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Focused Assessment Sonography for Trauma (FAST)

Purpose:

The focused assessment sonography for trauma (FAST) is a limited ultrasound exam that can rapidly detect the presence of pericardial, intrathoracic, or intraperitoneal free fluid, allowing the Licensed Practitioner (LP) to determine the best management of an unstable patient in a critically time sensitive manner. An extended FAST (eFAST) is a limited ultrasound exam that also includes rapid evaluation of the chest for detection of hemothorax/pneumothorax.

Equipment:

A. Ultrasound Machine with the appropriate probes

B. Single-use protective probe cover (if used on non-intact skin or areas that may have blood or bodily fluids)

C. Ultrasound gel

Guidelines:

A. Scope of practice:

1. Identification of free intraperitoneal fluid as an index of solid organ or visceral intra-abdominal injury
2. To quickly identify the abdomen as the source of bleeding in patients who are hemodynamically unstable
3. To identify the presence of pericardial fluid (tamponade) in patients at risk from penetrating or blunt cardiac injury
4. To identify the presence of hemothorax/pneumothorax
5. Only a credentialed LP trained in FAST and eFAST will perform the examination

B. Specific Indications:

1. Penetrating Cardiac Trauma
2. Blunt Cardiac Trauma
3. Blunt Abdominal Trauma

4. Penetrating Abdominal Trauma
5. Chest Trauma

C. Location of clinical practice:

1. FAST/eFAST exam may be performed in the Emergency Department (ED) at the bedside of the trauma patient when determined to be indicated by the attending LP. Both the FAST and eFAST is an adjunct to the ATLS primary survey and therefore follows the performance of the ABCs.

D. Procedure:

1. LP or ED nurse enters the patient information into the ultrasound machine
2. Patient is placed in supine position
3. Expose the patient's chest and abdomen
4. The LP will then use ultrasound gel and the correct probe to assess for free fluid in the FAST exam and/or to assess for free fluid and hemo/pneumothorax in the eFAST per the following views:
    a. FAST
        1. Perihepatic (RUQ View)
        2. Pericardial (Subxiphoid View)
        3. Perisplenic (LUQ View)
        4. Pelvic
    b. eFAST
        1. Perihepatic (RUQ View)
        2. Pericardial (Subxiphoid View)
        3. Perisplenic (LUQ View)
        4. Pelvic
        5. Transthoracic (Chest View)
5. Trendelenburg position may be required to visualize free fluid during perihepatic and perisplenic examination
6. Consider reverse Trendelenburg position while evaluating for hemothorax or pelvic free fluid
7. A full bladder enhances the pelvic images of the FAST; Therefore, if possible, delay placing a urinary catheter until after the FAST is completed.
8. Additional windows at the clinician's discretion may be viewed as necessary

9. Serial FAST/eFAST exams may be performed as a part of the secondary trauma survey especially if the initial FAST exam is negative and clinical suspicion remains high

    a. This is true in injured children as it offers the advantage that imaging may be repeated throughout resuscitation and avoids ionizing radiation

10. Upon completion of the FAST exam, one of the following will be completed if applicable (see algorithm below)

    a. **Positive or Indeterminate AND patient is <u>hemodynamically stable</u>: perform CT scan of abdomen and pelvis with IV contrast**

        1. In this case, involvement of a surgeon is suggested as a change in patient stability may indicate the need for intervention

        2. **Pediatric population**: if a small amount of intra-abdominal fluid is found and the child is hemodynamically normal, obtain a CT scan

        3. When indications for patient transfer already exist, do not perform time-consuming testing including abdominal CT

    b. **Positive AND patient is <u>hemodynamically unstable</u>: Emergency Surgical evaluation per laparotomy vs diagnostic laparoscopy**

        Pediatric population: operative management is indicated not by the amount of intraperitoneal blood, but by the hemodynamic abnormality and its response to treatment

