ACUTE ABDOMEN

Abdominal pain in ED – Using a novel sonographic approach.

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**Background**

Abdominal pain is one of the most common complaints in the Emergency department, with the diagnosis varying from simple causes to life-threatening conditions. With the practice of bedside ultrasonography in the ED becoming almost standard practice, it is expedient to have a specifically tailored protocol for acute abdominal pain.

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<thead>
<tr>
<th>Exam</th>
<th>Anatomical landmarks</th>
<th>Pathological findings</th>
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<tbody>
<tr>
<td>A (AAA)</td>
<td>- Starting at subxyphoid area and followed all the way to umbilicus</td>
<td>Leaking AAA: intraperitoneal hypoechogenic fluid. Aortic aneurysm &gt; 3cm. Risk of rupture &gt; 5cm</td>
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<tr>
<td>C</td>
<td>Subxyphoid, around 2cm RI from the midline</td>
<td>Hypoechogenic and distributive shock: IVC &lt; 3.5cm, collapsing &gt;50% on inspiration</td>
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<tr>
<td>U (Ulcer, perforated vicus)</td>
<td>Pneumoperitoneum: apparent through the right upper quadrant (RUQ) along transverse and longitudinal axes</td>
<td>Direct sign: Pneumoperitoneum (increased echogenicity of a peritoneal stripe associated with multiple reflection artifacts and characteristic comet-tail appearance)</td>
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<tr>
<td>T</td>
<td>Trauma (FAST, AAA, IAF &amp; pleural space)</td>
<td>Hepato-renal (Morison’s) view + RI pleural space above diaphragm. Kpheno-renal view + RI pleural space above diaphragm. Suprapubic view in horizontal and vertical planes.</td>
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<tr>
<td>E</td>
<td>Ectopic pregnancy (empty uterus)</td>
<td>Ectopic pregnancy: intraperitoneal hypoechoic fluid, empty uterus or extra-uterine gestational sac</td>
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**Role of ACUTE ABDOMEN ultrasound**

This approach to the painful abdomen systematically assesses the five critical causes in the first part of the mnemonic: “ACUTE” (Abdominal aortic aneurysm, Collapsed inferior vena cava, Ulcer, Perforated viscus, Trauma (FAST)).

**Why ACUTE ABDOMEN?**

1. Assist identifying life-threatening conditions early.
2. Help ED physicians to take into account causes of abdominal pain that are commonly overlooked.
3. Facilitate physicians in prioritizing patients.
4. Result in a more prompt patient disposition.

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**Acute Abdominal Pain**

- **Appendicitis**
- **Biliary tract**
- **Obstructive uropathy**
- **Testicular torsion**
- **Men or women**

**Assessments**

- **Non-compressible**
- **Hyperechogenic**
- **Echo-free**
- **Reduced sign**: normal Doppler flow or no detectable Doppler flow

**Obstructive**

- **Severe pain**
- **Transverse**
- **Longitudinal**

**Cholecystitis**

- **Increased echogenicity**
- **Acoustic shadowing**

**Renal stones**

- **Hyperechogenic**
- **Accurate**