

MUM IM'S EFAST



“

Extended Focused Assessment with Sonography in Trauma (eFAST)

eFAST includes
scanning the lungs and
heart (thoracic window)
in addition to
the abdomen

”

WHAT ARE WE LOOKING FOR?

- Free fluid in body cavity
 - Morrison pouch, pericardial tamponade, splenorenal, pouch of Douglas, accumulation of fluid in pleural spaces
- Pneumothorax



Indications

- Hemodynamically unstable trauma patient
- Abdominal and thoracic trauma: blunt or penetrating
- Previously stable trauma patient with acute worsening clinical status



TYPES OF TRANSDUCERS USED

- Phased array probe
- Curvilinear probe



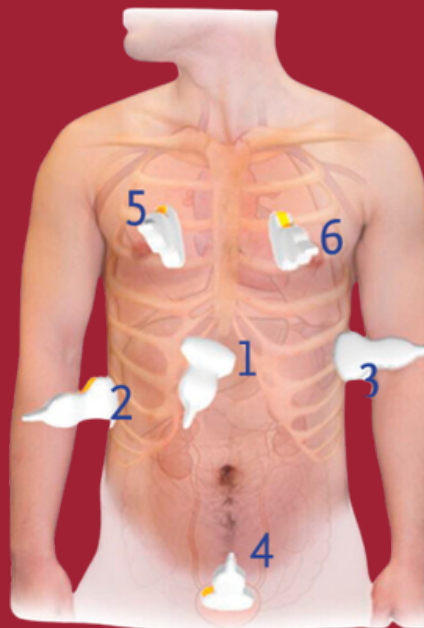
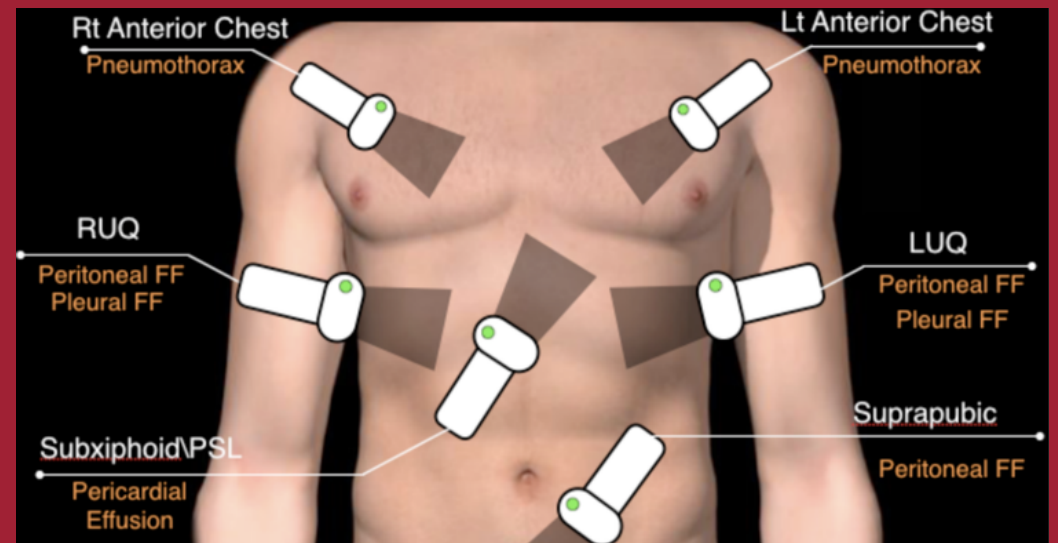
Advantages of eFAST

- Quick and easily obtainable
- Suitable to look for life-threatening causes in an acutely decompensating patient

