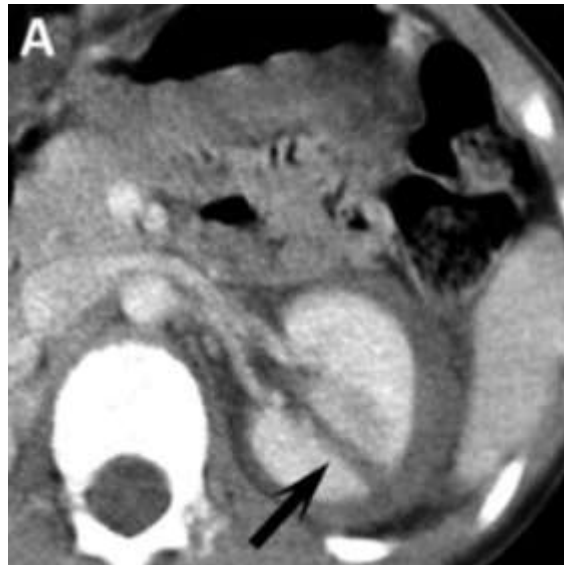
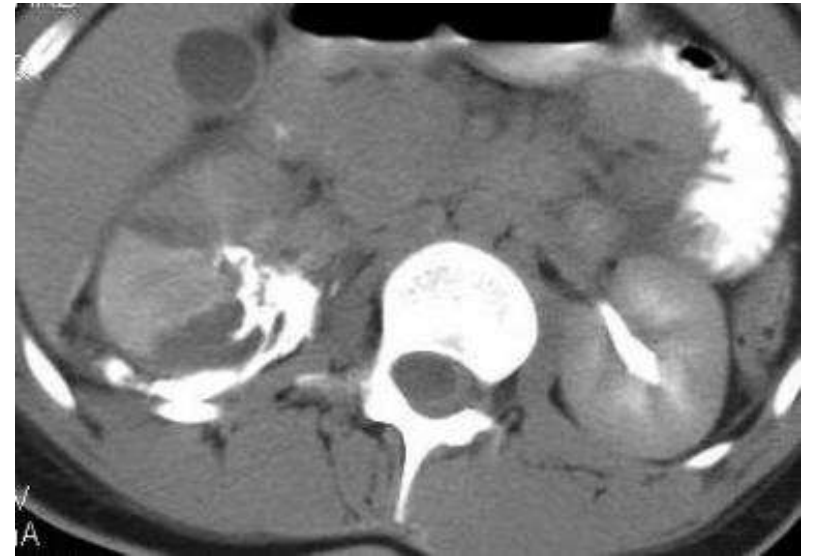
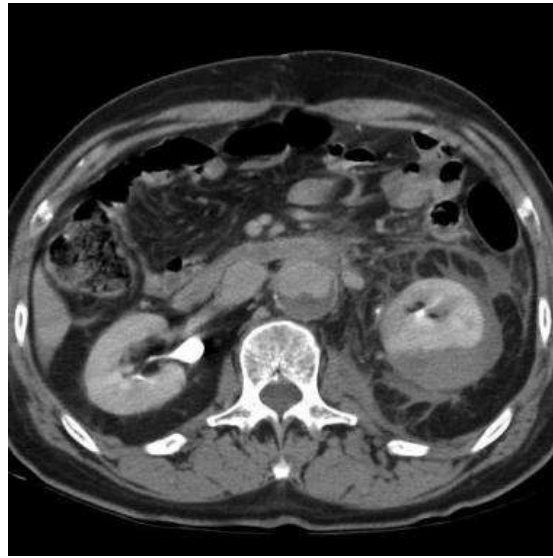
**Grade V**



- Time of accident, trauma mechanism
- Vital sign, resuscitation according to ATLS (*Advance Trauma Life Support*)
- Injury on *flank area*, other organ injury, gross hematuria, blood test
- **Imaging:**
  - USG FAST → fluid collection
  - Computed Tomography (CT) scan
  - Intraoperative one-shot intravenous pyelography (IVP) with bolus iv 2 mL/kg contrast



USG FAST Fluid collection



Contrast Abdominal CT Scan on Renal Trauma



## EAU 2019 Recommendations for Evaluation of Renal Trauma

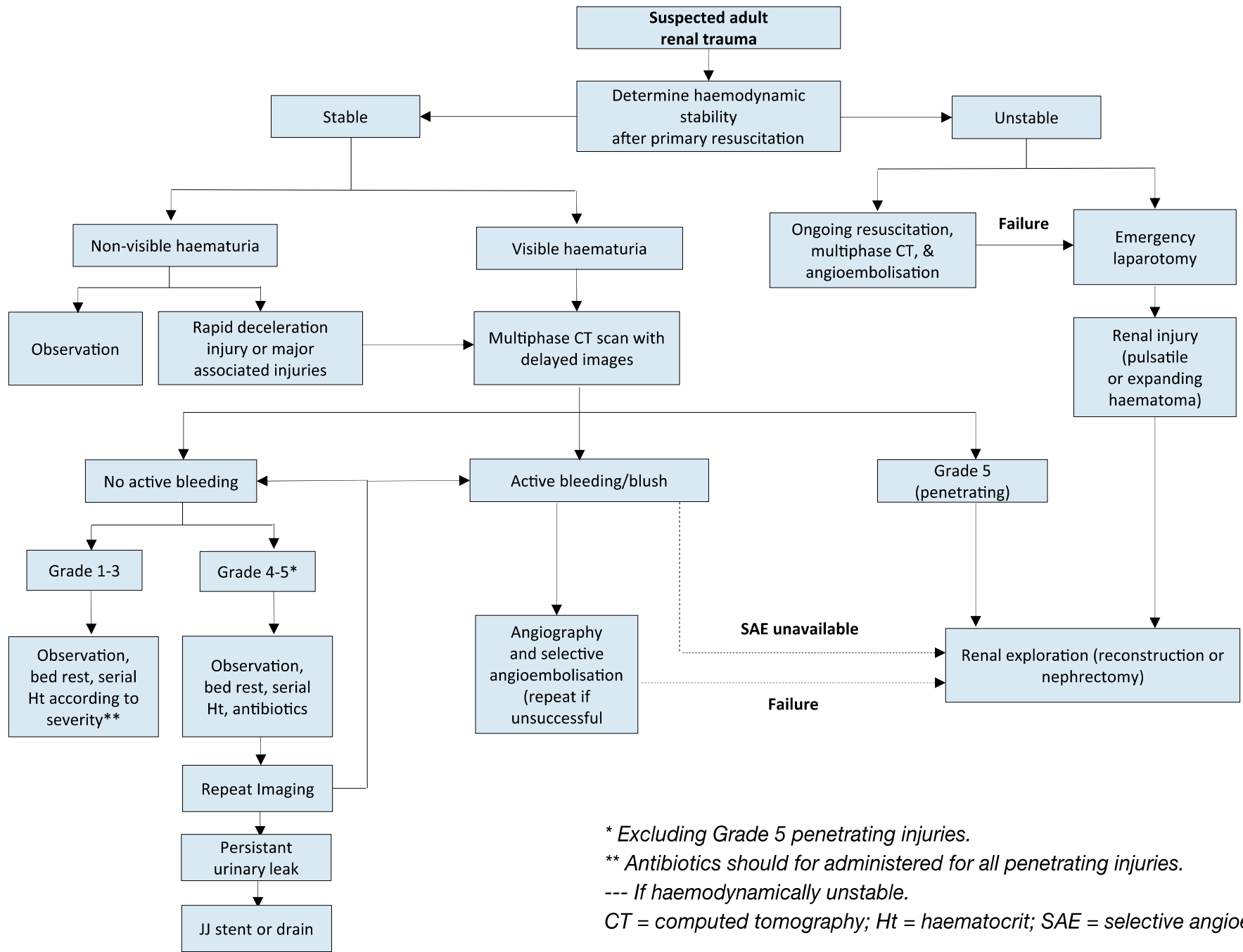
Recommendations	Strength rating
<b>Evaluation</b>	
Assess haemodynamic stability upon admission.	Strong
Record past renal surgery, and known pre-existing renal abnormalities (ureteropelvic junction obstruction, solitary kidney, lithiasis).	Strong
Test for haematuria in a patient with suspected renal injury.	Strong
Perform a multiphase computed tomography scan in trauma patients with: <ul data-bbox="249 768 1931 1129" style="list-style-type: none"><li>• visible haematuria;</li><li>• non-visible haematuria and one episode of hypotension;</li><li>• a history of rapid deceleration injury and/or significant associated injuries;</li><li>• penetrating trauma;</li><li>• clinical signs suggesting renal trauma e.g. flank pain, abrasions, fractured ribs, abdominal distension and/or a mass and tenderness.</li></ul>	Strong