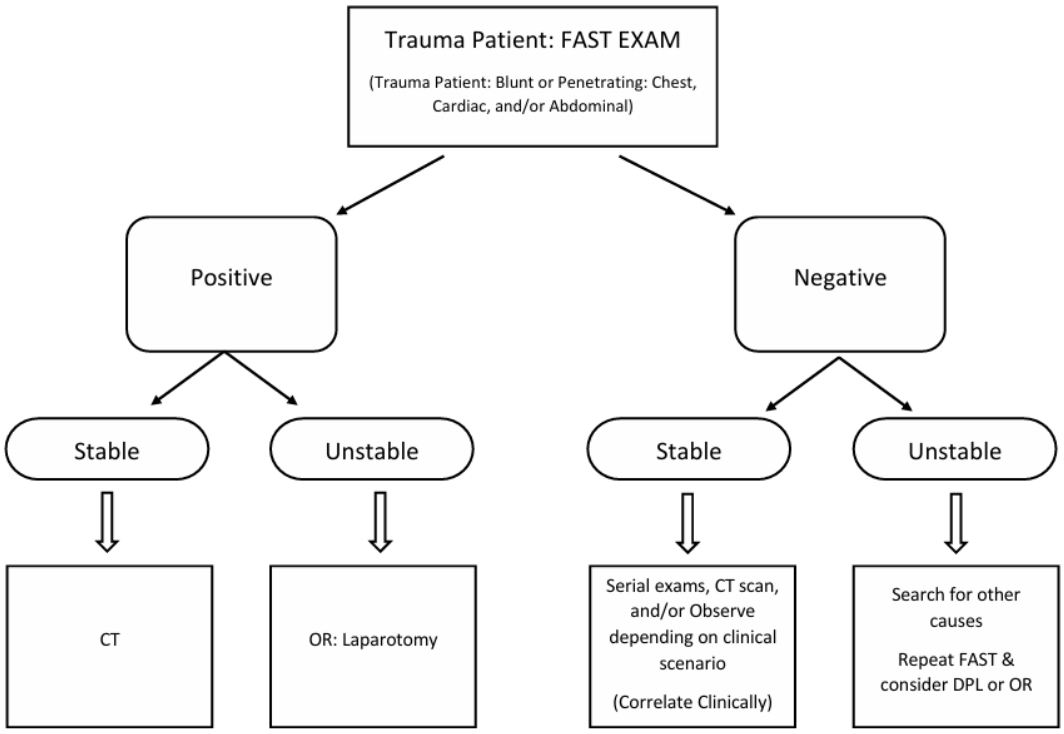
    c. **Negative or indeterminate or the patient is hemodynamically unstable: Repeat FAST exam or DPL**

        1. Consider other sites of blood loss, non-hemorrhagic shock, repeating the FAST exam, or consider performing DPL or sending the patient to the OR; DPL is rarely used in settings where CT and/or FAST are available): DPL

        2. Note: Surgical consultation should be obtained before performing this procedure in most circumstances

        3. DPL requires gastric and urinary decompression for prevention of complications

        4. Not used for sampling of retroperitoneal space



11. Limitations

    a. Approximate minimum amount of fluid needed to be detectable by ultrasound:

        1. Intraperitoneal free fluid: 200-250mL
        2. Pelvis: 160mL
        3. Morison's pouch: 620-670mL

    b. Chance for false negative result

    c. Injuries not detectable by ultrasound include: diaphragm tears, pancreatic lesions, bowel perforations, mesenteric trauma, and abdominal injuries

    d. Patient Comorbidities such as:

        1. Accurate cardiac or abdominal images may be difficult to obtain in patients with severe obesity or subcutaneous emphysema
        2. Hyperinflated lungs from chronic pulmonary disease may reduce the accuracy of cardiac images

E. Documentation:

1. The LP will document the following for a FAST or eFAST exam in the electronic medical record or downtime form:

    a. Description of each view studied and an interpretation of the findings (i.e. perihepatic view negative for free fluid)

b. Medical necessity: Document the medical necessity for the test (i.e. blunt or penetrating chest trauma, blunt or penetrating abdominal trauma, and/or unknown cause for hypotension, tachycardia, or abdominal pain)

2. Image retention:

a. Save the image on the ultrasound machine and place a POC US order for trauma (FAST exam)

b. The images are electronically sent to PACS and then saved to the electronic medical record (EMR)

c. Appropriate image(s) of the relevant anatomy and pathology for future review will be maintained in PACS and EMR

F. Quality Assurance:

1. The Emergency Department Medical Director or designee will be responsible for the determination and documentation of the quality and the appropriateness of all FAST/eFAST exams that are completed for trauma.

2. Cases identified during the initial QA process with the potential for improvement, contradictory of interpretation of ultrasound images as compared to gold standard findings (CT or operative report), or unexpected clinical outcomes will be taken to one or more of the following based on the QA findings:

a. The Peer Review Committee

b. Trauma Outcome Performance Improvement Committee (TOPI)

c. The provider who performed the FAST/eFAST exam

3. Time of FAST/eFAST diagnostic exam will be maintained in the Trauma Registry. To maintain a quality improvement program, the following data points will be also maintained

a. LP who performed FAST/eFAST exam

b. Time FAST/eFAST exam was completed

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