Lecture 20

Editing File

Management of Multiple Injured Patient

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Objectives:

- .Learn to diagnose, start initial management and know when to refer a patient
- Implement Management as per ATLS protocol
- Immobilization of cervical spine, in the context of managing the airway
- Understand the function of spinal board as a transfer tool only
- Understand Importance of interpersonal communication skills

Color Index:

Original text | Doctor's notes | Text book
Important | Golden notes | Extra

Trauma Overview:

- **Injury:** The result of a harmful event that arises from the release of specific forms of energy.
- **Polytrauma:** Multisystem trauma = injury of two or more systems, or system with deranged vital signs.
- **Scope of the Problem:**
- **UK:** > 18, 000 deaths annually, > 60, 000 hospital admission, > Costing 2.2 billion pounds.
- **USA:** > 120, 000 deaths annually, > 100 billion dollars.

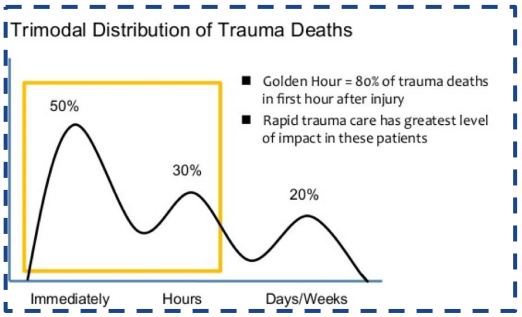
❖ Mechanisms of traumatic injury (Type of Injury):

1. **Penetrating**: Open injury, with direct injury to underlying structures (Liver Laceration)
2. **Blunt** (most common):
   - Closed injury, Indirect injury to underlying structures (Spleen rupture)
   - Transmission of energy into the body (Tearing of the muscles, vessels and bone). (Rupture of solid organ), (Organ injury: ligamentum teres).

- **Blast** (Bombs)
- **Thermal** (burns): heat or electrical
- **Chemical**
- **Others** - crush & barotrauma (e.g. Diving).

❖ Trimodal Death Distribution:

1st peak **Immediate death** (0 to 1 hour)	2nd peak **Early death** (1 to 3 hours)	3rd peak **Late death** (1 to 6 weeks)
• Accounts for **50%** of deaths. • Occurs **within minutes** of injury. • Due to **major neurological or vascular injury** (unsurvivable injuries). • Medical treatment can rarely improve outcome **(die on scene)**	• Accounts for **30%** of deaths. • **Occurs during the golden hour**[1]. • Due to **intracranial haematoma, major thoracic or abdominal injury**. • Primary focus of intervention for the **ATLS** methodology.	• Accounts for **20%** of deaths. • Occurs after **days** or **weeks**. • Due to **complications** (**sepsis and multiple organ failure**).



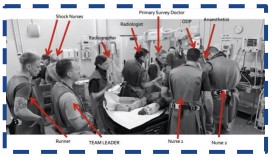
First 1 to 2 hours is the golden hours

- Why is it called "the golden hour"? Hence death in this peak is mostly due to hypoxia and loss of blood (hypovolemic shock) which is **potentially preventable**. (80% of deaths happen here.)

1st peak causes immediate death in minutes due to vascular damage like Aortic rupture.
2nd peak happens within 1-3 hrs after the trauma and this is where if ATLS is performed right would save a life.
3rd peak happens in days and is due to infections and sepsis

1. Here's the thing, patients who die in the first peak often die from severe traumas, (like decapitation for example) which means most of the time you cannot save those patients. However, patients who die in the second or third peaks CAN be saved you manage them correctly IN THE GOLDEN HOUR. It's called the golden hour cause it gives you a chance to save the patient.

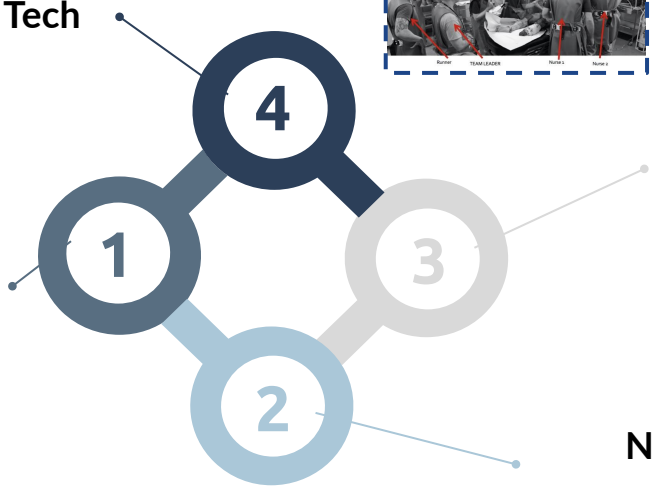
❖ The Trauma Team:



Radiology Tech

The Team Leader[1]**:**

1. Most **experienced**
2. Preferably a **Trauma surgeon or a general Surgeon**
3. Takes all **triage decisions.**
4. **Should be familiar with each member's skills and names.**
5. **Prioritizes procedures**
6. Communicate with consultants and family members



Doctors:

- EM physician
- Anesthetist
- Orthopedic surgeon
- General surgeon.