# Management

- Mostly cases can be treated by conservative therapy (non-operating management)
  - Evaluation of vital sign, total bed rest
  - Sign of acute abdomen, abdominal circumference
  - Urine Production (quality and quantity)
  - Renal function and routine blood test
- Unstable Haemodynamic → exploration
  - Evaluation of other organ injury which maybe involved
  - Possibility of nephrectomy

# EAU 2019 Recommendations for Management of Renal Trauma

Recommendations	Strength rating
<b>Management</b>	
Manage stable patients with blunt renal trauma non-operatively with close monitoring and re-imaging as required.	Strong
Manage isolated Grade 1-4 stab and low-velocity gunshot wounds in stable patients non-operatively.	Strong
Use selective angioembolisation for active renal bleeding if there are no other indications for immediate surgical exploration.	Strong
Proceed with renal exploration in the presence of: <ul style="list-style-type: none"> <li>• persistent haemodynamic instability;</li> <li>• Grade 5 vascular or penetrating injury;</li> <li>• expanding or pulsatile peri-renal haematoma.</li> </ul>	Strong
Attempt renal reconstruction if haemorrhage is controlled and there is sufficient viable renal parenchyma.	Weak
Repeat imaging in high-grade injuries and in cases of fever, worsening flank pain, or falling haematocrit.	Strong
Follow-up approximately three months after major renal injury with: <ul style="list-style-type: none"> <li>• physical examination;</li> <li>• urinalysis;</li> <li>• individualised radiological investigation including nuclear scintigraphy;</li> <li>• blood pressure measurement;</li> <li>• renal function tests.</li> </ul>	Weak
Measure blood pressure annually to diagnose renovascular hypertension.	Strong



\* Excluding Grade 5 penetrating injuries.

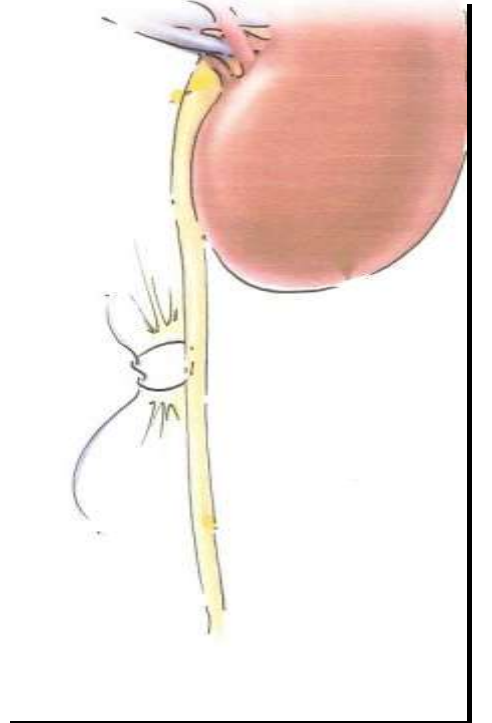
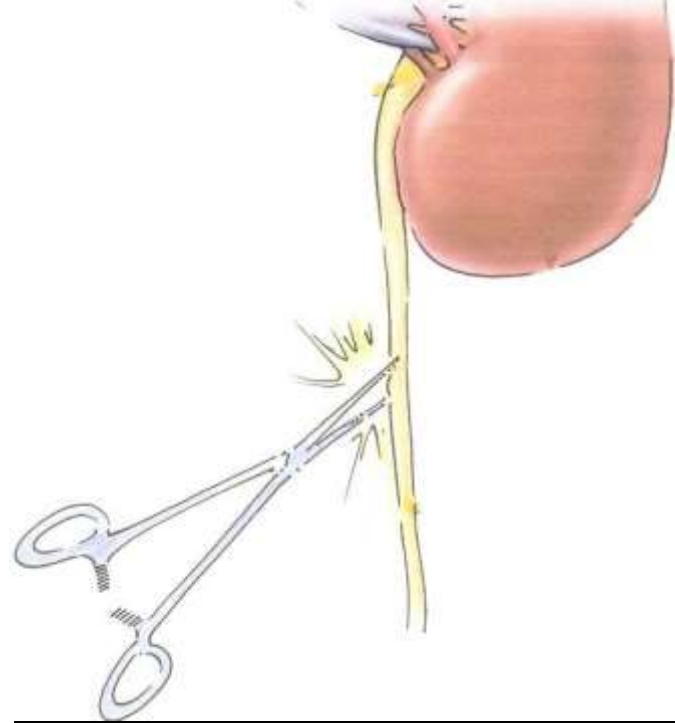
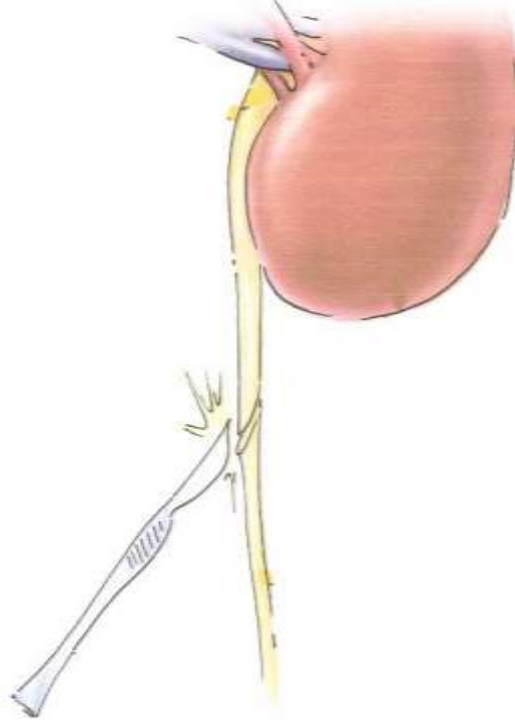
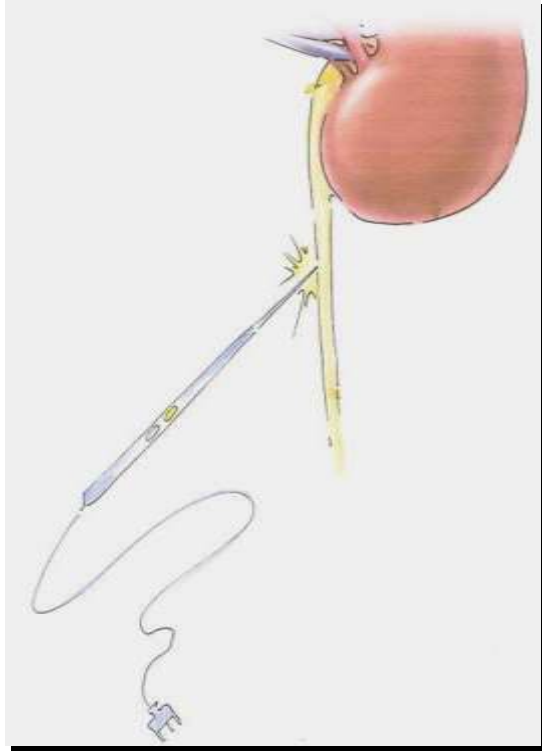
\*\* Antibiotics should for administered for all penetrating injuries.

