Rural Trauma Care

We Can Do More Than We Realize!

Field presentation

- 17 yo female
- Restrained rear seat passenger (Lap belt only)
- High speed collision of Audi with Truck
- Passenger car severed in half

Vehicle
ER Presentation

- Shock SBP 80-90
- GCS 4-5 (some tracking with eyes)
- Marked lap belt injury

- Weather would not permit helicopter or fixed wing transport.

CT

OR

- Exploratory laparotomy
- Damage control
- Multiple areas of bowel injury and complete transection (stapled closed not definitive repair) mesenteric bleeding controled
- Stomach reduced from chest, chest tube
- Pelvic hematoma packed
- Abdomen left open with drains and packing
Transport

- Ground transport with MESI (Life Flight Crew)
- Marked acidosis requiring ongoing resuscitation with fluids and blood products
- Transport stopped at St. Pats ER for more blood and fluids
- Fixed wing transport to Harborview

Harborview

- Prolonged course with multiple returns to OR
- Last report patient is eating and moving her toes

Case #2

- 43 year old Male
- Restrained driver rollover MVC at highway speeds and colliding with a stone wall
- Transported from scene Alert but possible LOC
- Initial Pulse 115, BP 140/80
- Left side abdominal contusion
Past medical History

- History of incomplete cervical quadriplegia from MVA 15 years ago
- PSH
  - diverting ileostomy
  - Previous tracheostomy
  - Cervical fusion

ER Management

- The patient initially appeared stable
- Abdominal examination showed the contusions but no tenderness
  - Examination limited but patients incomplete cervical quadriplegia
  - Standard ATLS evaluation
  - CT of the abdomen and pelvis
    - Grade IV splenic rupture with hemoperitoneum
    - Left rib fractures 5-10

OR management

- Initial contacts were made for transport of this complex patient (KRMC Alert)
- The patient became hypotensive
- Decision made for a surgical exploration
- Blood products started with goal of 1:1:1
- Splenectomy with evacuation of 2000cc blood
- Left thoracostomy tube
Post operative care

- The Alert flight team arrived as the abdomen was closed
- KRMC Medical control advised transport to trauma center in Spokane

Trauma case #3

- 31 yo male
- Punched his right arm through a plate glass window
- Deep laceration to the humerus
- Transported by EMS with tourniquet
- Complete Brachial Artery laceration apparent on arrival

OR management

- Patient taken immediately to the OR
- Surgical tourniquet applied
- Wound exploration revealed complete laceration of biceps to the level of the humerus with transection of the brachial artery, vein and the Median nerve
OR Management

- The venous structures were ligated close to the lacerated ends to preserve length
- The nerve was identified proximal and distal and a prolene suture was placed to mark each end, no repair was attempted
- A shunt was fashioned from a segment of 10 french drain tubing, placed in the proximal and distal ends and secured, flow was confirmed.

Post op care

- Life flight arrive as the procedure concluded
- The patient was transported to the airport in Missoula by helicopter and by fixed wing to Harborview Medical Center
- The patient arrive at Harborview with intact distal pulses and a perfused hand
- Definitive repair of the artery, nerve and biceps muscle was achieved

Damage Control Surgery

- Damage-control laparotomy as practiced in trauma surgery. Since the first description of deliberately abbreviated laparotomy in the mid 1980’s, damage-control laparotomy has been widely applied
- Recent emphasis on its application to the Rural hospital with surgical capability
Damage Control in Rural CAH

- Catastrophic Patient
  - Beyond the usual scope of practice at your facility

- Pitfalls:
  - “I am not comfortable with that”
  - “we cant care for this here”

Goals

- Stabilization
  - Don’t miss the window of opportunity
    - Establish IV access early
    - Intervene with life threatening issues
      - Pneumothorax
      - External bleeding
  - Establish plan of transfer and start process early
  - Early interventions have much greater impact
    - Use your wait time for transport wisely

Surgeon + CAH

- Potential for life saving intervention
- The Damage Control Laparotomy will stop the downward spiral of the patient

- Goals
  - Arrest bleeding
  - Limit contamination
  - Gain control of ABC’s
  - Prepare patient for shipping
Transfer Agreements

- Go beyond the paperwork
- Get to know your providers at the next level of care
  - Regional Trauma conferences
  - Shared call, locum opportunities
- Communicate with the accepting provider
  - Let them know early and often what you did and what they can expect to receive

Damage Control

- "It is a tragedy for a patient to die of intra-abdominal hemorrhage awaiting, during or without transfer when a General Surgeon and an operating room are available"
  - Richard Sidwell MD
  - Chairman Rural Trauma Team Development Course
  - American College of Surgeons

- RTTDC: ACS 8.25 hours CME $50 / person
  - Course is brought to your institution

References

- Sidwell, Robert. 2006. "Damage Control Laparotomy: A new concept in the management of the severely injured trauma patient: rationale and outcomes." Journal of Trauma. 60: 316-321. (This paper introduces the concept of damage control laparotomy, which has been instrumental in reducing mortality associated with severe trauma.

- Sidwell, Robert. 2000. "Damage Control Retraining of the Trauma Patient: A New Concept in the Management of the Severely Injured Trauma Patient: Rationale and Outcomes." Journal of Trauma. 48: 499-504. (Further elaboration on the damage control concept, focusing on its application and outcomes.)
