



**Lakeridge  
Health**

# **Penetrating Trauma**

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Lakeridge Health Emergency

Departmental Rounds

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# Presenter Disclosures

- Presenter(s): None
- Relationships with commercial interest: None



# Disclosure of Commercial Support

- This program has received financial support in the form of an education grant from AstraZeneca and Bayer Healthcare.
- Potential of conflicts of interest:
  - Not applicable.
  - The presenter has not received honoraria and the financial supporter does not benefit from the sale of products discussed in this program.

# Mitigating Potential Bias

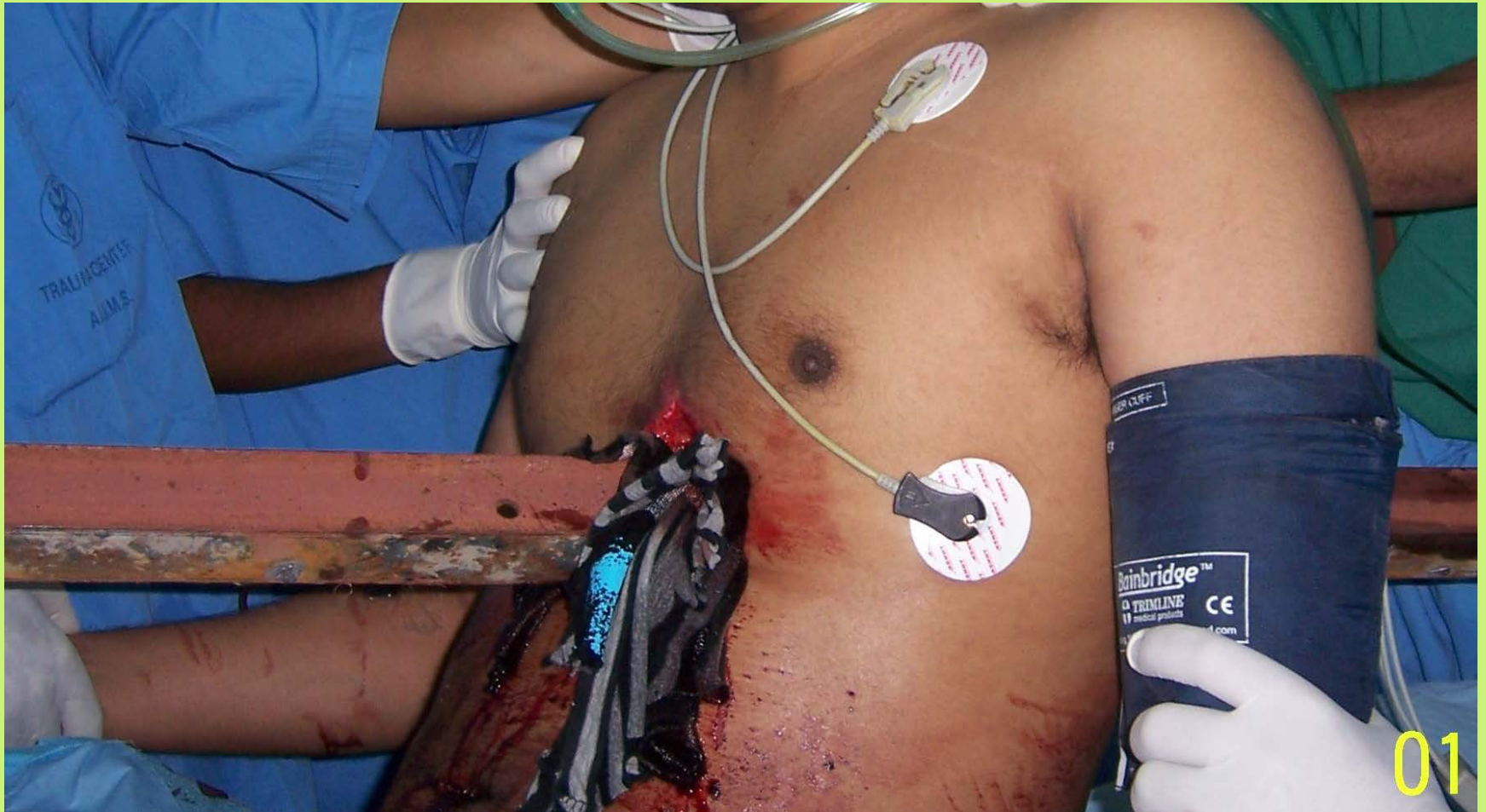
- This CME program and its material is peer reviewed and all the recommendations involving clinical medicine are based on evidence that is accepted within the profession; and all scientific research referred to, reported, or used in the CME/CPD activity in support or justification of patient care recommendations conforms to the generally accepted standards.