Nurses[2]: from 3-5 at least

❖ Prehospital Management:

- **The goal of prehospital management:**
  - Gain access to the patient.
  - Smooth transfer.
- **Approaches:** a balance between these two approaches is better.
  1. "Scoop & Run policy" (Take patient to the hospital ASAP, you can give him oxygen mask but we don't do any major intervention here until patient reaches the hospital).
  2. ''Stay & Play policy" (Needs expert EMS to do this, full management on scene like intubation etc.…).

❖ ATLS - Components Steps[3]

1. **Primary Survey: Identify what is killing the patient.**
2. **Resuscitation: Treat what is killing the patient**
3. **Secondary Survey: Proceed to identify other injuries**
4. **Definitive Care: Develop a definitive management plan**

*if patient situation during the 2ry survey becomes worse, we return back to the primary survey.

❖ Organisation of Trauma Centers:

1. **Level 1 -** Regional Trauma Centres (Polytrauma should be admitted here)
2. **Level 2 -** Community Trauma Centres
3. **Level 3 -** Rural Trauma Centres

❖ Multiple Casualties

- **Several casualties at the same time** (Multiple injured patients came to the hospital at the same time):

1. **Alert ED services**
2. **Assess the scene - without putting your safety at risk**
3. **Triage 'do the most for the most'**

1. The trauma Surgeon is the team leader in most hospitals, if he wasn't present an EM consultant can be the team leader.
2. 5 Nurses As: 1. Airway 2. Circulation 3. Medication 4. Time Documentation 5. Backup and fetcher (go between)
3. The basic philosophy of ATLS is to save life, followed by saving limb then function.
   The idea is to prioritize care to the most life threatening injury first, reassess then treat again or move to the next injury.
   Transfer the patient if the injury requires surgery or any other procedure that you cannot perform.

❖ Triage (Start Triage Algorithm)

- **Ability to Walk**
- **Airway**
- **Respiratory Rate**
- **Pulse rate or Capillary return**

❖ How to Triage?

1. Can the patient walk?

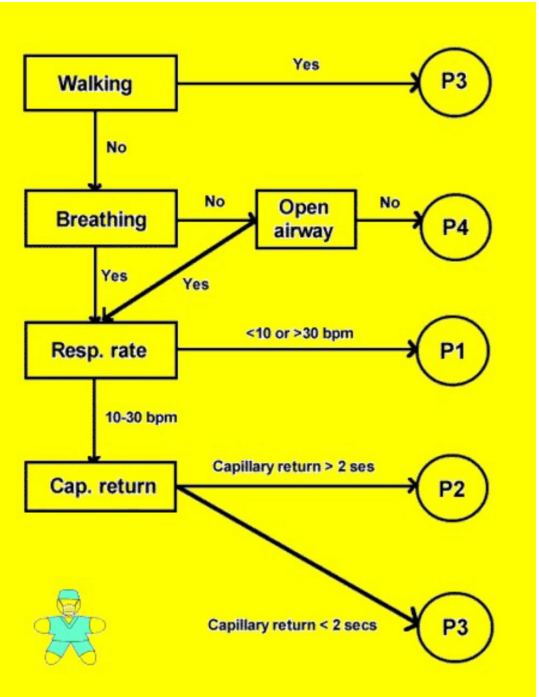
- **Yes** → Delayed
- **No** → Check for breathing

2. Is the patient Breathing?

- **No** → Open the airway
  - Are they breathing now?
    - Yes → IMMEDIATE
    - No → DEAD
- **Yes** → Count the rate
  - Less than 10 bpm or **More than** 30 bpm → IMMEDIATE
  - **Between** 10 - 30 bpm → Check Circulation

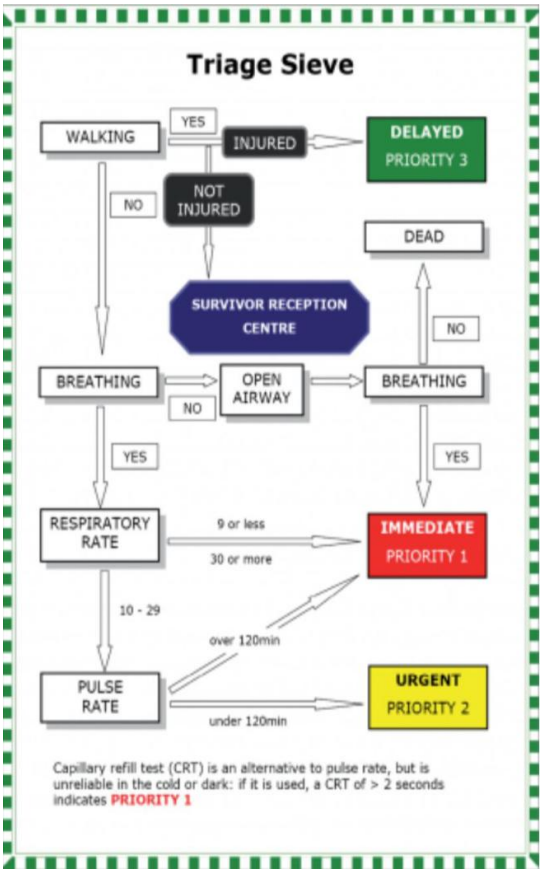
3. Check the Circulation?