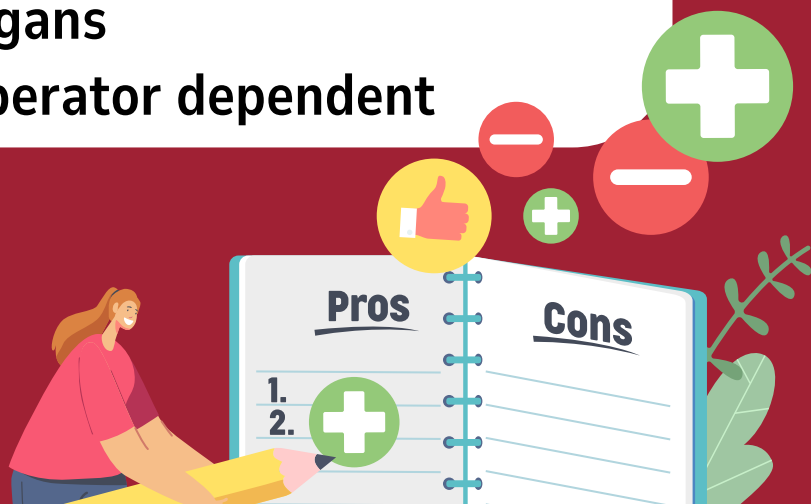
Limitations of eFAST

- Unable to distinguish nature of free fluid (Hemothorax vs Chylothorax vs Transudative pleural effusion)
- Unable to diagnose traumatic injuries of solid organs
- Operator dependent

LOCATIONS TO BE ASSESSED

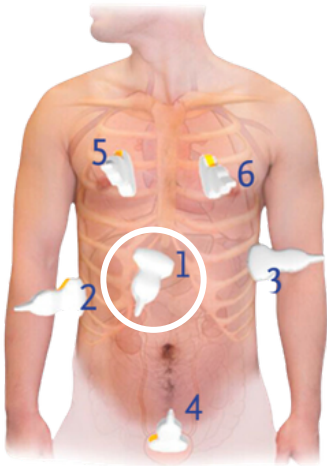


1. Cardiac View (Parasternal Long Axis or Subxiphoid)
2. Right Upper Quadrant View (RUQ)
3. Left Upper Quadrant View (LUQ)
4. Pelvic View
5. Lungs (Right)
6. Lungs (Left)



1. Cardiac (Subxiphoid) View

Conducting an eFAST Examination



- Place the probe angled to the patients left shoulder, the probe facing the patients right.
- The probe position should be slightly to the patients' right just below the xiphoid process to utilise the liver as an acoustic window.

Findings

Pericardial fluid appears as a black (hypoechoic) space between the white lines of the pericardium.

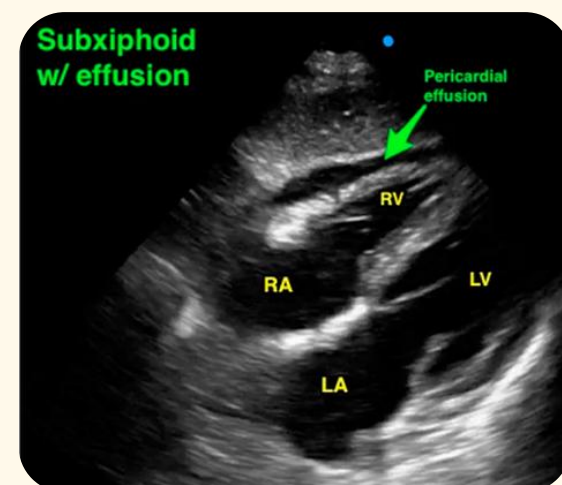
NORMAL

To assess pericardial space for free fluid



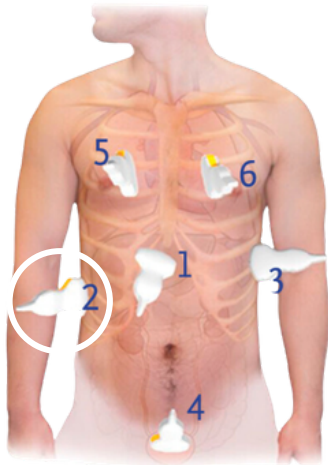
ABNORMAL

Pericardial fluid
Anechoic collection of fluid between the visceral and parietal pericardial layers