# Recognition

- Retrieval of material for this presentation was conducted at Lakeridge Health Library with the help of Debbie Arsenault
- Case search and review was conducted by Tereza Lynde with the help of Medical Records Department

“I should have traded the shift”



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# Goals for This Session

- ~~Finish my rounds without dehydration, syncope, or complete mental blank~~
- ~~Never do rounds again~~
- Better understand penetrating traumas to chest and abdomen with special consideration of our local contexts
- Share a literature review on recent trends
- Examine some cases from LHC

# Outline For the Session

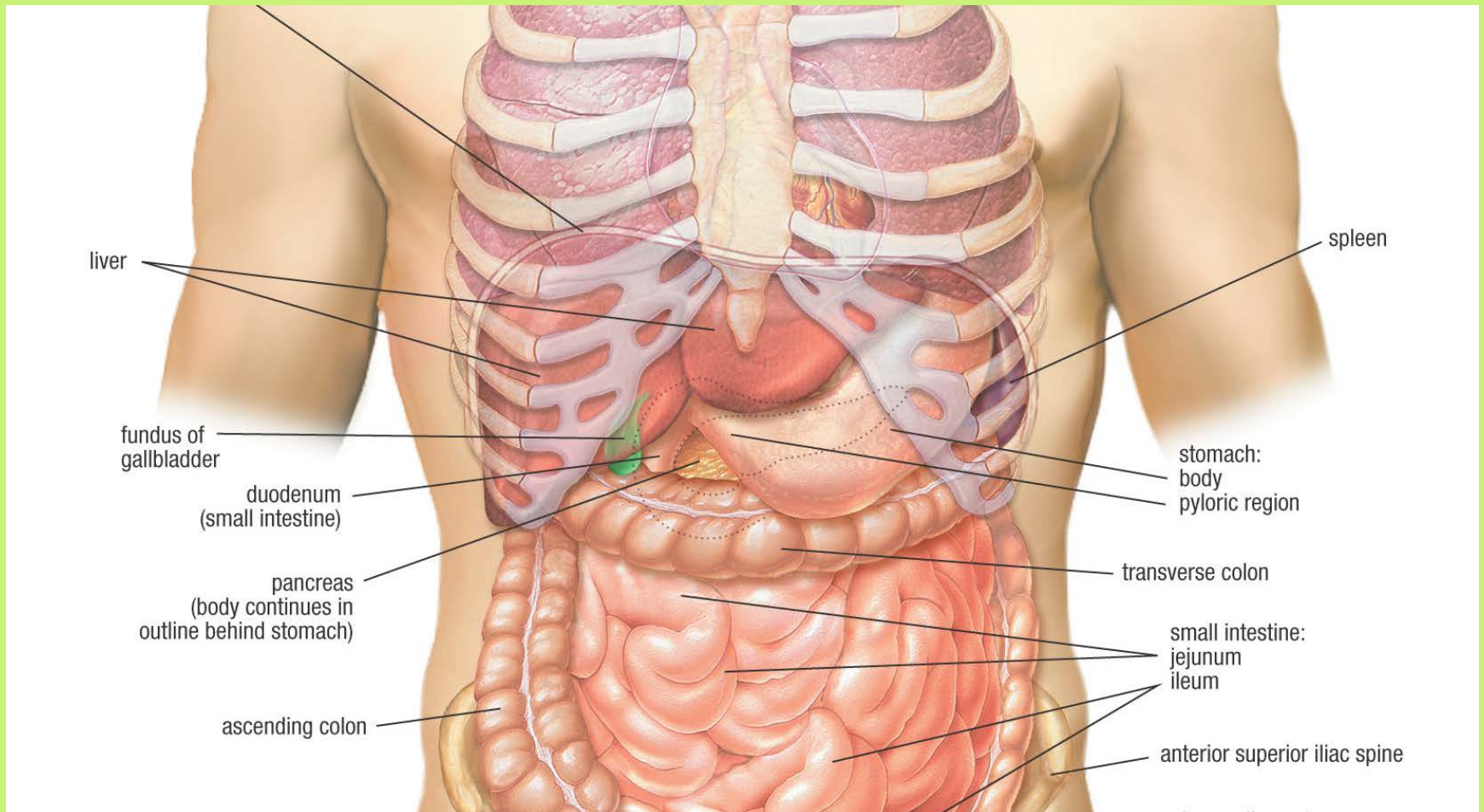
1. Legal parameters
2. Anatomy
3. Basic approach (ATLS) to penetrating chest trauma
4. Penetrating abdominal trauma
5. Cases from the trenches at LHC
6. Literature Review: recent articles and trends



# 1. Mandatory Gunshot wound reporting Act, 2005. Ontario.

- **Mandatory Gunshot Wounds Reporting Act, 2005**
- S.O. 2005, CHAPTER 9
- **Consolidation Period:** From September 1, 2005 to the [e-Laws currency date](#).
- No amendments.
- **Preamble**
- The people of Ontario recognize that gunfire poses serious risks to public safety and that mandatory reporting of gunshot wounds will enable police to take immediate steps to prevent further violence, injury or death.
- Therefore, Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:
- **Definition**
- 1. In this Act,
- “facility” means,
  - (a) a hospital as defined in the *Public Hospitals Act*,
  - (b) an organization or institution that provides health care services and belongs to a prescribed class,
  - (c) if a regulation is made under clause 5 (b), a clinic that provides health care services, or
  - (d) if a regulation is made under clause 5 (c), a medical doctor’s office. 2005, c. 9, s. 1.
- **Mandatory disclosure of gunshot wounds**
- **2. (1)** Every facility that treats a person for a gunshot wound shall disclose to the local municipal or regional police force or the local Ontario Provincial Police detachment the fact that a person is being treated for a gunshot wound, the person’s name, if known, and the name and location of the facility. 2005, c. 9, s. 2 (1).
- **Manner and timing of disclosure**
- (2) The disclosure must be made orally and as soon as it is reasonably practicable to do so without interfering with the person’s treatment or disrupting the regular activities of the facility. 2005, c. 9, s. 2 (2).
- **Other obligations not affected**