- Capillary refill **More than** 2 sec → IMMEDIATE
- Capillary refill **Less than** 2 sec → Urgent



❖ TRIAGE SIEVE / SORT algorithm

1. **Triage Sieve (on the field)** - To separate dead & the walking from the injured.
2. **Triage Sort (2nd step)** - To categorize the Casualties according to local protocols:
   - Cat 1: **Critical & Cannot wait.**
   - Cat 2: Urgent - Can wait for 30 minutes at most
   - Cat 3: Less serious injuries
   - Cat 4: Expectant - Survival not likely



Triage categories				
Cat	**Definition**	**Colour**	**Treatment**	**Example**
P1	Life-threatening	Red	Immediate	Tension pneumothorax
P2	Urgent	Yellow	Urgent	Fractured femur
P3	Minor	Green	Delayed	Sprained ankle
P4	Dead	White		

1. Make the area safe

- **Protect yourself, the casualty and other site users**
  - Park your car safely, turn lights on, set hazard lights flashing
  - Do not across a busy motorway to reach other side
  - Assign others to warn oncoming drivers.
  - Set up warning triangles or lights 200 metres in each direction
- Switch off ignition of any damaged vehicle
- Is anyone smoking?
- Is there a chemical spill
- Are there live electrical wires
- Could there be a secondary incendiary device (Like if there was 2 bombs in a terrorist attack)

2. Check all Casualties

- Quick assess
- Not moving
- Apply life-saving treatment

❖ How to move unconscious casualty?

- **Do not move** the casualty unless it is absolutely necessary
- Assume **neck injury** until proved otherwise

1. support head and neck with your hands, so he can breathe freely
2. Apply a collar, if possible
3. There should be only **1 axis** (head, neck, thorax) no moving to sides, no flexion, no extension.
4. Move with help of 3-4 other people 1st person will support the head (he is directing others), the second person will support shoulders and chest, the third person will support hips and abdomen, the last person will support the legs.

❖ Skill Video Demonstrations

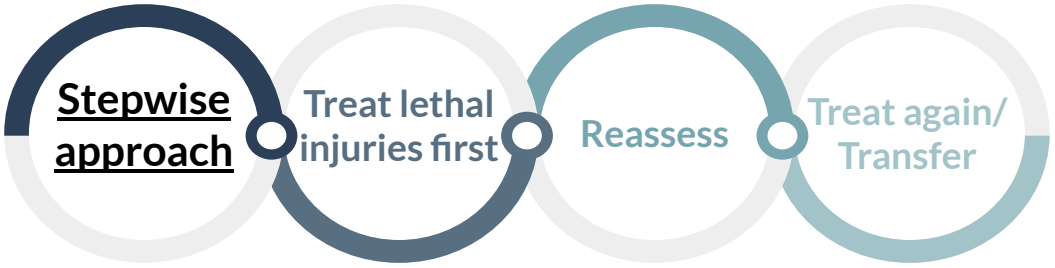
- Applying Cervical Collar
- Log rolling and Spinal board
- Inline Immobilization
- Spinal Clearance (important)

❖ Trauma Team CALL-OUT Criterion (in hospital)

- **Penetrating injuries**
- **Two or more proximal bone fractures**
- **Flail chest & pulmonary contusion**
- **Evidence of High energy Trauma:**

1. Fall from > 6 ft
2. Changes in velocity of 32 kmph
3. 35 cm displacement of side wall of car
4. Ejection of the patient
5. Roll-over
6. Death of another person in the same car
7. Blast injuries

❖ ATLS Algorithm - Assessment Approach to Trauma Patient in Hospital Settings



1 Primary survey & resuscitation (ABCDE):

1. **A**irway and securing cervical spine
2. **B**reathing
3. **C**irculation and haemorrhage control
4. **D**ysfunction of the central nervous system
5. **E**xposure.

Adjunct to primary survey (Only imaging permitted during this phase is):

- **X-ray:** AP supine chest, AP plain pelvic, Cross table lateral C- spine X-ray (outdated).
- **Ultrasound:** FAST has replaced peritoneal lavage for detecting intraperitoneal fluid of blood.

2 Secondary survey
(Full physical examination to identify any missed injuries)

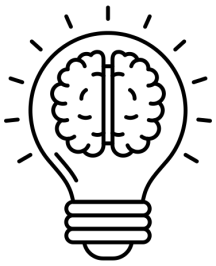
3 Definitive treatment
(In most cases surgical management)

4 Tertiary survey
(Another full examination just to be safe)

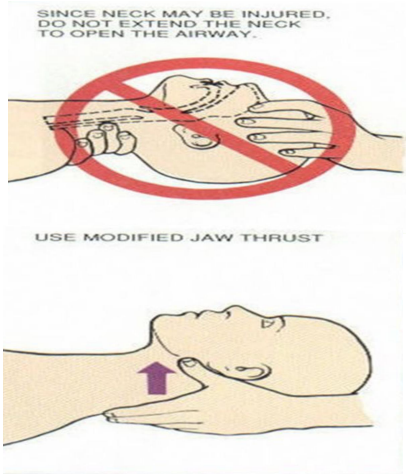
5 Consider Early Transfer

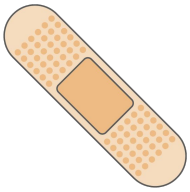
ATLS Primary Survey:

A. Airway:



- **Always assume that patient has cervical spine injury**
- **If patient can talk** then he is able to maintain own airway
- If airway compromised initially attempt a jaw thrust and clear airway of foreign bodies, suction, adjuncts to open airways.
- Remember to avoid causing harm eg NP tube, nasopharyngeal airway in base skull fracture
- **Give 100% Oxygen** (face mask, bag valve)
- Assist airway & breathing including "definitive airways" (endotracheal tube/cricothyroidotomy)





- A – Airway maintenance & Control of C-Spine (By Applying cervical collar).
- If conscious - Ask the pt's name
- If unconscious - **Look for added sounds** (stridor,cyanosis etc)
- If the pt does not respond to any questions- resuscitate.

