

Case Study: Multiple Gun Shot Wounds to the Abdomen

Medical Nutrition Therapy in the Trauma ICU at Harborview Medical Center

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Patient Background

27 year old Male

Height: 188 cm (6'2")

Weight: 94 kg (207#), BMI: 26.6

PMH includes: HTN, ADHD, psychiatric hx (auditory hallucinations, paranoid ideation, depression)

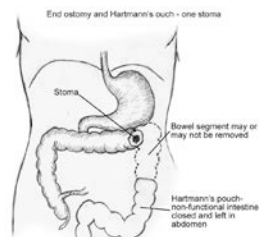
Admission

- Shot multiple times in the back by unknown assailant
- Patient unable to move his legs
- Found hemothorax (bleeding in pleural cavity), chest tube placed
- Transferred to Harborview Medical Center from outside hospital

Injuries Found via HMC Ex Lap

- L pneumothorax
- L diaphragm
- L2 fx (bullet trajectory between L2-L3)
- Pancreatic tail
- L kidney
- Splenic flexure (b/t transverse and descending colon)

Day	Events	Nutrition Intervention
0-1	<ul style="list-style-type: none"> • NPO and intubated • New colostomy w/ Hartmann's Pouch • Pancreatic injury 	<ul style="list-style-type: none"> • Start IV trauma vitamins: vit C, vit E, selenium • BEE x 1.3, 1.5 - 2.0 g protein/kg • Start bowel regimen
2-3	<ul style="list-style-type: none"> • No colostomy output • Elevated plasma amylase (pancreatic injury) 	<ul style="list-style-type: none"> • Trickle feeds: Replete @10ml/hr • Add MV w/ minerals, glutamine BID
PES	Inadequate enteral nutrition intake R/T trickle feeding for pancreatic injury AEB receiving 0-9% of estimated kcal and protein needs for the last 4 days.	
4-5	<ul style="list-style-type: none"> • Small colostomy OP • Reduction in plasma and JP amylase levels 	<ul style="list-style-type: none"> • Advanced TF to goal: Replete @115ml/hr • Continue vit C, MV w/ minerals, glutamine
6-9	<ul style="list-style-type: none"> • +Colostomy OP • 17-70% of TF goal over last 3d • Muscle wasting • Labs: TTY low, CRP high • Extubated • Transfer to floor, Sitting up in wheelchair 	<ul style="list-style-type: none"> • Revise TF: Promote w/ Fiber @115ml/hr • Discontinue glutamine and vit C • Continue MV w/ minerals • Order updated weight status
10-17	<ul style="list-style-type: none"> • Tolerating TF at goal • Wt: down 8.1kg from admit • Hyponatremia → 1.5L FWR 	<ul style="list-style-type: none"> • HD16: able to take adequate PO of General Diet
18-21	<ul style="list-style-type: none"> • Back to ICU: ↑ pancreatic fluid and concern for abscess infection • NPO for 2 days d/t multiple drain placements • Wt: down 13.6kg from admit 	<ul style="list-style-type: none"> • Allow pt to eat general diet post-op
PES	Moderate (non-severe) malnutrition R/T acute trauma and feeding interruptions AEB 14.5% wt loss in 18 days and visual muscle wasting.	
22-25	<ul style="list-style-type: none"> • Transferred to floor then to inpatient rehab • Improved TTY/CRP • Wt gain of 2.5kg • Adequate PO intake 	<ul style="list-style-type: none"> • Continue general diet • Hyponatremia r/t dehydration → discontinue 1.5L FWR (see "Hyponatremia" box to the right) • Colostomy care education
44	Discharged to home! Wheelchair-bound, stands with assist. Neurogenic bowel and bladder.	



Trauma Vitamins

Protocol

Start right away, on day 1 if possible. Continue for 7 days or until transferred to the floor, whichever comes first.

Vitamin C: 1,000mg IV x2d, pFT x5d

Vitamin E: 1,500IU BID pFT x7d

Selenium: 400mcg IV x2d, pFT x5d

Glutamine: 1 packet BID pFT x7d

Common Practice: MVI w/ minerals (includes Zn, Cu)

Rationale

- Severe trauma and critical illness → plasma levels of antioxidants and minerals fall and need replenishment
- Helps prevent oxidative damage that can lead to acute respiratory distress syndrome (ARDS) and multisystem organ failure (MSOF)
- Addition of **glutamine** to EN has been shown to reduce hospital and ICU LOS in trauma, burn, and mixed ICU patients (ASPEN, Grade B)
 - Conditionally essential amino acid
 - Improves intestinal epithelium and maintenance of gut integrity

Re-evaluating Hyponatremia after leaving the ICU

Day 16: Hyponatremia first noted → MD ordered 1.5L free water restriction (FWR)

- Day 25: Re-start home chlorthalidone (diuretic for HTN)
 - Med known to decrease sodium levels, so discontinued diuretic on day 35
 - Continued with 1.5L FWR
- Day 42: New lab tests
 - Low serum osmolality
 - Normal urine osmolality (normal water excretion)
 - **Urinary Na+ <10**
 - → **DEHYDRATION (not SIADH)**
 - Stop FWR, encourage fluid intake