# 2. Anatomy



# **Personal Perspective: 28 years of ER, 3 cases**

## **Case One**

TGH, 1986, a 53 year old male from a bus accident arrived in a wheelchair with a chain link fence top rail through his left chest wall front to back. Talking and stable, off to the OR.

## Case Two

1990, Bowmanville ER, a male snowmobiler arrived in the middle of the night with a 2" branch through the left chest wall near the axilla. I determined that the impaling object had bounced off the rib cage and remained outside the thorax. The Thoracic surgeon on call said "take it out". Having just taken ATLS for the first time I refused, and suggested to the sleepy surgeon that it should be removed in the OR. Surgery took over 3 hours.

## Case Three

A male psychiatric patient arrives in Oshawa ER with multiple self-inflicted knife wounds to the abdomen. He is taken to the OR for laparotomy and repair.

Given the low rate of such cases in my own career, it's safe to bet that a review is in order...

# **ATLS approach to Penetrating Chest and Abdominal Trauma**

# ATLS Approach to Penetrating Chest and Abdominal Trauma

## 1. Primary survey

–*Airway*

–*Breathing*

–*Circulation (ivs, fluids, possible massive transfusion protocol)*

–*Disability (GCS, pupils, responsive)*

–*Exposure (wounds)*

# ATLS Approach to Penetrating Chest and Abdominal Trauma

- Primary Survey (continued)
  - Adjuncts to primary survey
  - ECG monitor, Oximetry, end tidal CO2
  - FAST
  - Catheters
  - CXR
  - draw trauma panel
  - Consider disposition or transfer



# ATLS Approach to Penetrating Chest and Abdominal Trauma

## 2. Secondary Survey

- primary survey is complete
- resuscitation is underway
- vital signs normalizing
- head to toe evaluation
- AMPLE history
- consider mechanisms, wounds
- investigations

# Chest Trauma Comparison by Mechanism

## Penetrating Trauma

- Penetrating trauma – 15-30% require O.R.

## Blunt Trauma

- Blunt trauma- under 10% need O.R.

# Penetrating Chest Trauma

- 70-90% of cases can be treated with ER procedures that we use routinely, such as;
  - *Airways*
  - *Fluid/blood resuscitation*
  - *Needle Decompression*
  - *Chest tube*
  - *Chest tube*
  - *FAST*
  - *Pericardiocentesis*

# Wounds and Mechanism

- Entry wounds
- Exit wounds
- Trajectory and likely organs involved
- Type of knife
- Type of bullet, firearm

# Chest Trauma Comparison

## Primary Survey: Fix Bad Things

### Penetrating trauma

1. Tension pneumothorax
2. Open pneumothorax(sucking)
3. Massive hemothorax
4. Cardiac tamponade

### Blunt trauma

- Tension pneumothorax
- Flail chest with pulmonary contusion
- Massive hemothorax
- Cardiac tamponade

# Chest Trauma Comparison- Secondary Survey

## Penetrating Trauma

- Simple pneumothorax
- Hemothorax
- Pulmonary laceration
- Tracheobronchial tree laceration
- Penetrating cardiac injury
- Diaphragmatic injury, holes
- Laceration esophagus

## Blunt Trauma

- Simple pneumothorax
- Hemothorax
- Pulmonary contusion
- Tracheobronchial tree injury, rupture
- Blunt cardiac injury
- Diaphragmatic injury or rupture
- Blunt esophageal rupture

# Consider

Should police be present to witness the removal of all impaling knives and bullets to support legal implications/procedures/ and avoid medical team court time as witnesses?

When should knives be left in?

# Penetrating Chest Trauma

## Primary Survey

->ABC



# 1. Tension Pneumothorax

- Ideally a clinical diagnosis, don't wait for CXR
- Air under pressure in the pleural space, mediastinum shifted to other side, decreased venous return
- Chest pain, air hunger, respiratory distress, tachycardia, hypotension, tracheal deviation other side, unilateral absence breath sounds, neck vein distention, cyanosis, elevated hemithorax with no respiratory movements

# Tension Pneumothorax

- Treat right away with needle decompression on affected side
- Second intercostal space, mid-clavicular line.
- Long needle, watch angle, consider thickness of chest wall
- When successful with needle decompression, tension pneumothorax is converted to simple pneumothorax, proceed to chest tube

# Tension Pneumothorax

- Visceral pleural injury, one way leak
- Complication of positive-pressure ventilation
- Chest wall defect improperly covered can cause tension pneumothorax
- In penetrating trauma, follow the entry and exit trajectory to predict side and organs of injury