--- If haemodynamically unstable.

CT = computed tomography; Ht = haematocrit; SAE = selective angioembolisation.

# Ureteral Trauma

- Mostly iatrogenic → **80%** (Urology, Obsgyn, Digestive surgery)
- Traffic Accident, stab wound and gun shot → Rare
  - Ureter, a small tube shaped, covered in posterior part of abdomen, and mobile.
- Ureteral trauma : **1-2.5%** of urinary tract trauma due to external trauma.



## American Association for the Surgery of Trauma (AAST) Ureteral Injury Grading Scale

Grade	Description of injury
I	Haematoma only
II	Laceration < 50% of circumference
III	Laceration > 50% of circumference
IV	Complete tear < 2 cm of devascularisation
V	Complete tear > 2 cm of devascularisation

## Ureteral Trauma can cause :

- **Ureteral Obstruction**

- Tightened Ureter, traction by surrounded fibrotic ligated tissue  
→ hydronephrosis and renal function disorder.

- **Urinary extravasation**

- Ureteral rupture/cut  
→ urinary extravasation, urinoma, abscess, urosepsis

- **Ureteral Fistule**

- Ureterocutaneous fistule
- Ureterovaginal fistule



# Imaging

1. USG
2. BNO/IVP
3. CT-SCAN
4. Retrograde or antegrade pyelography

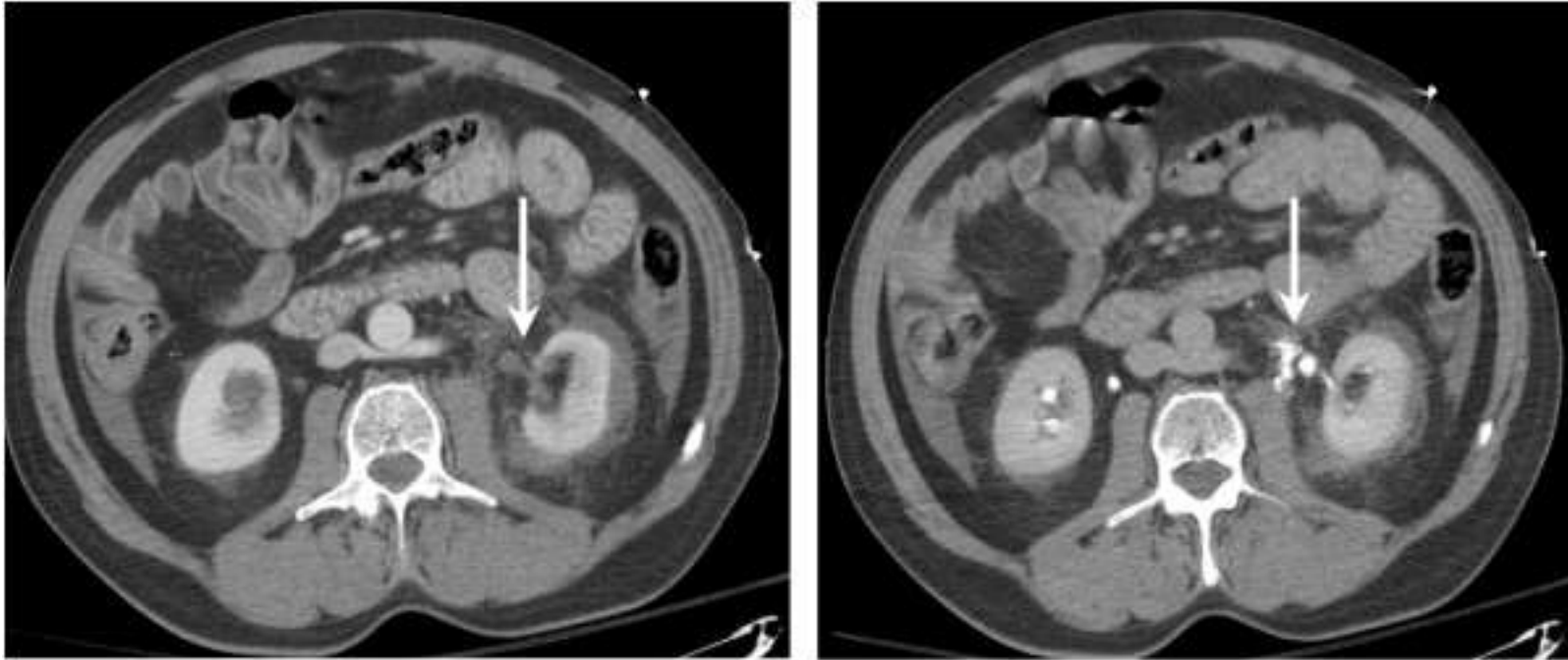


Right Hydronephrosis due to Ureteral Obstruction in Right Iatrogenic Ureteral Injury