Airway maintenance steps:

Manual In-line Stabilization:

Performed by an assistant during airway management to maintain a neutral position and prevent movement of the head and neck, by either:

1. Crouching beside the intubator with hands placed on the patient's mastoid processes (Pic.1)
2. Standing beside the patient in front of the intubator with hands placed on the sides of the patient's head and forearms resting on the patient's chest (Pic.2)

Pic.1 Pic.2

B. Breathing and ventilation:

Assessment

- Exposure
- Inspection:
- Palpation
- Movement
- Auscultation

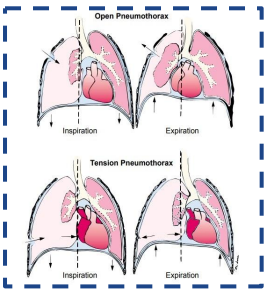
❖ **The aim is to hunt out & treat the life threatening thoracic conditions which include :**

Life threatening conditions that requires rapid intervention

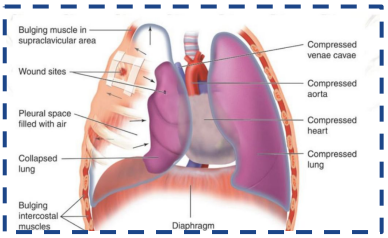
- **Massive Pneumothorax/ Hemothorax**
- **Flail segment**
- **Tension Pneumothorax**
- **Open Pneumothorax**
- **Cardiac Tamponade**

Use this space to cry

1 Pneumothorax

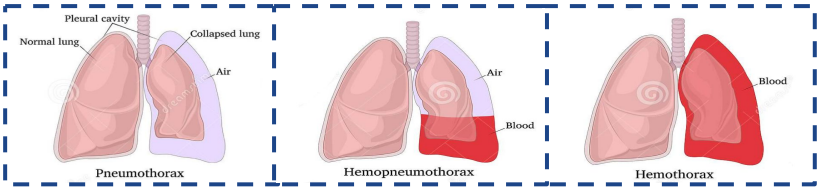


- **Tension Pneumothorax:**
  - Presence of air or gas in the pleural cavity.
  - Can impair oxygenation and/or ventilation.
  - Clinical results are dependent on the degree of collapse in the lung.
  - Pneumothorax is called tension if it was severe enough to shift the mediastinum & compromise hemodynamic stability.
  - Air can enter the intrapleural space through a communication from the chest wall (ie, trauma) or through the lung parenchyma across the visceral pleura.
  - **Clinical Features:**
    - Diminished breath sound (with hyperresonance)
    - Distended neck veins.
    - Hypotension.
    - Tracheal deviation.
    - Respiratory distress.

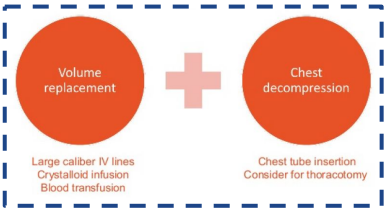


  - **Management:**
    - **Needle decompression:** Immediate needle thoracocentesis in 2nd intercostal space in mid clavicular line, followed by chest tube (definitive) in 5th intercostal space anterior axillary line.
    - Supportive management:
      - analgesia, ventilators support, CXR monitoring, Chest physiotherapy.
- **Open Pneumothorax:**
  - Treated by sealing the wound with occlusive dressing and tube thoracostomy.
- **Suction Pneumothorax:**
  - Sealing of the wound (3 sided occlusive dressing to create one way valve) and Tube thoracostomy

2 Massive Pneumothorax/ Hemothorax



- Massive hemothorax is defined by the need for thoracotomy in OR the indications are:
  - Blood loss > 1,500 mL or 1/3rd of blood volume or
  - Blood loss >200 mL/h (3 mL/kg/h) for 2-4 hours.



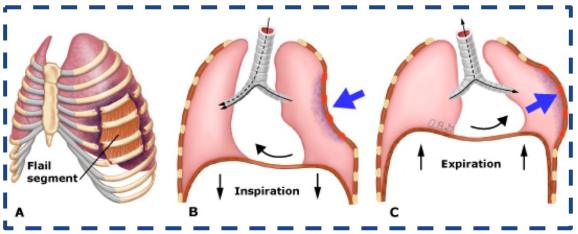
- Recognition:
  - Hemorrhagic shock:
    - pallor, tachycardia, hypotension, cool peripheries pleural space.
  - Decreased chest movement, dullness and decreased breath sounds ipsilaterally.
  - External evidence of thoracic injury.
  - Persistent blood loss following intercostal cath.
- Management:
  - 2 large bore IVs with crystalloid infusion and blood transfusion + Chest decompression with chest tube insertion

3 Cardiac tamponade

- Almost always seen with a penetrating wound
- **Clinical Signs and Symptoms:**
  - **Beck's triad :**
    - Hypotension tamponade.
    - Distended neck veins.
    - Muffled heart sounds
- **Management:**
  - Needle pericardiocentesis then thoracotomy & repair as definitive management.