## 2. Open Pneumothorax

=sucking chest wound

- If bigger than  $\frac{2}{3}$  tracheal diameter air would preferentially come through the chest wound and compromise ventilation
- Occlusive dressing taped on three sides to act as flutter valve....during expiration air can escape from under the dressing, in inspiration dressing is sucked flat to chest and no air enters

# Open Pneumothorax

- After occlusive dressing is applied, insert chest tube same side, remote from the sucking wound
- Thoracic surgical consult, trauma team referral, whether to repair the sucking chest defect

# Flail Chest, Pulmonary Contusion

- More common in blunt chest trauma
- Could co-exist in penetrating trauma victim

# 3. Massive Hemothorax

- Definition  $\geq 1500$ ml blood in chest cavity
- Common in penetrating trauma
- Caused by lacerated major vessels, heart, lung, intercostals or inframammary vessels
- Presents in shock, flat neck veins, (distended if co-existing tension pneumothorax), dullness to percussion, absence of breath sounds on affected side

# Massive Hemothorax

- Restore blood volume(massive transfusion protocol)
- **36-30F chest tube**
- Consider blood collection for auto-transfusion
- Early thoracotomy if
  - 1500ml immediate fluid evacuated
  - ongoing bleed of 200ml/hr
  - physiologic status poor



# Massive Hemothorax

- Thoracotomy is not indicated unless a qualified surgeon is present

# **Penetrating Cardiac Injury -> Cardiac Tamponade**

# 4. Cardiac Tamponade

- More common in penetrating injuries
- Less than 10% of penetrating cardiac injury victims reach hospital
- Pericardial sac is fixed and fibrous so a little blood can have a great impact on cardiac filling
- Venous pressure elevation, muffled heart sounds, decline in arterial pressure. (Beck's triad only present 10%)
- Kussmaul's sign (rise in venous pressure with spontaneous inspiration) paradoxical

# Cardiac Tamponade

- Consider in PEA
- FAST is 90% or more reliable in hands of experienced operator..... LHC data?
- Pericardiocentesis is diagnostic and therapeutic but not definitive
- Surgical intervention best- if not available pericardiocentesis. (fluid resuscitation will temporarily improve cardiac output)

# FAST in Cardiac Tamponade

- Subxiphoid or parasternal view of heart
- Aim transducer towards left clavicle
- Look for fluid layer
- Very user dependent
- Takes 15-30 cases to become proficient
- Part of primary survey in penetrating chest or upper abdominal trauma

# Cardiac Tamponade: Pericardiocentesis

- Subxiphoid needle aspiration of pericardial sac.
- With or without Seldinger technique and catheter, with ultrasound and ECG guidance
- Clotted blood in sac means pericardiocentesis will not be diagnostic or therapeutic
- All will need definitive care, transfer
- Pericardiotomy via thoracotomy- surgeon
- Subxiphoid pericardial window (SPW) in O.R.

# Resuscitative Thoracotomy

- For persons with penetrating thoracic injuries arriving pulseless, with PEA, may be candidates for immediate resuscitative thoracotomy----TREAD CAREFULLY
- “A qualified surgeon must be present at the time of the patient’s arrival to determine the need and potential for success of a resuscitative thoracotomy in the ER.” ATLS.

# Dead?

- Penetrating trauma with no vital signs and CPR in pre-hospital setting
- Look for signs of life. If there are no
  - Reactive pupils
  - organized ECG activity
  - spontaneous movements

In our remote outposts (non trauma centers) stop there.....



# Primary Survey- recall

- Tension pneumothorax
- Open pneumothorax(sucking)
- Massive hemothorax
- Cardiac tamponade

# **Penetrating Chest Trauma: Secondary Survey**

# Penetrating Chest Trauma

## SECONDARY SURVEY

- Simple pneumothorax
- Hemothorax, Pulmonary laceration
- Tracheobronchial tree laceration
- Penetrating cardiac injury, may appear later
- Diaphragmatic injury, holes
- Laceration esophagus

# Simple Traumatic Pneumothorax

- Chest tube 4<sup>th</sup>-5<sup>th</sup> intercostal space, anterior axillary line
- Need to place the chest tube before PPV or general anesthesia mechanical ventilation
- In penetrating chest wounds use chest tubes not Heimlich valves.
- Needs decompression before air travel

# Caution

- In trauma patients a small or large simple pneumothorax should not be overlooked as it may progress to a tension pneumothorax

# Hemothorax

- <1500ml blood
- Cause - lung laceration, intercostal vessel, internal mammary artery, rarely thoracic spine fracture
- If you can see hemothorax on CXR use 36-40 Fr chest tube.
- Advantage of a chest tube in ER is to monitor blood loss, and the advantage in future is to prevent clotted hemothorax.