Delay function on Right kidney + Hydronephrosis Gr III





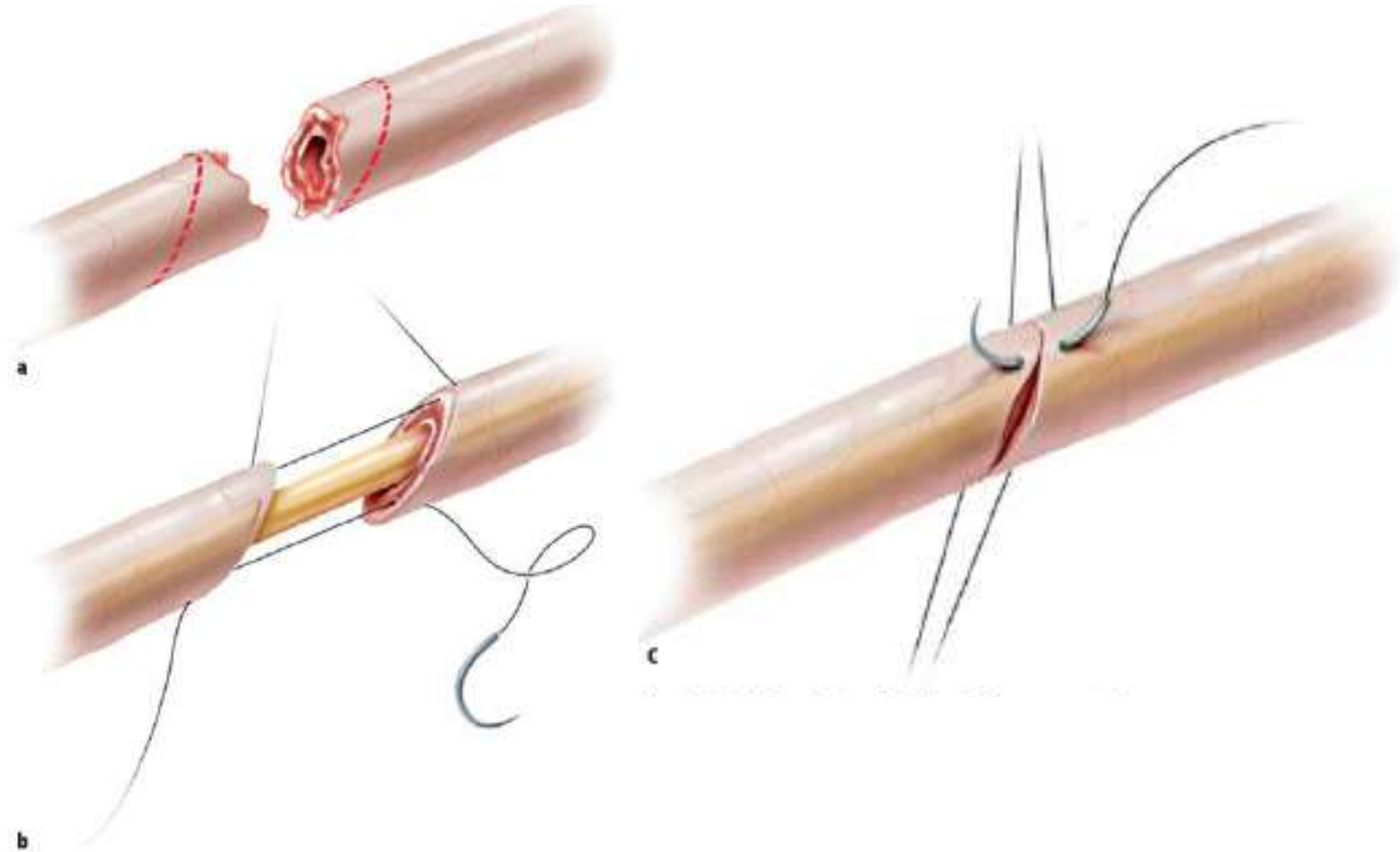
Contrast Abdominal CT Scan on Left Iatrogenic Ureteral Trauma

# Retrograde Pyelography on Right Iatrogenic Ureteral Trauma



# Management

1. Evaluation of ureteral defect
2. Primary suture
3. End to end anastomosis
4. Ureteral Reconstruction
  - Ureteroneocystostomy
  - Ureterocalicostomy
  - Ureteroureterostomy
  - Ureteral Substitution
5. Splint/DJ Stent Insertion



End to End Anastomosis with spatulated

# Ureteroneocystostomy

## INTRAVESICAL

- Politano-Lead Better ( supra hiatal) (intravesical)
- Glenn Anderson (infra hiatal )
- Cohen ( trans trigonal)
- Gil Vernet
- Paquin
- Spatulated Nipple technique

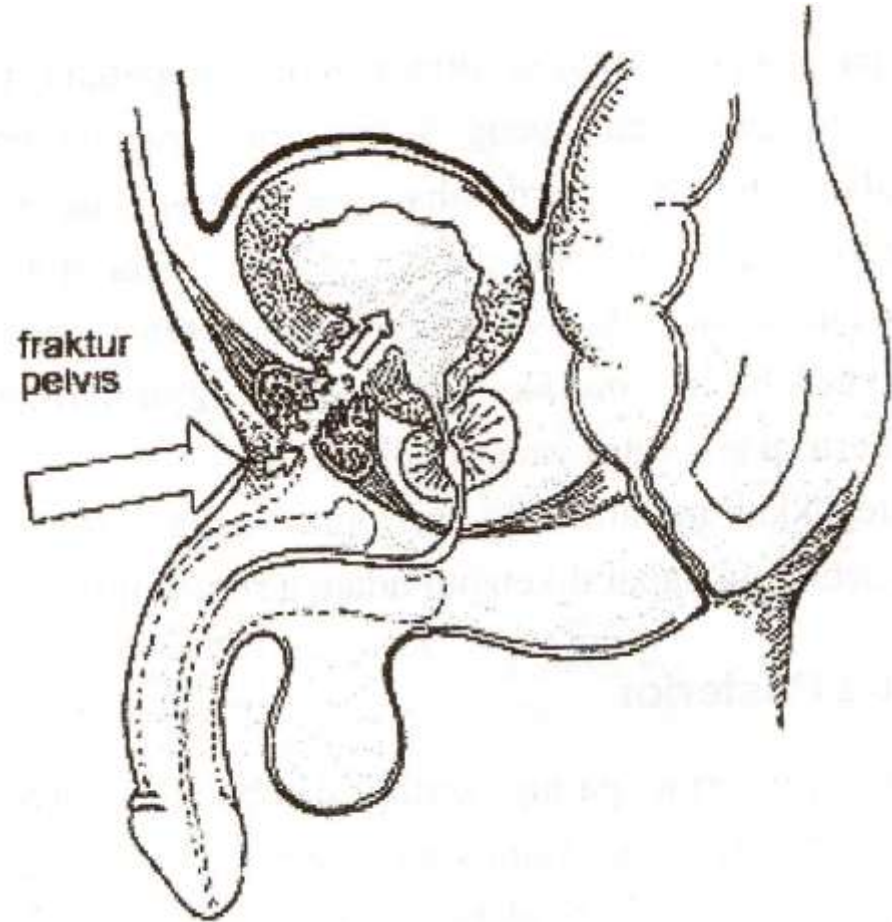
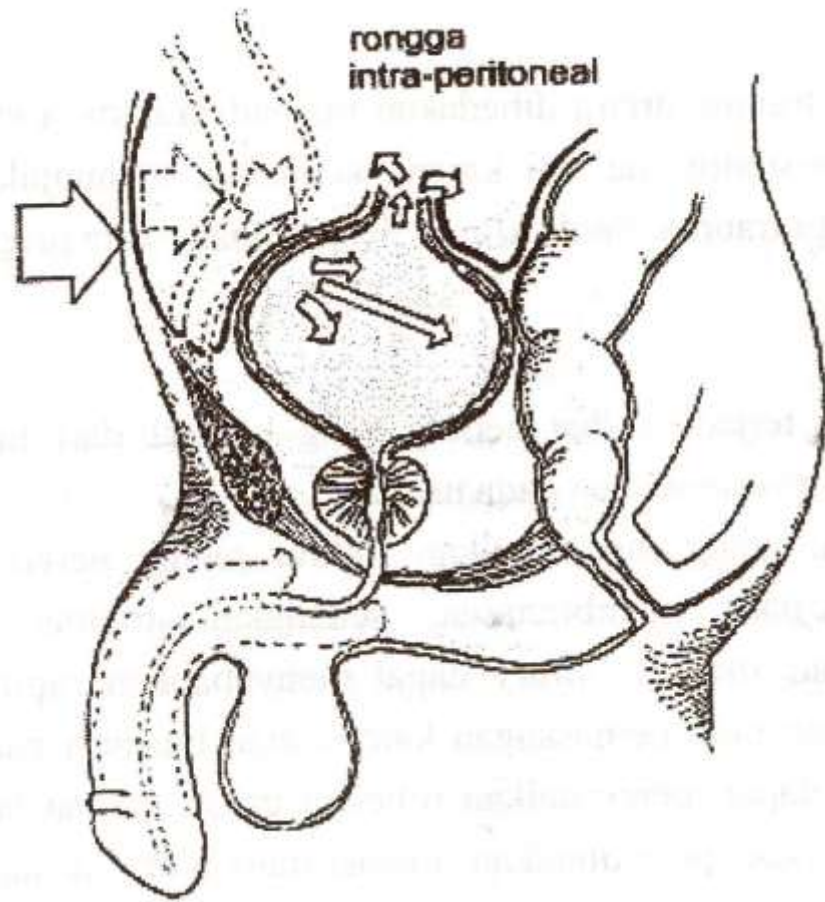
## EXTRAVESICAL