4 Flail segment

- Fractures of 3 or more consecutive ribs in 2 or more locations.
- Paradoxical movement:
- **Recognition:**
  - Chest pain
  - Respiratory distress
  - Bony crepitus
  - Paradoxical chest wall movement
    - the segment moves inwards on inspiration as the rest of the chest expands and outwards on expiration as the rest of the chest deflates.



- **Management**
  - Requires an endotracheal intubation and mechanical ventilation[1]
  - Supportive care, O2
  - Stabilization of the segment with manual or object pressure
  - Postpositive pressure ventilation

1. Air is pushed in the patient through +ve pressure

C. Circulation and haemorrhage control:

Assessment

- Pulse rate
- Capillary refill
- ECG monitor
- State of neck veins
- LOOK FOR BLEEDING and apply direct pressure
- Place two large calibre intravenous cannulas Give intravenous fluids (crystalloid or colloid)

Assessment of Blood loss

There are 6 keys area to look for evidence of bleeding:

- External or obvious
- Internal or covert
- Chest
- Abdomen
- Pelvis
- Limbs

- **Resuscitation :**
  - Arrest bleeding
  - Obtain vascular access

❖ Tachycardia in a cold patient indicates SHOCK

Types Of Shock Following Injury :

Hypovolemic (Resuscitate) | Obstructive (Relieve obstruction) | Cardiogenic (Resus + inotropes) | Neurogenic (Resus + vasopressors) | Septic

Consider up to 2 litres of fluids if patient is hypotensive , cardiac arrest (until blood available)

Adults

Children

20 ml/kg of body weight

Response to initial fluid challenge :

- Immediate & sustained return of vital signs
- Transient response with later deterioration
- No improvement

Immediate Responders

- <20% blood loss
- Bleeding ceases spontaneously

Transient Responders

- Bleeding within body cavities
- Surgical intervention required

Non Responders

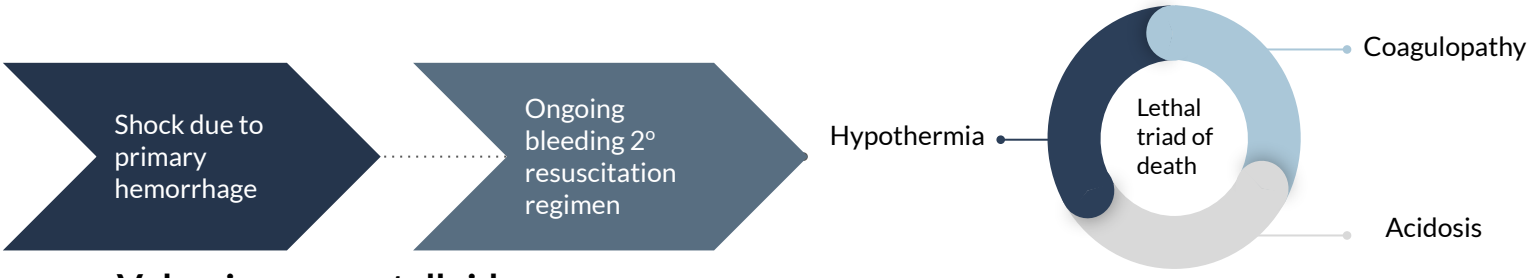
- >40% of blood loss
- Require immediate surgery
- Maybe not enough fluids

- Continued IV fluids in detrimental

Classification Of Hypovolemic Shock and Physiological Changes

	Class I	Class II	Class III	Class IV
Blood loss (liter)	Up to 0.75	0.75-1.5	1.5-2.0	> 2
% TBV	15%	30%	40%	>40%
Pulse rate	< 100	> 100	>120	>140
Blood pressure	Normal	Normal	Decreased	Decreased
Pulse pressure	Normal or inc	Decreased	Decreased	Decreased
Respiratory rate	14-20	20-30	30-40	>35
Urine output	> 30 ml/hr	20-30	5-15	Negligible
Mental status	Slightly anxious	Mildly anxious	Anxious/confused	Confused/lethargic
Fluid Replacement	Crystalloid	Crystalloid	Crystalloid and blood	Crystalloid and Blood

Estimated blood loss	
Bone	Approximate internal blood loss (L)
• Rib	• 2-4
• Humerus	• 1-4
• Tibia or fibula or distal femur	• 2-4
• Femur	• 2-4
• Pelvis	• 2-6



- **Voluminous crystalloid**
  - Dilutes coagulation factors
  - Causes hyperchloremic and lactate acidosis
  - Supplies inadequate O_2 to under-perfused tissue
- **Permissive hypotension**[1]
  - Maintain systolic B.P at 85-95 mm of Hg
  - Turn off the tap and do not infuse too much of fluid and blood products.