# Hemothorax

- Reminder if.....

over 1500 ml blood at insertion of chest tube OR ongoing blood loss of 200ml/hr for 2-4 hours OR if blood transfusion is required, may need operation (thoracotomy, thoracoscopy)

# Tracheobronchial Tree Laceration

- May be picked up on primary survey if hemoptysis, subcutaneous emphysema, tension pneumothorax
- May be lethal
- May need more than one chest tube to overcome the leak and inflate the lung
- Follow the trajectory to anticipate what is involved



# Tracheobronchial Tree Laceration

- Temporize with intubation of opposite mainstem bronchus, likely via bronchoscopy
- Difficult due to distortions from paratracheal hematomas, oropharyngeal injuries or the tracheo- bronchial injury itself
- Anesthesia assistance, and in LHO ER Thoracic Surgery assistance

# Penetrating Cardiac Injury

- Suspect in penetrating trauma in anyone with bullet or knife trajectory through the mediastinum. Likely picked up on primary survey as cardiac tamponade but as heart muscle seals up quickly it could remain occult and picked up in secondary survey
- High index of suspicion
- Repeat FAST in secondary survey

# FAST- Pitfalls in Penetrating Cardiac Trauma

- Operator inexperience (30+ cases helps in learning curve)
- Hemopericardium can drain to left hemithorax or peritoneum leading to negative FAST and miss a cardiac injury.
- Massive hemomediastinum can lead to positive FAST but no blood in pericardium
- FAST can rule out tamponade but not cardiac injury

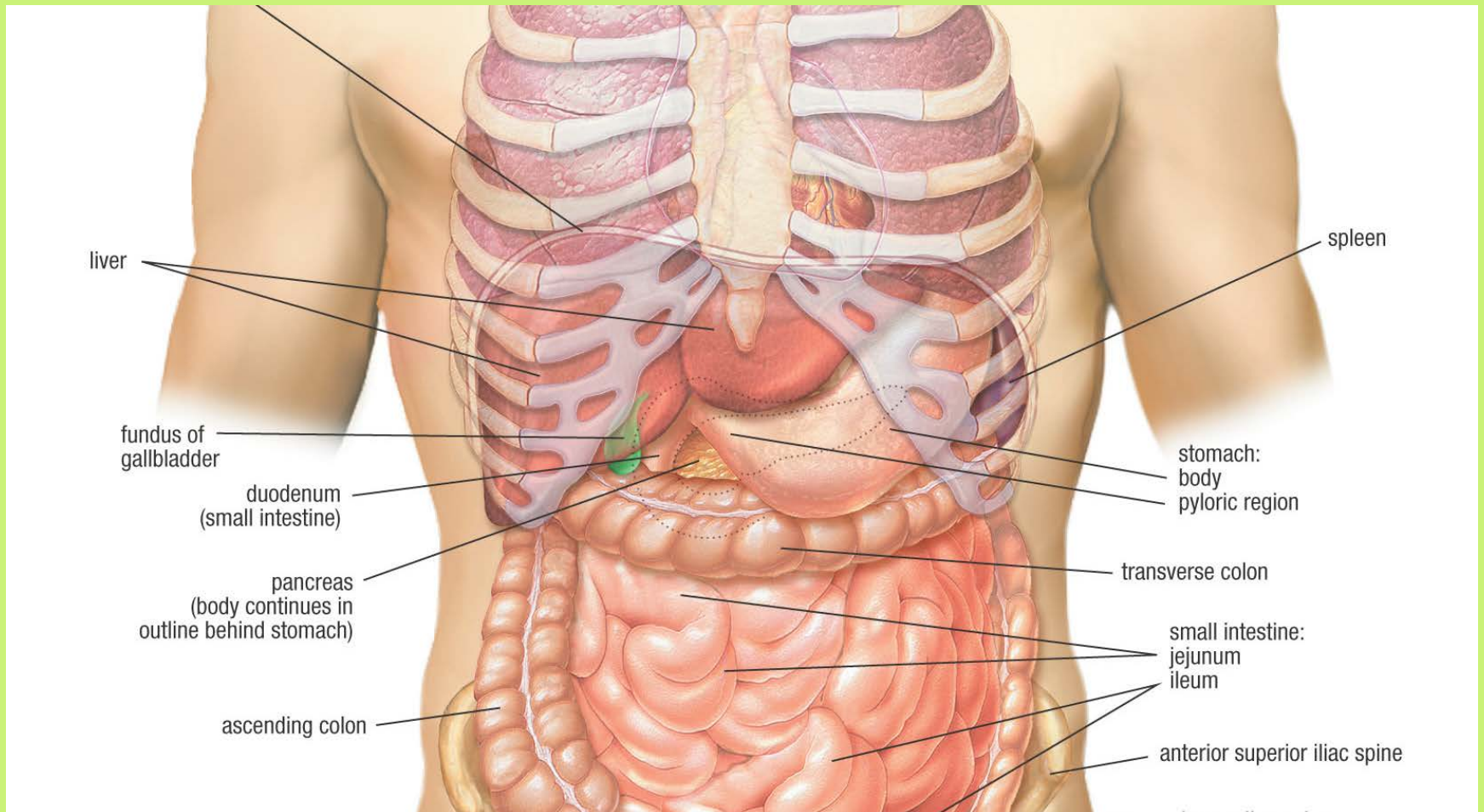
# Diaphragmatic Injury->Holes

- Easily missed, consider the trajectory
- In penetrating trauma they can be small and grow over years into diaphragmatic hernias
- The diaphragm is higher than we think
- Often delayed diagnosis or found during operative repair of other injuries
- Treatment is by direct repair
- Blunt diaphragmatic injury presents more classically...left sided, raised, stomach in chest

