ACUTE ABDOMEN

Abdominal pain in ED – Using a novel sonographic approach.

Maryam Alali | Salma Alrajaby | Muna Aljallaf | Laila Hussein | Ruhina Sajid

Department of Emergency Medicine,, Rashid Hospital Trauma Center, Dubai, UAE

Background

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

Exam	Anatomical landmarks	Pathological findings
A (AAA)	▪: Starting at subxyphoid area and followed all the way to umbilicus	Leaking AAA : intraperitoneal hypoechoic fluid. Aortic aneurysm > 3cm. Risk of rapture > 5cm
C Collapsed (IVC)	Subxyphoid; around 2cm Rt from the midline	Hypovolemic and distributive shocks: IVC < 1.5cm, collapsing >50% on inspiration
U Ulcer (perforated vicus)	Pneumopertonium : epigastrium through the right upper quadrant (RUQ) along transverse and longitudinal axes	Direct sign: Pneumoperitoneum (increased echogenicity of a peritoneal stripe associated with multiple reflection artifacts and characteristic comet-tail appearance) Indirect sign: - Thickened bowel loop or gallbladder ,localized fluid collection, Decreased bowel motility or ileus or dirty free fluid
T Trauma (FAST , AAA, FAFF & pleural space)	▪Hepato-renal (Morison's) view + Rt pleural space above diaphragm ▪Spleno-renal view + Lt pleural space above diaphragm ▪Suprapubic view in horizontal and vertical planes	Leaking AAA : intraperitoneal hypoechoic fluid. Aortic aneurysm > 3cm. Risk of rapture > 5cm Pleural effusion: loss of mirror image of liver/spleen at Rt/Lt diaphragmatic areas
E Ectopic pregnancy (empty uterus)	▪ Uterus can be visualized during FAFF exam while obtaining suprapubic view	Ectopic pregnancy: intraperitoneal hypoechoic fluid, empty uterus or extra-uterine gestational sac

Role of ACUTE ABDOMEN ultrasound

This approach to the painful abdomen systematically assess the five critical causes in the first part of the mnemonic "ACUTE" (Abdominal aortic aneurism , Collapsed inferior vena cava , Ulcer (perforated viscus) , Trauma (FAST) , Ectopic pregnancy) followed by scanning for other surgical causes in the "ABDOMEN" mnemonic (Appendicitis , Biliary tract disease , Distended bowel loop , Obstructive uropathy , Men testicular torsion , women ovarian torsion). This might seem quite overwhelming and time consuming for an already busy ER, but if done in the proposed systemic approach, it can, on the contrary, provide pertinent information in a shorter time

Why ACUTE ABDOMEN ?

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

A	Appendicitis	Right lower abdomen	- Non compressible - Diameter >6 mm - periappendicular fluid -appendicolith
B	Biliary tract	Right upper abdomen	Cholecystitis : Pericystic fluid Sonographic murphy Gallbladder calculi Choledolithiasis : CBD > 6mm
D	Distended bowel loop	epigastrium, bilateral colic gutters, and suprapubic regions	- Dilated small bowel loop > 3 cm - Increase to & fro motion of bowel content - Decrease or increase bowel peristalsis
O	Obstructive uropathy	Longitudinal view lower intercostal - Rt-mid axillary line - Lt- posterior axillary line	Hydronephrosis : Dilated renal calyces Renal stone : acoustic echogenic foci
Men Or women	Testicular torsion Ovarian torsion	Scrotal scan: • transvers & longitudinal • Doppler suprapubic , sagittal and transvers identify uterus then move Rt & Lt	Hypoechoic testis compare to normal Reduce or no perfusion - Adnexal mass >4cm - Pelvic free fluid - Reduced blood flow on Doppler