Balanced Resuscitation

1. **Fluid resuscitation in Balanced Resuscitation**
   a. Initial fluid replacement with up to 2L crystalloid Permissive hypotension to achieve SBP to 8-9mmHg (radial pulse) until definitive control of bleeding is obtained
2. **Haemostatic Resuscitation**
   a. Early blood versus HBOC transfusion decreases MODS
   b. Packed RBC , FFP and platelets in 1:1 :1 ratio
   c. Cryoprecipitate, Tranexamic acid, Recombinant factor- VIIa
   d. Storage blood of <2 weeks to minimize TRALI, MODS

1. The more pressure the more bleeding so try to control it on the hypotensive border, DON'T use permissive hypotension resuscitation during head injury

D. Disability / Dysfunction:

Assessment

- Assess level of consciousness using AVPU method (Check higher Cerebral function)
  - A = alert
  - V = responding to voice
  - P = responding to pain
  - U = unresponsiveness
- Assess pupil size, equality and responsiveness.
- GCS

TABLE 38-2
Glasgow Coma Scale

BEHAVIOR	RESPONSE	SCORE
Eye opening response	Spontaneously	4
	To speech	3
	To pain	2
	No response	1
Best verbal response	Oriented to time, place, and person	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No response	1
Best motor response	Obeys commands	6
	Moves to localized pain	5
	Flexion withdrawal from pain	4
	Abnormal flexion (decorticate)	3
	Abnormal extension (decerebrate)	2
	No response	1
Total score:	*Best response*	15
	Comatose client	8 or less
	Totally unresponsive	3

E. Exposure:

Assessment

- Expose the patient fully while maintaining thermostasis (Avoid hypothermia).
- Hypothermia prevention and treatment strategies :
  - Limit casualties exposure
  - Warm IV fluids and blood products before transfusion
  - Use forced air warming devices before and after surgery
  - Use carbon polymer heating mattress

Secondary Survey (ATLS)

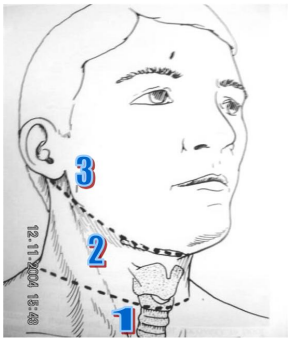
- Comprises of head to toe exam of the stable pt
- Requires
  - Detailed history
  - Thorough examination
  - KEEP MONITORING the vital signs monitoring devices:
    - Pulse oximeter
    - Rectal thermometer
- Detailed radiographic procedures
  - CT , USG , MRI

HEAD & ENT

- Glasgow coma scale
- Reaction and size of pupils
- Plantar response
- Signs of rhinorrhea, otorrhea (base of the skull)
- Nose Fracture, Septal hematoma

Neck

- Subcut emphysema
- Cervical spine fracture (especially C1, C2, C7)
- Penetrating neck injuries



Thorax

Search for potentially life threatening injuries

- Pulmonary complication
- Myocardial complication
- Aortic tear
- Diaphragmatic tear
- Esophageal tear
- Tracheobronchial tear
- Early thoracotomy if initial haemorrhage >1500 ml

Abdomen

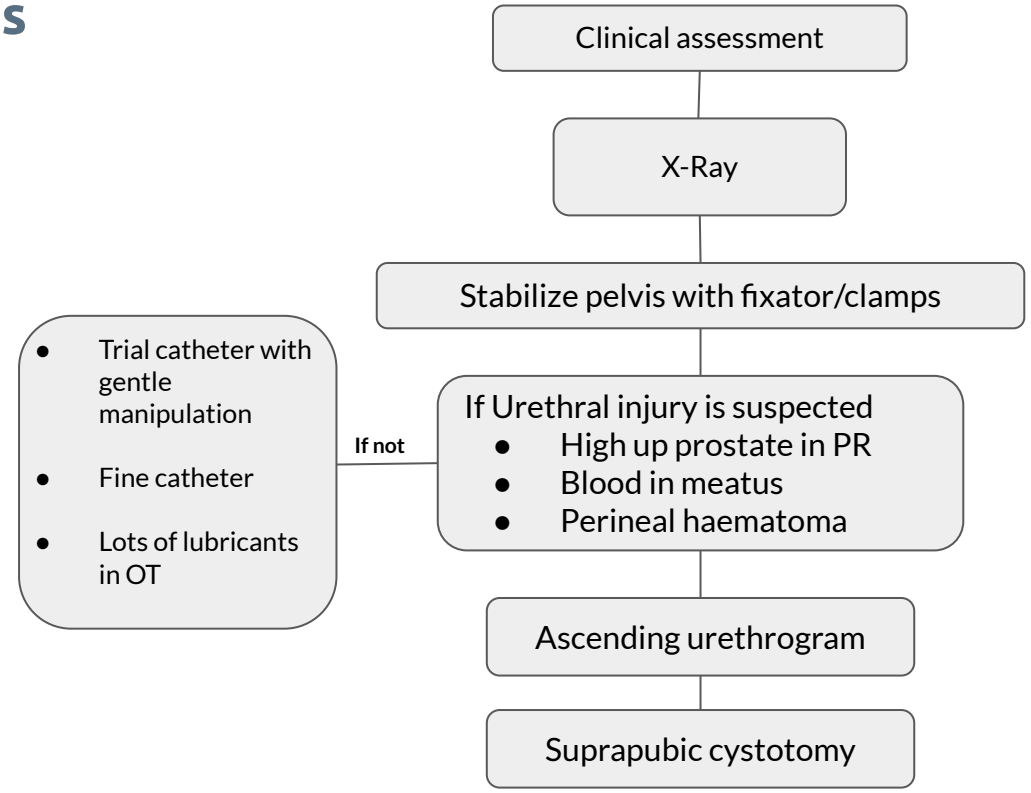
- Fingers and tubes in every orifice
- Nasogastric and Urinary catheter for diagnosis and treatment
- Rectal examination
- Wound coverage
- Eviscerated bowels packed by warm wet mops