- Lich-Gregoir
- Boari Flap
- Psoas Hitch

# Bladder Trauma

- Rare cases → 1.6 % of patient with abdominal trauma. 75% male
- Due to blunt and sharp trauma
  - Intraperitoneal Rupture
  - Extraperitoneal Rupture
- Pelvic Fracture → Suspected bladder trauma
  - 87 % of bladder rupture caused by pelvic fracture
  - 8.7 % of pelvic fracture caused bladder rupture
    - Correlated to urethral rupture
- Bladder Trauma :
  - *hematuria, suprapubic injury and pain, abdominal distention, unable to urinate, peritonitis*





## American Association for the Surgery of Trauma (AAST) Bladder Injury Grading Scale

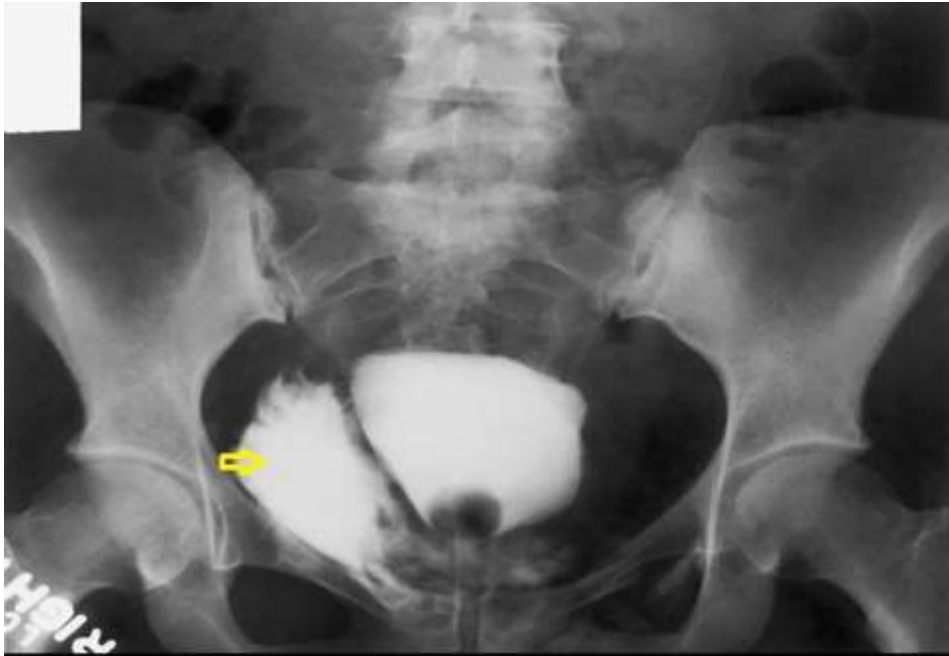
Grade*	Description
I	Hematoma      Contusion, intramural hematoma
	Laceration      Partial thickness
II	Laceration      Extraperitoneal bladder wall laceration < 2 cm
III	Laceration      Extraperitoneal (> 2 cm) or intraperitoneal (< 2 cm) bladder wall laceration
IV	Laceration      Intraperitoneal bladder wall laceration > 2 cm
V	Laceration      Intraperitoneal or extraperitoneal bladder wall laceration extending into the bladder neck or ureteral orifice (trigone)