2. Right Upper Quadrant (Perihepatic) View

Conducting an eFAST Examination



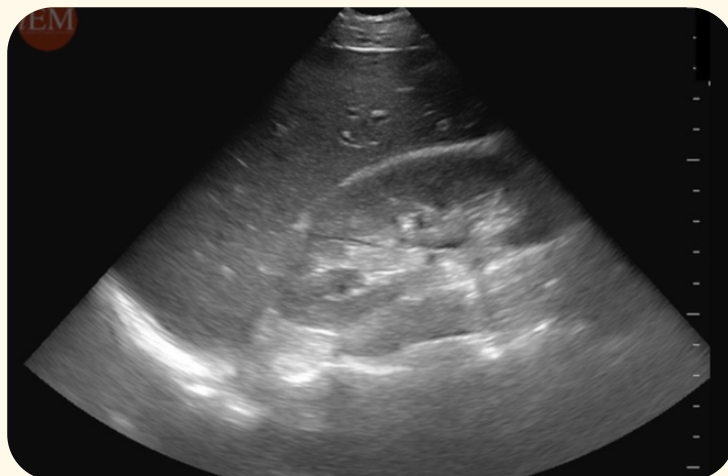
- Position the probe at the 8-10th intercostal space, anterior to midaxillary line, pointing probe marker towards the patient's head

Findings

- **Morison pouch** (visualize free fluid)
- **Haemothorax** appears hyperechoic & diaphragm appears as a bright white curvilinear line

NORMAL

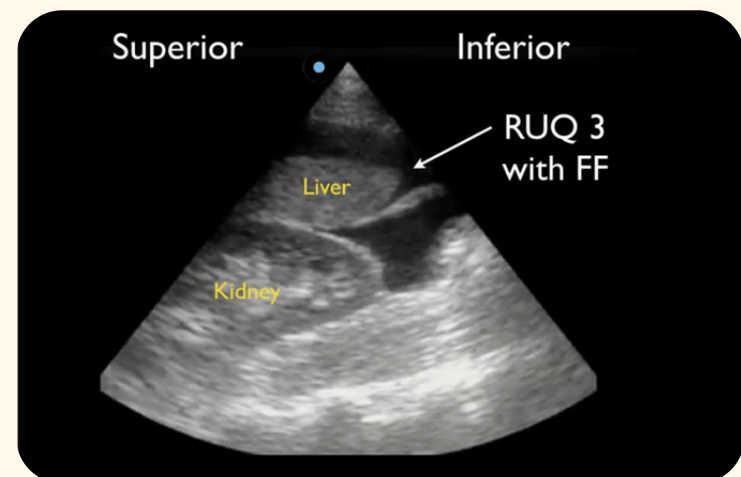
Assessing hepato-renal recess (Morrison's pouch) for free fluid



ABNORMAL

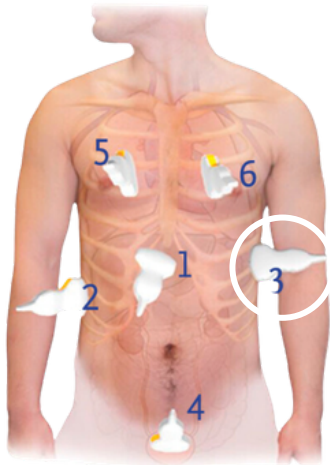
Free fluid

Detected as an **anechoic region** separating the liver and kidney (Morrison's pouch)



3. Left Upper Quadrant (Perisplenic) View

Conducting an eFAST Examination



- Place the probe at the similar 8-10th intercostal space at the posterior axillary line, where the probe marker is facing the patient's head

Findings

- **Morison pouch** (visualize free fluid)
- **Haemothorax** appears hyperechoic & diaphragm appears as a bright white curvilinear line

