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Introduction: Acute left colonic diverticulitis (ALCD) is the inflammation of the colonic diverticulum and can be classified as simple diverticulitis, in which inflammation is limited to the bowel wall and the pericolic fat, and complicated diverticulitis associated with abscess, bowel transit obstruction, bleeding or bowel perforation. The most efficient diagnostic pathway for ALCD, also allowing to discriminate between complicated and non-complicated (simple) forms is CT-scan with intravenous contrast. Recently gastrointestinal ultrasound in point-of-care ultrasound (GI-POCUS) exam has emerged as a useful tool for the diagnosis of ALCD. GI-POCUS. Aim of this study is to evaluate GI-POCUS diagnostic accuracy in ALCD and its ability to discriminate patient with complicated ALCD from patients with milder forms.

Methods: We enrolled all patients visting the ED presenting with suspicion of ALCD on clinical examination. Every patient received a complete medical examination, blood laboratory exams, a GI-POCUS examination by the ED physician, and a CT with IV-contrast exam (where not contraindicated). We considered the GI-POCUS exam diagnostic for ALCD if was present: diverticula, thickening of the bowel wall and thickening of the inflammatory fat. We then staged the disease according to the presence of US complicated ALCD criteria: pericolic fluid or extra luminal and intraluminal hyperecholic foci or hyperecholic fecolith. CT with IV-contrast was performed by a radiologist. The staging system and the definition of complications is given according to WSES guidelines.

Result: We enrolled a total of 41 patients with clinical suspicion of ALCD. A total of 30 patients had a GI-POCUS mediated diagnosis of ALCD and 11 patients presented a negative US exam. TC exam in this patients presents 1 case of acute diverticulitis without complication in the negative ultrasound grup and 28 case of acute diverticulitis in positive ultrasound group. According to this data the ultrasound present 96% of sensibility and 83% of specificity to diagnosis of acute diverticulitis. In 29 total acute diverticulitis confirmed on CT in ultrasound examination 14 patients have a complication, 14 patient have a uncomplicated diverticulitis and 1 patiantes have a negative exam. The TC exam confermed a complication in 7 of 14 patients in complicated ultrasound group and doesn't find a complication in simple ultrasound group. According to this data the ultrasound has a high sensitivity (100%) to inidentify complication but a lower specificity (63%).

Discussion: Acute diverticulitis is common cause of admission in emergency department. According to guidelines CT scan with IV-contrast is the diagnostic gold standard and also has a fundamental role in classification. In complicated cases the TC examination in essential to determine the nature of complications and the best therapeutic choice. In uncomplicated cases the guidelines suggest a conservative treatment. Our study demonstrates how in suspected ALCD the GI-POCUS has a diagnostic accuracy similar to the CT with IV-contrast with good sensibility a specificity. An accurate GI-POCUS examination is capable of identifying, in patients with ALCD, the presence of localized abscesses, perforation of even small intestines and the presence of risk factors such as fecolith. In this way our study shows how the presence of one of these characteristics on US examination is able to identify all patients with complicated diverticulitis with high sensitivity (100%) but a lower specificity (63%).

Conclusions: Point of care ultrasound is a good diagnostic instrument in acute diverticulitis diagnosis with a good sensibility an specific comparing to TC. Instead the study demonstred that ultrasound is a good screening tool for complication and can be used to select patients who need abdominal TC scans