*\*Advance one grade for multiple injuries up to grade III.*

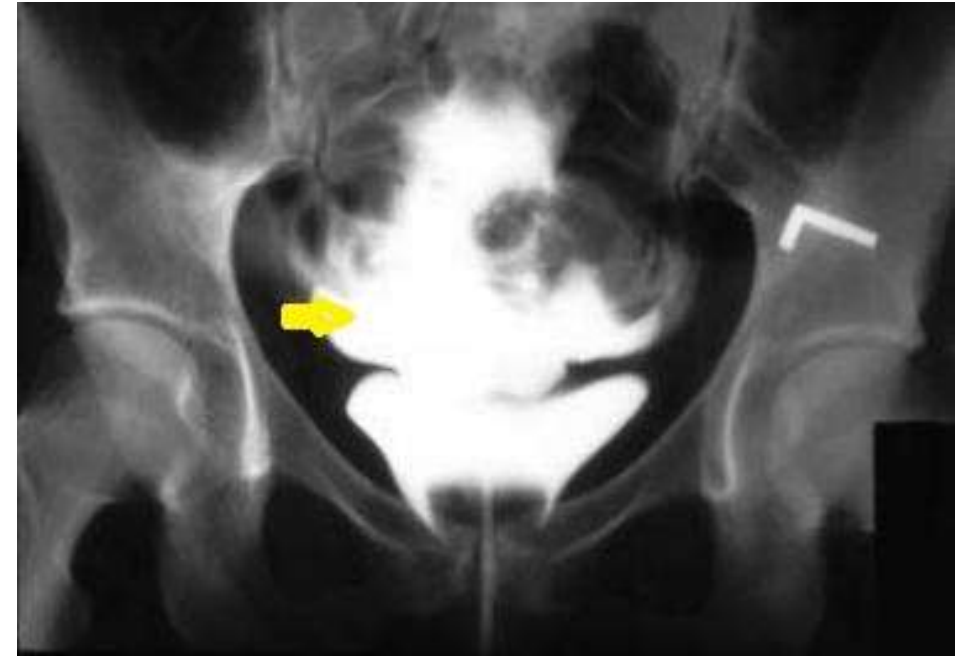
*<sup>1</sup> Adapted from the AAST.*

# Imaging

## Cystography



Extraperitoneal Rupture



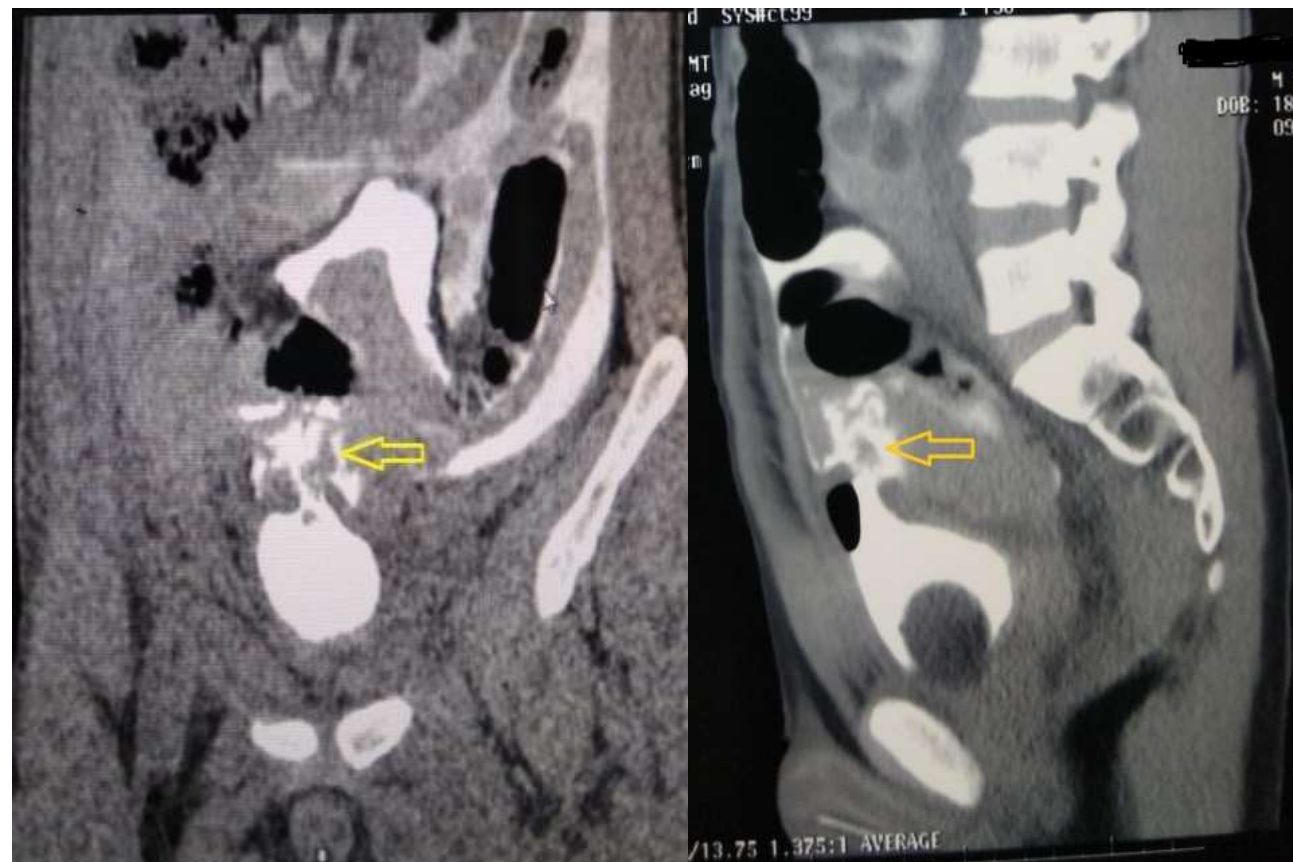
Intraperitoneal Rupture

**Sensitivity 95%**  
**Specificity 100%**

# CT Cystography



Extraperitoneal Rupture

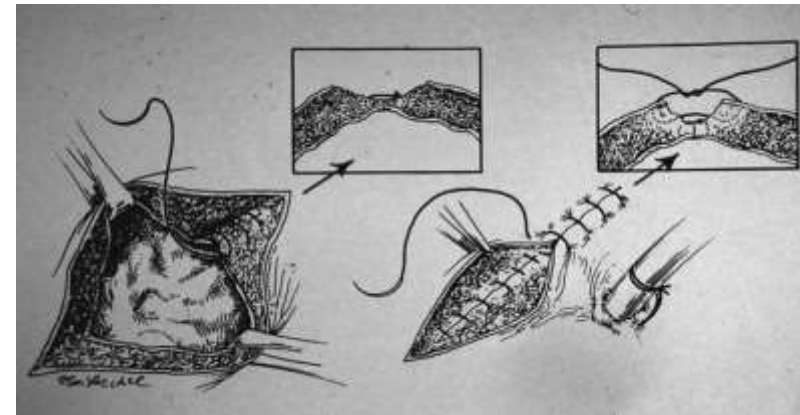
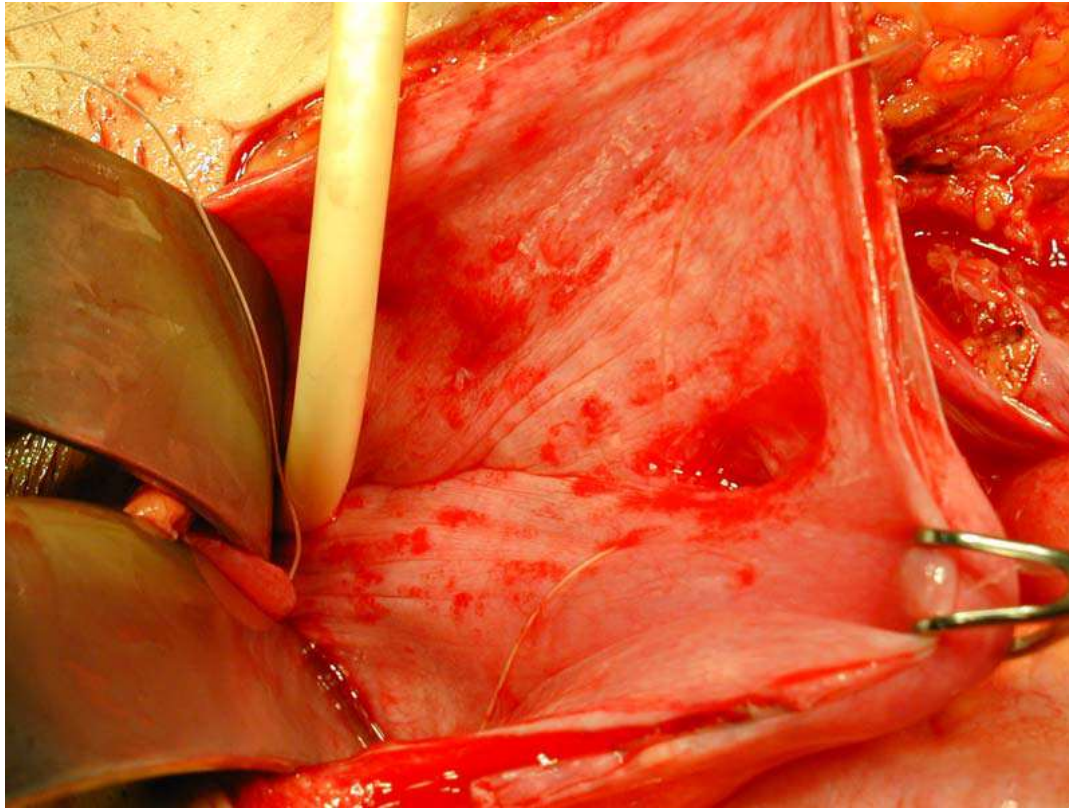


Intraperitoneal Rupture

**Sensitivity 95%**  
**Specificity 100%**

# Management

- Extraperitoneal Bladder Rupture :
  - Catheter insertion
  - Non operative management, except the presence of bladder neck rupture
- Intraperitoneal Bladder Rupture :
  - Laparotomy exploration
  - Bladder repair
- Evaluation of cystogram for 7-10 days before catheter removal



