DAMAGE CONTROL SURGERY IN NON TRAUMATIC EMERGENCIES

Carlos Mesquita

Coimbra
Portugal
"The Barber Surgeon"

Jacobus de Cessolis (séc. XV)
Harvard University

"The modern surgeon must make the patient safe for the modern operation"

Lord Moynihan (1865-1936)
• Damage control strategy for trauma:
  ▪ Widely and defined
  ▪ Hypothermia, acidosis and coagulopathy understood as a vicious cycle leading to patient's death - “LETHAL TRIAD"
  ▪ Correction of metabolic failure rather than anatomic perfection mandatory for immediate survival

1. Rapid control of bleeding and contamination
2. Abbreviated emergency laparotomy / temporary abdominal closure
3. ICU care, with correction of coagulopathy, acidosis, and hypothermia
4. Delayed definitive surgery
• **Similar philosophy in non-trauma setting:**
  
  ▪ **Not well detailed but applied**

  • Damage control surgery may be appealing and appropriate in non-trauma patients
  
  • Metabolic disturbances (acidosis), peritonitis and peritoneal fecal load, as well as hemodynamic instability, commonly encountered

    ✔️ hemodynamic instability defined as a SBP < 100 mmHg and HR > 100
    ✔️ open abdomen defined as non-approximation of the fascia and skin

  • **Abbreviated surgery in non-trauma setting rarely discussed in the literature**

    ▪ Little Level I evidence to support it
Keynote lecture:

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  Comparison of On-Demand vs Planned Relaparotomy Strategy in Patients With Severe Peritonitis. A Randomized Trial.

  _JAMA 2007; 298(8): 865-873_

- Stawicki SP, Brooks A, Bilski T, Scaff D, Gupta R, Schwab CW, Gracias VH.

  The concept of damage control: extending the paradigm to emergency general surgery.


- Person B, Dorfman T, Bahouth H, Osman A, Assalia A, Kluger Y.

  Abbreviated emergency laparotomy in the non-trauma setting.


- Kritayakirana K, Maggio PM, Brundage S, Purtill MA, Staudenmayer K, Spain DA.

  Outcomes and complications of open abdomen technique for managing non-trauma patients.

• Abbreviated surgery in non-trauma setting – most common indications:

  ▪ Elective:
    ▪ Abdominal Compartment Syndrome (ACS)
      ➢ elevated intra-abdominal pressure (>25 mm Hg) with tense abdomen and increasing respiratory failure, renal failure, or both

  ▪ Urgent:
    ▪ Peritonitis / sepsis 48 %
    ▪ Mesenteric ischemia 32 %
    ▪ Bleeding 10 %
    ▪ Intestinal obstruction 07 %
    ▪ Others 03 %

  ○ Multi-Organ Failure (MOF) due to irreversible septic shock as the most common cause of death
Converting from an elective surgical mindset to one of damage control can be very challenging

- General surgeon's perspective preoperatively:
  - No surgeon starts an elective operation planning to leave the OR with the abdomen packed and left open
  - Humbling experience / cause for some reluctance to use the technique

- Trauma surgeons enter into the procedure with a plan:
  - To terminate the operation once bleeding and contamination were controlled
• **Delayed abdominal closure must:**
  - Prevent evisceration
  - Control peritoneal fluids
  - Prevent ACS
  - Prevent contamination
  - Be economical as possible
  - Be fast to execute
  - Be easy to maintain
  - Be radiolucent
  - Allow second look and definitive closure, a few hours or days later, with minimal prejudices to the wall
In conclusion

- Innovation and unorthodox surgical practice
  - occasionally required for patient’s salvage in emergency abdominal catastrophes

- Damage control strategies not well defined in acute non-trauma setting
  - such philosophy proved to save lives among the injured
  - applying similar principles to patients inflicted by abdominal surgical diseases with the same physiological derangements may prove beneficial as well