# Diaphragmatic Injury-> Holes

- CXR is normal in 77%
- CT can miss diaphragm injury often, up to 32% in some case series.
- possible ways to diagnose if still suspicious
  - thoracoscopy, thoracotomy or VATS, (right or left side)
  - laparotomy, laparoscopy (left side)

# Diaphragm



# Esophageal Laceration

- Suspect this injury if trajectory of penetration is across the mediastinum.
- NG could go out the esophageal laceration into mediastinum or hemithorax
- Suspect if chest tube drains GI contents
- Suspect if wide mediastinum

## 4. Abdominal and Pelvic Penetrating Trauma

Often combined with chest trauma  
(=Double Jeopardy)

Can be isolated to abdomen  
and/or pelvis



# Abdominal Penetrating Trauma

- Anatomy
- Abdomen can start near the nipple line, as diaphragm, liver, stomach and spleen are all under the rib cage
- TRAJECTORY
- Again treat shock, ABC's
- Primary survey mainly C's if abdominal trauma

# Comparison of Injury Pattern by Mechanism in Abdominal Trauma

## Penetrating trauma

- Follow the trajectory to predict organ damaged
- Knives and low speed bullets cause lacerations
- High velocity bullets cause laceration, holes, cavitation and damage around the track as well
- Bullet fragmentation

## Blunt trauma

- Mechanism of the blunt trauma give clues
- Compression
- Shearing
- Deceleration, leading to laceration at site of attachment
- Rupture hollow viscera