NORMAL

Assessing the splenorenal recess



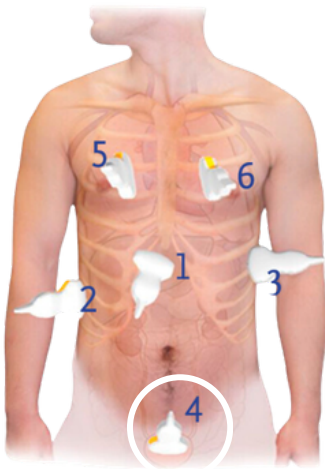
ABNORMAL

Free Fluid Seen at splenorenal recess



4. Pelvic View

Conducting an eFAST Examination



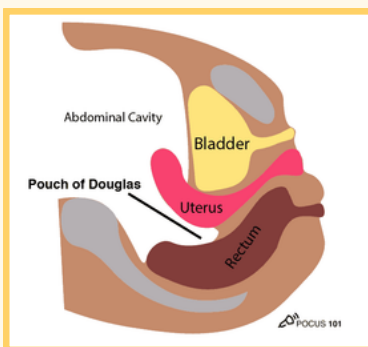
Position the probe in a transverse orientation just superior to the pubis symphysis with the probe indicator facing the patient's right, tilt the probe down and sweep to obtain full view of the bladder from superior to inferior

TRANSVERSE VIEW

LONGITUDINAL VIEW

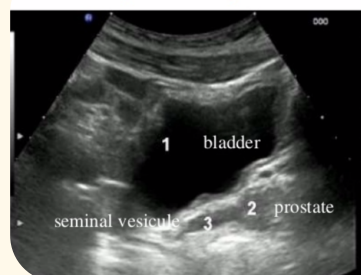
Rotate the probe 90° clockwise, where the probe marker faces the patients head, continuous sweep the probe from side to side

Pouch of douglas (rectouterine pouch)

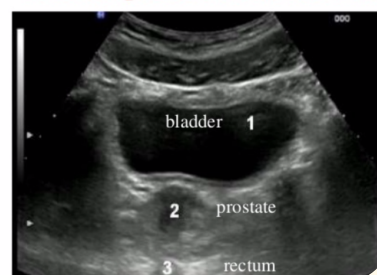


NORMAL

Normal pelvic sagittal scan

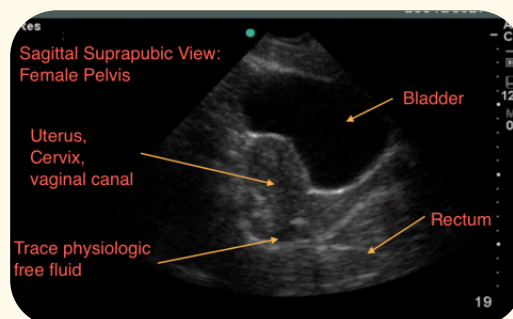


Normal pelvic transverse scan.



Male

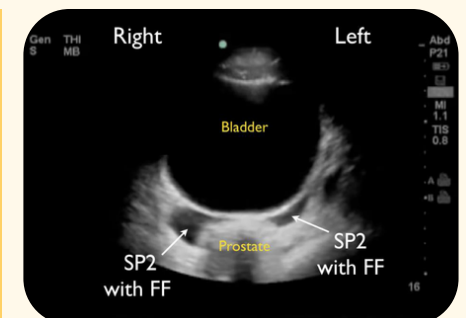
Female



Assessing the pouch of douglas
(do expect small volumes of physiological fluid)

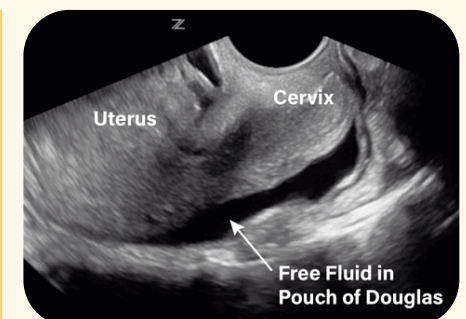
Commonly mistaken structures for free fluid in the pelvis: seminal vesicles & physiological free fluid in females