For rigid and distended abdomen :

- Ultrasound
- Four quadrant tap
- Diagnostic peritoneal
- Laparoscopic examination

Any deterioration → Consider rapid surgical exploration

Pelvis



Spinal Injury

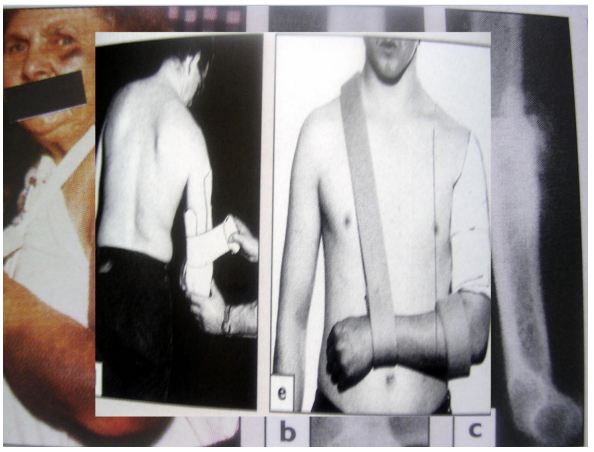
- Thorough sensory and motor examination
- Prevent further damage in unstable fractures
- Log rolling for full neurological examination-5 people required
- Use a long spine board for transportation

Extremities

- Full assessment of limbs for assessment of injury
- Always look for distal pulse & neurostatus
- Carefully look for skin & soft tissue viability
- Look for impending compartment syndrome

F. Fracture management

1. Minor
2. Moderate
   - Open fracture of digits
   - Undisplaced long bones or pelvis fracture
3. Serious
   - Closed long bone fractures
   - Multiple hand/foot fractures
4. Severe
   - Life threatening
   - Open long bone fracture
   - Pelvis fracture with displacement
   - Dislocation of major
   - Multiple amputations of digits
   - Amputation of limbs
   - Multiple closed long bone fractures



The most important thing during this stage is immobilization.

Medication

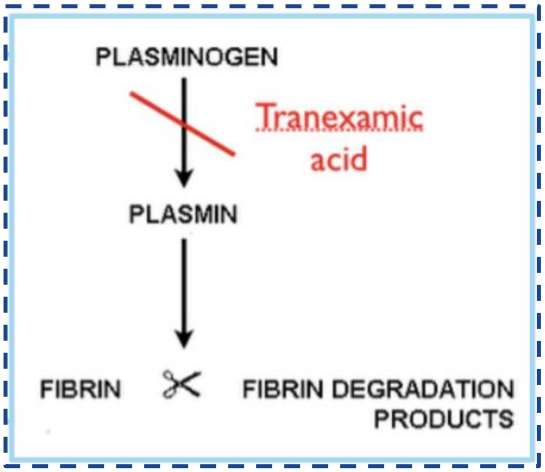
- Tetanus prophylaxis
- Anti D immunoglobulin in possible preg female
- Vasopressors drugs (selective)
- Antibiotics (selective) Open fractures
- Calcium gluconate (selective)
- Tranexamic acid (TXA)

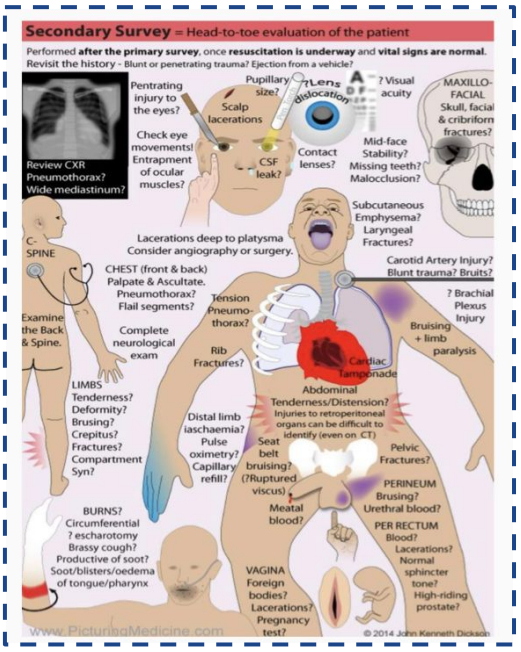
❖ Definitive Care Plan (ATLS):

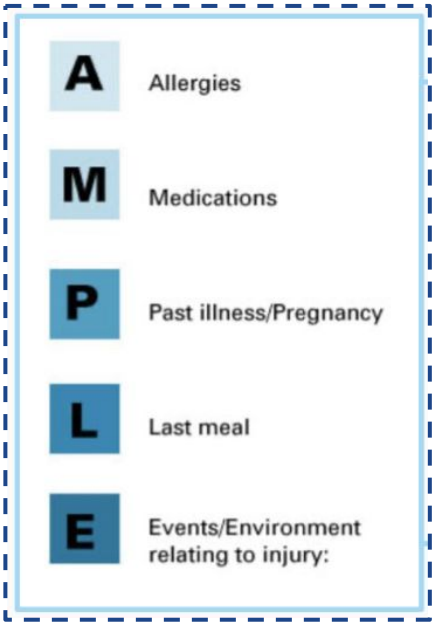
- Multi-speciality approach (Inter-disciplinary management)
- The most appropriate person in-charge is the General/trauma surgeon.

