

5. INTRA- ABDOMINAL INJURIES
C. Free Fluid & Hollow Viscus Injuries

OBJECTIVES: To define the diagnostic and management approach to patients with blunt abdominal trauma (BAT) who have free fluid (FF) on the abdomino-pelvic CT scan without solid organ injury (SOI).

Guidelines: The presence of FF on the abdomino-pelvic CT scan following BAT in the stable patient remains a management dilemma. Free fluid without SOI may indicate the presence of either mesenteric injury and/or hollow viscous injury. The incidence is low varying between 2.8 % and 5.7% in a study published in 2014¹⁻³.

Three factors that should raise suspicion for mesenteric or bowel injury, in patients with FF without SOI, include:

1. The presence of seatbelt sign
2. The presence of abdominal tenderness
3. A moderate to large amount of FF.

The following approach is suggested in patients with free fluid without solid got solid organ injury on CT based on literature review¹⁻⁵ (Level 2).

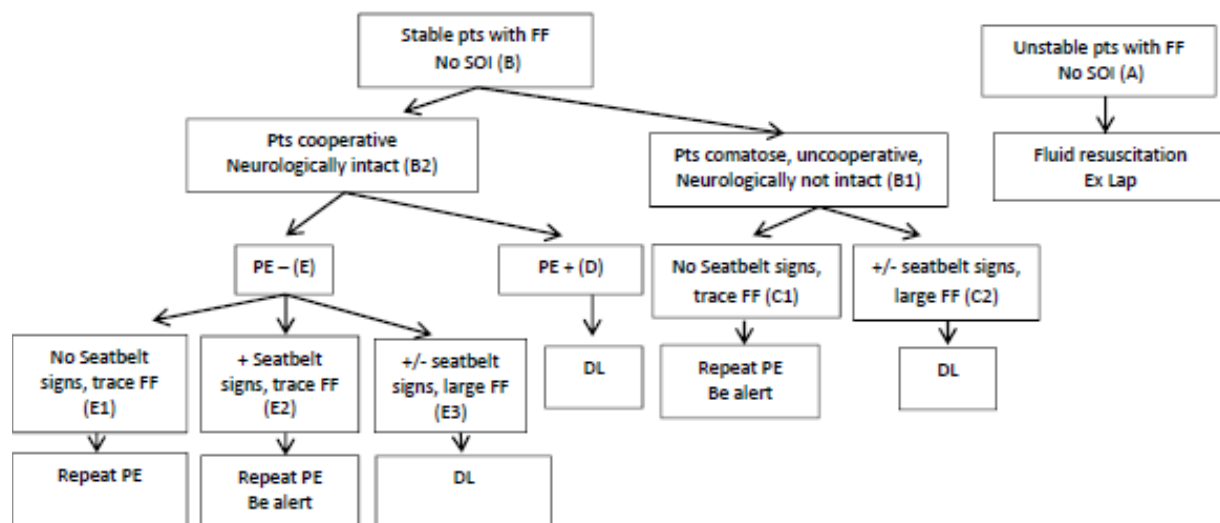
- A. In hemodynamically unstable patients, free fluid in the absence of solid organ injury mandates immediate surgical exploration.
- B. Hemodynamically stable patients with free fluid but without SOI should be stratified in 2 groups: 1. Comatose, uncooperative, and/or neurologically impaired patients who cannot be evaluated clinically; 2. Patients who are cooperative and neurologically intact.
- C. Comatose, uncooperative and neurologically impaired patients are then stratified into 2 subgroups: 1. Patients with no external markings (no seatbelt signs) and trace free fluid; 2. Patients with seatbelt signs and moderate to large free fluid. Subgroup 1 should undergo repeat clinical examination and radiological investigations as frequently as needed with the understanding that one must be extremely careful in not missing a bowel injury. Subgroup 2 should undergo diagnostic laparoscopy.
- D. Cooperative patients who are neurologically intact are stratified according to findings on physical examination. Patients with a concerning PE, regardless of the presence of a seatbelt sign, should undergo diagnostic laparoscopy. This can be converted, as needed, to a formal laparotomy.
- E. Patients with negative PE are stratified in 3 subgroups: 1. Patients with no seatbelt signs and trace fluids; they can be observed clinically (E1); 2. Patients with seatbelt signs and trace of free fluid; these patients can be followed clinically with repeated physical examination by the same examiner every 4 hours (E2); 3. Patients with and without seatbelt signs but with moderate to large amount of free fluid should undergo diagnostic laparoscopy (E3).

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References

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Algorithm for FF without SOI on CT scan after BAT



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