## EAU 2019 Recommendations for Management of Bladder Trauma

Recommendations	Strength rating
Perform cystography in the presence of visible haematuria and pelvic fracture.	Strong
Perform cystography in case of suspected iatrogenic bladder injury in the post-operative setting.	Strong
Perform cystography with active retrograde filling of the bladder with dilute contrast (300-350 mL).	Strong
Perform cystoscopy to rule out bladder injury during retropubic sub-urethral sling procedures.	Strong
Manage uncomplicated blunt extraperitoneal bladder injuries conservatively.	Weak
Manage blunt extraperitoneal bladder injuries operatively in cases of bladder neck involvement and/or associated injuries that require surgical Intervention.	Strong
Manage blunt intraperitoneal injuries by surgical exploration and repair.	Strong
Manage small uncomplicated intraperitoneal bladder injuries during endoscopic procedures conservatively.	Weak
Perform cystography to assess bladder wall healing after repair of a complex injury or in case of risk factors for wound healing.	Strong

# Urethral Trauma

- Frequently correlated to pelvic fracture
  - 70% of pelvic fracture caused by motor vehicle accident
- Urethral Trauma :
  - Posterior : pelvic fracture
  - Anterior : straddle injury
  - Iatrogenic : urethral instrumentation
- Male > female
- *Vasculogenic Impotence* (10 – 20 %)

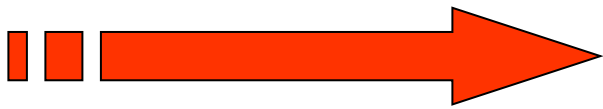




- Anterior
- Posterior

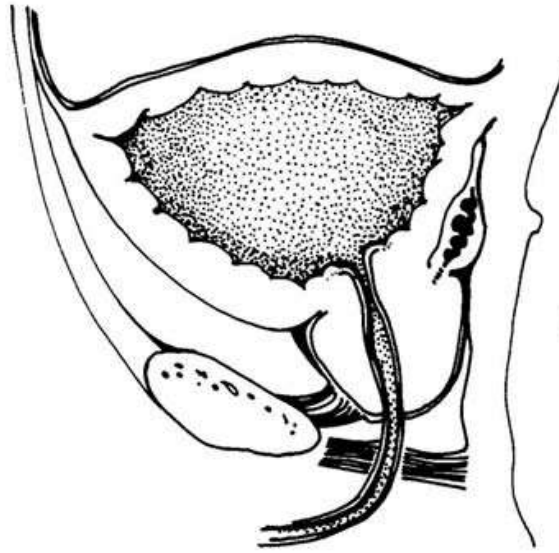
- **Clinical appearance (Triad Urethral Injury)**