ATLS - Secondary Survey:

- Carried out after the primary survey and immediate management of potential life threats in a stable patient to identify the presence of other injuries missed in the focused primary survey
- It involves a systematic 'top-to-toe' examination:
  - Head, face, eyes, ears, nose and throat (carefully check the scalp and the oral cavity).
  - Neck, chest, abdomen , pelvis , the back, extremities and all wounds
- AMPLE history:
  - Around the time of the secondary survey clarification of the history is important to ensure that no injuries, or relevant comorbidities, are missed.
- Don't forget the following:
  - Tetanus prophylaxis
  - Anti D immunoglobulin in possible preg female
  - Antibiotics (selective)
  - Tranexamic acid (TXA)







ATLS - Tertiary Survey:

Secondary	Tertiary

• More comprehensive head-to-toe assessment
• Additional historical information
  ○ Significant others
  ○ Past medical records
• Diagnostic studies
	• Assessment of ABCDEs
	• Another head-to-toe assessment
	• Review of lab data and diagnostic studies
	• An injury found within 24 hours is not counted as a "missed" injury

Complications:

1. Acute Respiratory Distress Syndrome (ARDS):

- **Signs and Symptoms:** Tachypnoea, Dyspnea, Bilateral infiltrates in CXR
- **Treatment:** Treated with mechanical "Low Tidal" ventilation with PEEP.

2. Fat Embolism:

- Around 72 hours.
- **Signs and Symptoms:** Tachycardia, Tachypnoea, Dyspnea, Chest pain, Petechial hemorrhage.
- **Treatment:** Mechanical ventilation and Fixation of fractures.

3. Disseminated Intravascular Coagulation:

- Follows severe blood loss and sepsis.
- **Signs and Symptoms:** Restlessness, Confusion, Neurological dysfunction, skin infarction, Oliguria, Excessive bleeding, Prolonged PT, PTT, TT, Hypofibrinogenemia.
- **Treatment:** Prevention and early correction of shock, warming fluids, giving less Crystalloids.

4. Compartment Syndrome / Crush Syndrome

- When a limb remains compressed for many hours/multiple fractures
- Increased Compartment pressure and further ischaemia (of limb)
- Cardiac arrest due to metabolic changes in blood
- Renal failure
- **Treatment:**

1. Prevention of Renal failure-ensure high urine flow during using IV Crystalloids.
2. Fasciotomy and excision of devitalized muscles
3. Amputation

5. Multisystem Organ Failure (M.S.O.F)

- Progressive and sequential dysfunction of physiological systems
- Hypermetabolic state
- It is invariably preceded by a condition known as **Systemic Inflammatory Response Syndrome (SIRS)**, Characterised by two or more of the following:

1. Temperature >38° C or < 36°C
2. Tachycardia >90 /min
3. Respiratory rate >20/min
4. WBC count >12,000/cmm or <4,000/cmm

- **Treatment:** Key word is PREVENTION

1. Prompt stabilisation of fracture **2.** Treatment of shock **3.** Prevention of hypoxia
4. Excision of all dirty and dead tissue **5.** Early diagnosis and treatment of infection.
6. Nutritional support

Conclusions

- Diagnose, prioritize management as per ATLS PROTOCOL.
- Recognize when to immediately refer a patient that requires urgent specialist management
- Remember to include in-line immobilization of cervical spine while managing the airway.
- Proper priority to orthopedic conditions that affect the patient life/limbs (open book pelvic fracture, bilateral femur fractures, mangled extremity).
- Importance of interpersonal and intrapersonal communication skills.

Quiz

MCQ

Q1: A patient comes to ER and he unstable, hypovolemic and he responds to resuscitation for short period then declines again, you were consulted if he has pelvic fracture or not, how to R/O the fracture?

A. CT
B. Probe
C. X-ray
D. Pelvis instability (apply gentle pressure on the pelvis)

Q2: Patient came to ER with severe back pain after MVA otherwise normal ATLS was performed on the patient What is the next step

A. Do physical examination
B. X-ray spine
C. CT spine
D. MRI spine

Q3: A 35 y.o patient came to the ER after MVA, ATLS activated, on physical exam there was distended neck veins, diminished breath sounds and hyperresonance on percussion, what is the next step?

A. Apply Cervical collar
B. Consultation
C. Needle decompression
D. Chest tube

Q4: A 59 y.o came to E.R after penetrating injury to his chest, ATLS activated, and he is hypotensive and on auscultation there was muffled heart sounds, what is the next step?

A. Oxygen
B. Needle pericardiocentesis
C. Chest X-ray
D. Intubation

Q5: Alice Brown, a 20-year-old female, presents to the emergency department with a suspected overdose. On examination: She opens her eyes when you say her name. She is making short gasps and other sounds but she is not forming any clear words. She undergoes abnormal flexion in response to a painful stimulus. What is Alice's Glasgow Coma Scale (GCS) score?

A. 8
B. 9
C. 11
D. 5

Answers

Q1	Q2	Q3	Q4	Q5
D	A	C	B	A

THANK YOU

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