# Comparison: Incidence of Organ Involvement

## Stab wounds

- Liver 40%
- Small bowel 30%
- Diaphragm 20%
- Colon 15%

## Gunshot wounds

- Small bowel 50%
- Colon 40%
- Liver 30%
- Vessels 25%

# **Blunt Abdominal Trauma Incidence of Organ Injury**

- Spleen 40-55%
- Liver 35-45%
- Small bowel 5-10%
- Retroperitoneal 15%

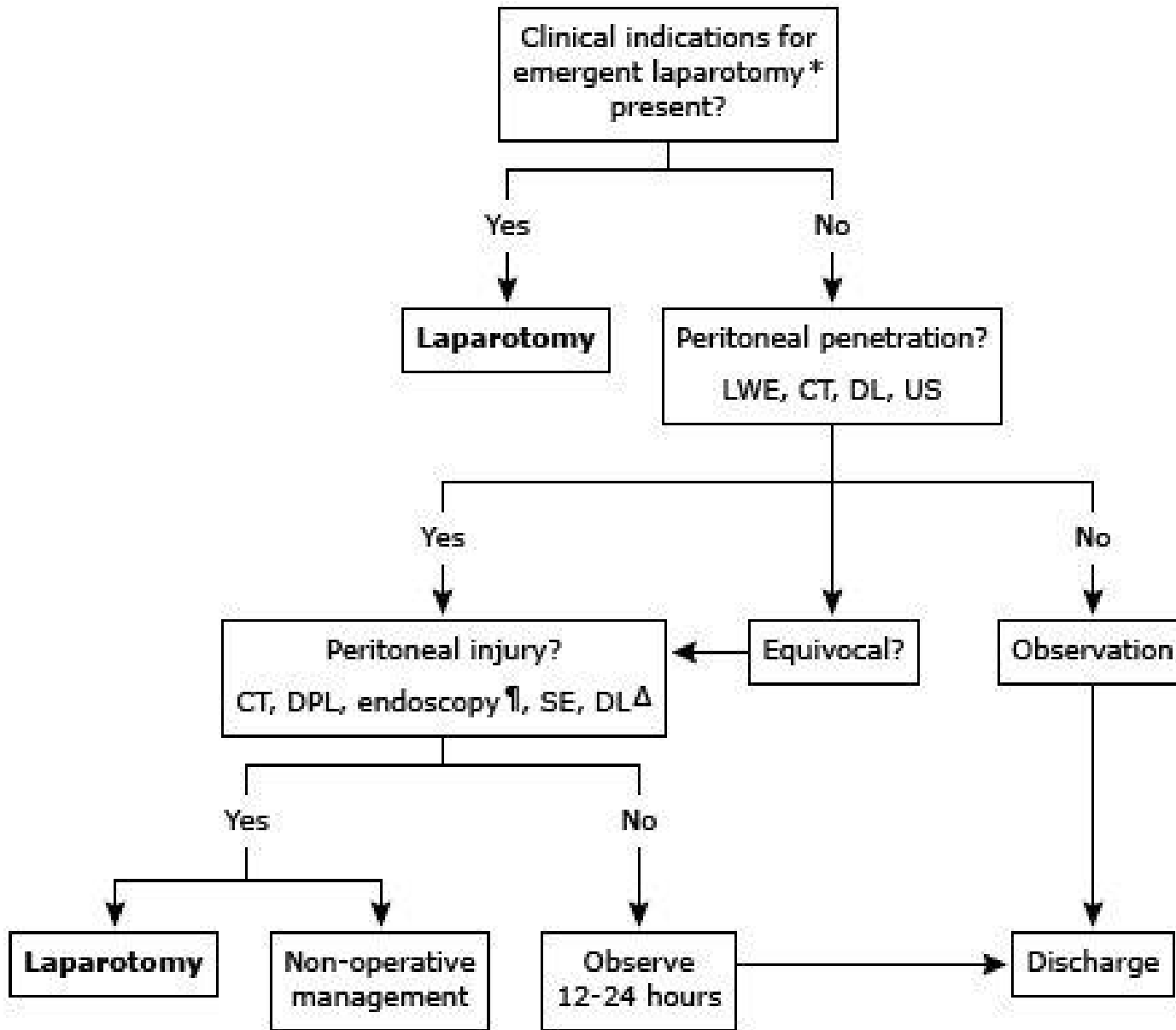
# Abdominal Penetrating Trauma

- ABCs, rapid physical examination, labs
- Assess hemodynamic stability
- Assess entry and exit wounds
- FAST
- Stable -> CT abdomen/pelvis has a large role
- DPL, not as useful in penetrating trauma
- Laparotomy, need to sort out which cases
- Observation

# Indications for Laparotomy

- Hypotension with penetrating abdominal wound
- Gunshot wounds traversing the peritoneal cavity or visceral/vascular retroperitoneum
- Peritonitis
- Impalement
- Evisceration
- Contrast CT findings

# Algorithm for Assessment of Penetrating Abdominal Trauma



# Indications for Laparotomy

- Evolving with stab wounds,
- Gunshots most often need laparotomy
- Up to 1990s most cases of penetrating abdominal trauma went to O.R.
- With evolution of laparoscopic skills and equipment now there is role for laparoscopy in penetrating trauma
- “Selective Non-Operative management”  
or SNOM



# 5. LHC Penetrating Chest and Abdominal Trauma- Cases

Tereza Lynde

# 6. Recent Articles

# Summer of the Knife?

We're seeing  
a record number  
of deaths this year



**WARMINGT**

Toronto Sun



MICHAEL PEAKE/TORONTO SUN

# STABBING AT SCHOOL

**TERRY DAVIDSON**  
Toronto Sun

an alley on the school's property and staggered his way to the front of the school.

Det. Jessica McInnis told CityNews that police are on the hunt for the suspect.

the scene of a stabbing involving a student outside of Central Technical School yesterday. The injuries weren't life-threatening, police said.

## And another recent article

Toronto Sun- Journal of Toronto Stabbings and Trauma.

# **Laparoscopy in Penetrating Abdominal Trauma**

**Selman Uranues • Dorin Eugen Popa •  
Bogdan Diaconescu • Rudolph Schrittwieser**

## **Socié'te' Internationale de Chirurgie 2014**

Abstract. If morbidity and mortality are to be reduced in patients with penetrating abdominal trauma, first priority goes to prompt and accurate determination of peritoneal penetration and identification of the need for surgery. In this setting, laparoscopy may have an important impact on the rate of negative or non-therapeutic laparotomies. We analyzed indications and patient selection criteria for laparoscopy in penetrating trauma along with outcomes.

# **“Laparoscopy in Penetrating Abdominal Trauma”.** **World J of Surgery. Dec 2014. Uranues and Popa**

When all cases went to the OR up to 45% of laparotomies were negative (no injury found) or “non-therapeutic”

Negative laparotomy has morbidity of 20% and mortality of 5%

Selective use of laparoscopy to determine the need for further surgery, or effect repair.

Studies from the 1990s on laparoscopy found that sensitivity and specificity for diaphragm and bowel injuries were unacceptably low

Recent studies in last decade quote very high S +S.

# Selection of Candidates for Penetrating Trauma Laparoscopy

- Urgent trauma laparotomy not indicated
- SNOM (selective non-operative management)
- Hemodynamically stable
- Usually have had CT first, if any diagnostic and therapeutic uncertainty still exists then laparoscopy

# Indications for Laparoscopy

1. Screening, diagnosis, treatment
2. Diagnose peritoneal penetration, injuries to diaphragm, hollow viscus and mesentary
3. Stab wound: stable patient with intra-abdominal free fluid from unclear source
4. Stab wound: small amount of free fluid and suspected intestinal injury
5. Stab injury to solid organ: stable patient, with significant free fluid, unclear still bleeding



# Indications for Laparoscopy

6. Unclear abdomen after trauma- there is a discrepancy between imaging studies and clinical examination.

7. Stable patient - CT is suspicious for diaphragmatic laceration.

# Thoracoabdominal Penetrating Injuries

- When penetrating injury passes through BOTH chest and abdomen.
- “double-jeopardy”
- Decision about which cavity to enter first has a great impact on survival. Wrong order can be lethal.

# “The persistent diagnostic challenge of thoracoabdominal stab wounds”

Journal of Trauma and Acute Care Medicine 2014

Berg, R.J., MD, Karamanos, E., MD, Inaba, K., MD, Okoye, O., MD, Teixeira, P.G., MD, & Demetriades, D., MD, PhD, L. A., California

## **BACKGROUND:**

Penetrating thoracoabdominal trauma, with potential injury to two anatomic cavities, significantly challenges surgical management,

yet this injury pattern has not been reviewed across a large patient series.