- o Bloody urethral discharge
- o Urinary retention
- o Hematome

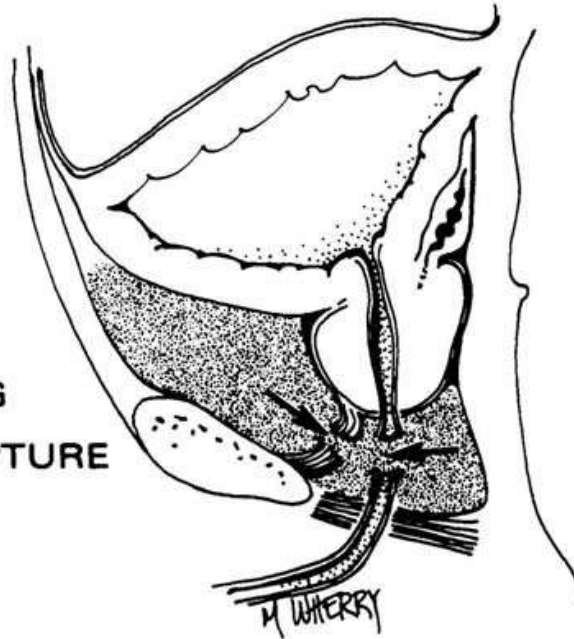


it is not allowed to insert urethral catheter → Cystotomy





NORMAL POSITION



FOLLOWING  
COMPLETE RUPTURE

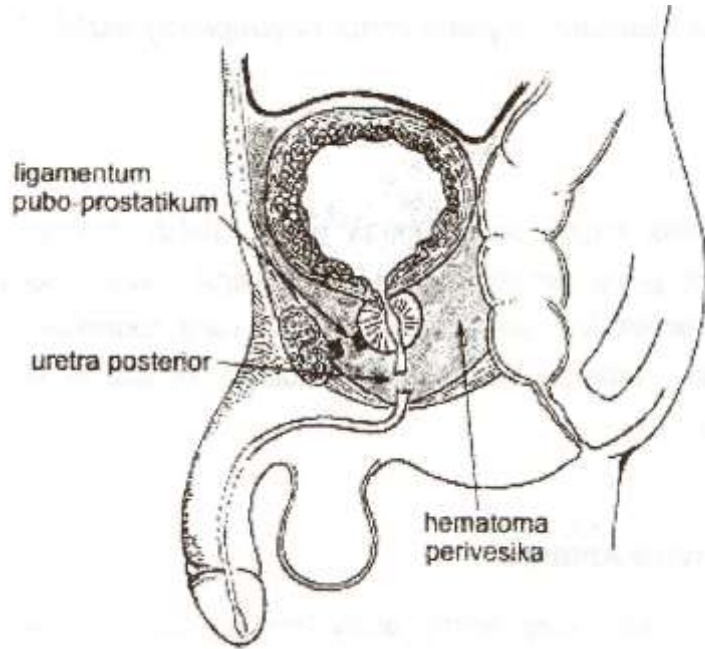
# Urethral Trauma

## Retrograde Urethrography

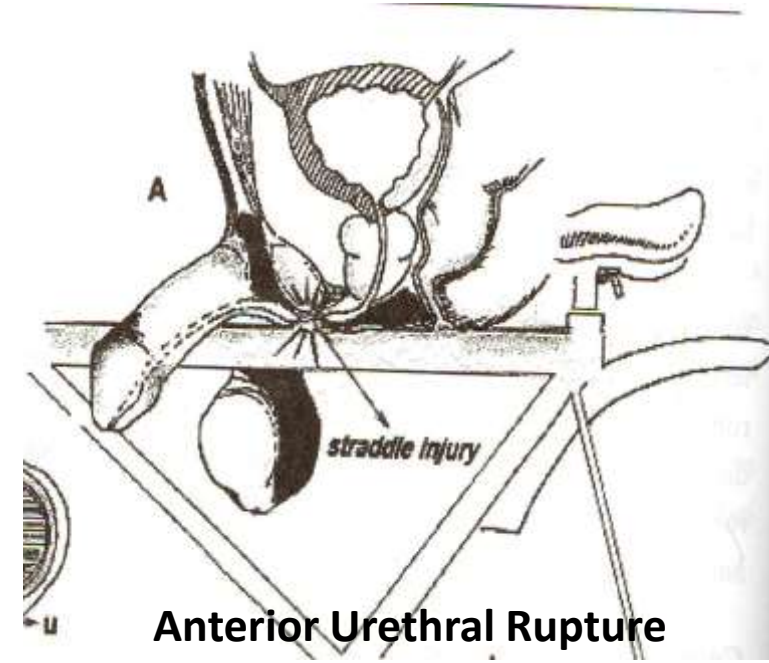


# Urethral Trauma

## Type or Urethral Rupture model



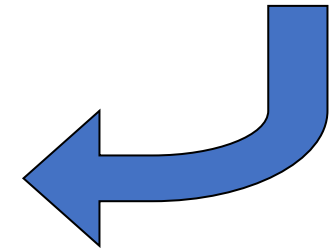
Posterior Urethral Rupture



Anterior Urethral Rupture



Butterfly Hematoma

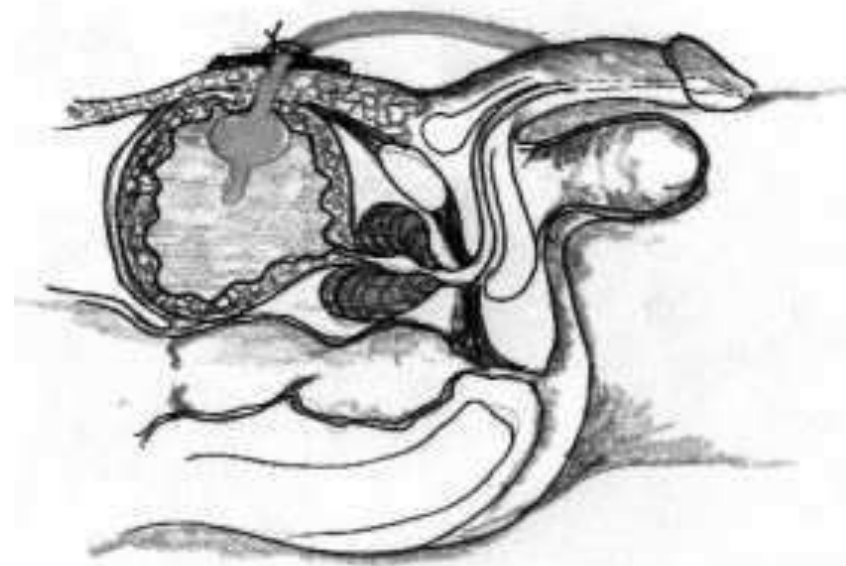


# Urethral Trauma

## Management

- Early : Cystotomy → Urinary diversion
- *Early repair* (if possible) :
  - Primary Endoscopic Realignment (PER) < 2 weeks after trauma
- *Delayed repair*
  - Posterior anastomosis, >3 months after trauma
- *Early definitive repair* → not recommended

# Cystotomy catheter insertion pictures



# Urethral trauma

- Urethral trauma deals with long term consequence → urethral stricture
  - Large number of recurrence
  - Decreased quality of life
  - Difficult management
- Do not insert the catheter if urethral trauma is suspected
  - Pelvic Fracture
  - Bloody meatal discharge
  - Floating prostate
  - Urinary retention



## EAU 2019 Recommendations for Management of Urethral Trauma

Recommendations	Strength rating
Provide appropriate training to reduce the risk of traumatic catheterisation.	Strong
Evaluate male urethral injuries with flexible cysto-urethroscopy and/or retrograde urethrography.	Strong
Evaluate female urethral injuries with cysto-urethroscopy and vaginoscopy.	Strong
Treat iatrogenic anterior urethral injuries by transurethral or suprapubic urinary diversion.	Strong
Treat blunt anterior urethral injuries in males by suprapubic diversion.	Weak
Treat pelvic fracture urethral injuries (PFUIs) in hemodynamically unstable patients by transurethral or suprapubic catheterisation initially.	Strong
Perform early endoscopic re-alignment in male PFUIs when feasible.	Weak
Do not repeat endoscopic treatments after failed re-alignment for male PFUI.	Strong
Treat partial posterior urethral injuries by suprapubic or transurethral catheter.	Strong
Do not perform immediate urethroplasty (< 48 hours) in male PFUIs.	Strong
Perform early urethroplasty (two days to six weeks) for male PFUIs with complete disruption in selected patients (stable, short gap, soft perineum, lithotomy position possible).	Weak
Manage complete posterior urethral disruption in male PFUIs with suprapubic diversion and deferred (at least three months) urethroplasty.	Strong
Perform early repair (within seven days) for female PFUIs (not delayed repair or early re-alignment).	Strong



# External Genital Trauma

## PENILE TRAUMA

- Rare case → mobile organ
- Non strangulated
  - Penile Fracture
  - Penile Amputation
  - Penile Hematoma due to blunt trauma
- Strangulation



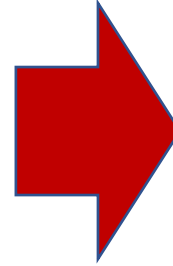
# External Genital Trauma

- **Penile fracture :**
  - During sexual intercourse
  - Sound of 'cracked', swollen, painful, and angulated penis
- **Penile Amputation and strangulation**
  - Mostly : self mutilation → 87% of psychotic patients
  - Re-implantation if possible
  - Cover the amputated within sterile gauze, make it wet and cover it within the ice pack → microvaskuler surgery

# Penile Amputation Management

## Three basic forms:

1. Surgical reimplantation of the amputated penis
2. Tailoring of the remaining penile stump
3. Total phallic replacement



**Complete in one stage**

**As soon as possible  
Before 16 hours**

The penis should be rinsed in a normal saline solution, wrapped in saline-soaked gauze, and placed in a sealed sterile bag. The bag and protected penis are immersed in an ice slush bath to maintain hypothermic conditions until reimplantation can be completed, ensuring that **the ice is not in direct contact with the penile skin**. Hypothermia has been shown to prolong ischemic time and tissue survival

# External Genital Trauma

## Penile strangulation



# External Genital Trauma

## Penile and scrotal gunshot wound



# External Genital Trauma

- SCROTAL and TESTICULAR TRAUMA



Rare case



# External Genital Trauma

## Scrotal and Testicular Trauma

- Infrequently happen in general
- Blunt trauma of scrotum
  - 50% injury to testis ; 1,5% bilateral
- More frequently due to sharp trauma
  - Gunshot
  - Sharp tool
  - Occupational accident
- Management of Genital trauma
  - Exploration, debridement, necrotomy → orchidectomy if needed

# Conclusion

- Genitourinary trauma is mostly related to other multi organ trauma
- Kidney trauma could mostly treated with Non-operative management
- Hemodynamic instability is the indication to do surgical resuscitation
- Bladder and urethral trauma should be diagnosed properly to determine proper management and avoid more morbidity
- Genital trauma is rare, but sometimes could give a long term quality of life deterioration





## FIRST ANNOUNCEMENT

DEPT OF UROLOGY UNIVERSITAS BRAWIJAYA / SAIFUL ANWAR GENERAL HOSPITAL,  
IN COLLABORATION WITH

DEPT OF UROLOGY JUNTENDO UNIVERSITY JAPAN, DEPT OF UROLOGY PAMUKKALE UNIVERSITY TURKEY,  
NATIONAL KIDNEY AND TRANSPLANT INSTITUTE PHILIPPINES, NATIONAL CHILDREN'S HOSPITAL MANILA PHILIPPINES,  
KULKARNI ENDOSURGERY INSTITUTE INDIA

present

# 13<sup>th</sup> MCUE

MALANG CONTINUING UROLOGY EDUCATION



*International Collaboration Toward Better  
Urological Services in Indonesia*

APRIL 15-18<sup>TH</sup>, 2020

Santika Premier Hotel  
Malang

PROGRAMME :

- Symposia
- Free Paper
- Workshop in :
  - Urethral Reconstruction
  - SPCNL and Endourology
  - Intensive Course on Prostate Cancer
  - Urodynamic

WITH INTERNATIONAL GUEST LECTURER FROM JAPAN, TURKEY, PHILIPPINES, INDIA