ABNORMAL



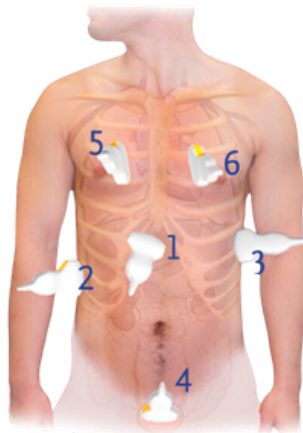
Male

Female



5. Lungs

Conducting an eFAST Examination

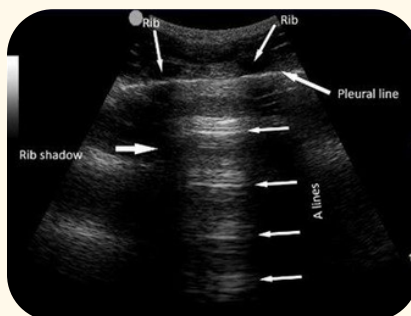


- Probe oriented at the midclavicular line starting from the 3-4th intercostal spaces moving inferiorly, perpendicular to the rib spaces with the probe indicator facing the patient's head

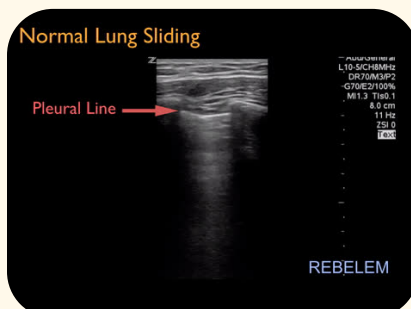
NORMAL



To assess for the presence of fluid collection in the pleural spaces (spine should end at the diaphragm in normal patients)



Check for aeration of the lungs with the presence of A-lines (reverberation artefact that indicates the lungs are aerated)

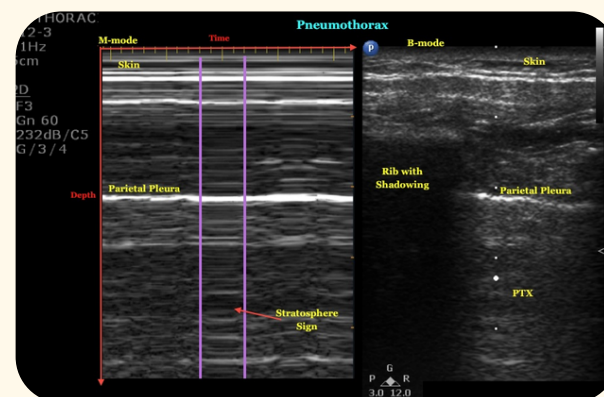
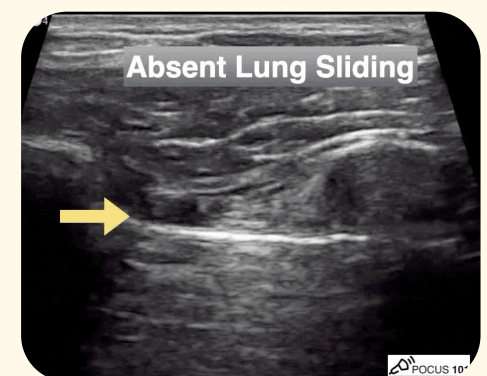


Assess for lung sliding sign at the pleural line, indicating movement of the visceral and parietal pleura layers

ABNORMAL



Pneumothorax
Absent lung sliding



Pneumothorax
M-mode
(Barcode sign)

References

1. <https://www.pocus101.com/efast-ultrasound-exam-made-easy-step-by-step-guide/>
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3. <https://www.msdmanuals.com/professional/critical-care-medicine/how-to-do-other-emergency-medicine-procedures/how-to-do-e-fast-examination>
4. <https://www.pocus101.com/cardiac-ultrasound-echocardiography-made-easy-step-by-step-guide/>