## **METHODS:**

The trauma registry of a major level 1 center was queried for all adult patients admitted with thoracoabdominal stab wounds between January 1996 and December 2011.

# “The persistent diagnostic challenge of thoracoabdominal stab wounds”

## Results:

The study identified 617 patients; 11% arrived hypotensive (systolic blood pressure < 90 mm Hg), 6.5% had Glasgow Coma Scale (GCS) score less than 8, and 3.6% were in cardiac arrest.

- Of those arriving alive, 350 (59%) of 595 underwent surgery (88% laparotomy, 3% thoracotomy, and 9% both procedures).
- Nontherapeutic laparotomy was performed on 12.3% of these patients. Cardiac injury occurred in 71% (29 of 41) of the patients arriving alive undergoing thoracotomy. Among this group, only 1 (2.4%) of 41 had a major thoracic vessel or aortic injury without cardiac trauma

# “The persistent diagnostic challenge of thoracoabdominal stab wounds

## Results:

- Either hollow viscus injury or DI occurred in 50%.
- Only 36.8% of liver, 58% of spleen, and 29.8% of kidney injuries required surgical repair
- Diaphragmatic injury (DI) occurred in 224 (38%) of 595, with 72 (32.1%) of these 224 demonstrating no computed tomographic evidence of DI
- The need for dual-cavitary intervention was associated with a precipitous increase in patient mortality

# “The persistent diagnostic challenge of thoracoabdominal stab wounds”

## Conclusions:

- Many patients with solid-organ injuries do not require intervention
- High incidence of hollow viscus injury and DI ultimately limits nonoperative management.  
Laparoscopy is necessary to exclude occult DI

# “The persistent diagnostic challenge of thoracoabdominal stab wounds”

## Conclusions:

- “The need for dual-cavitary intervention was associated with a precipitous increase in patient mortality.”
- “ In unstable patients, determination of which anatomic cavity to explore primarily requires exclusion of cardiac injury. In those with equivocal clinical or ultrasonographic evidence of cardiac trauma, laparotomy, with transdiaphragmatic pericardial window, if a causative abdominal injury is not immediately apparent, seems the most effective strategy.”

# **Sternotomy or Drainage for a Hemopericardium After Penetrating Trauma**

## **A Randomized Controlled Trial**

Andrew J. Nicol, FCS, PhD,\* Pradeep H. Navsaria,  
FCS, MMed,\* Martijn Hommes, MD,\* Chad G.  
Ball, MD,†

Sorin Edu, FCS,\* and Delawir Kahn, FCS, ChM\*

Annals of Surgery Volume 259, Number 3, March 2014



# Sternotomy or Drainage in Hemopericardium

- Only 11% to 20% of patients with penetrating cardiac injury will arrive alive
- In hospital mortality is 60%+
- Cape Town South Africa
- RCT
- Prior to study pilot was done wondering if washout and drainage was enough rather than sternotomy

# Sternotomy or Drainage in Hemopericardium

## Objective:

- To determine if stable patients with a hemopericardium detected after penetrating chest trauma can be safely managed with pericardial drainage alone

## Background:

- The current international practice is to perform a sternotomy and cardiac repair if a hemopericardium is detected after penetrating chest trauma.
- The experience in Cape Town, South Africa, on performing a mandatory sternotomy in hemodynamically stable patients was that a sternotomy was unnecessary and the cardiac injury, if present, had sealed.

# Sternotomy or Drainage in Hemopericardium

## Methods:

- A single-center parallel-group randomized controlled study was completed
- All hemodynamically stable patients with a hemopericardium confirmed at subxiphoid pericardial window (SPW), and no active bleeding, were randomized
- The primary outcome measure was survival to discharge from hospital. Secondary outcomes were complications and postoperative hospital stay

# Sternotomy or Drainage in Hemopericardium

## Outcomes:

- The primary outcome measure was survival to discharge from hospital
- Secondary outcomes were complications and postoperative hospital stay.

# Sternotomy or Drainage in Hemopericardium

## Results:

- Fifty-five patients were randomized to sternotomy and 56 to pericardial drainage and washout only. Fifty-one of the 55 patients (93%) randomized to sternotomy had either no cardiac injury or a tangential injury.
- There were only 4 patients with penetrating wounds to the endocardium and all had sealed. There was 1 death postoperatively among the 111 patients (0.9%) and this was in the sternotomy group.

# Sternotomy or Drainage in Hemopericardium

## Conclusions:

- SPW and drainage is effective and safe in the stable patient with a hemopericardium after penetrating chest trauma, with no increase in mortality and a shorter ICU and hospital stay.

# Lakeridge Health Experience

- Almost all penetrating trauma cases are with knives, many are self inflicted
- Lakeridge Health sites are not trauma centers
- Large and small community hospitals
- Low number of cases even including Oshawa means ER teams lack experience, and it is hard to get comfortable
- Keep to basic resuscitation skills
- REFERRAL to Trauma center or local surgeons
- Keep disposition in mind at all times