**Title: Point-of-care ultrasound diagnostic accuracy for fecal impaction in the emergency department: A prospective study**

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**Keywords (4 to 6):** fecal impaction, diagnosis, PoCUS, elderly patient, diagnostic accuracy

**Statements and declarations**

**Data availability:** Data are available upon request to the corresponding author.

**Acknowledgments:** Lara Absil, Antoine Fasseaux, Félix Gendebien1, Axel Shiku, Raphaelle Lopez, Tommy Sinatra, Charles Gregoire

**Funding**: No funding was received for this study

**Contributions:** All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Florence Dupriez, Julie Tollet, and Hortense Nelly. The first draft of the manuscript was written by Florence Dupriez and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

**Compliance with Ethical Standards**

**Competing interests:** The authors declare no competing interests.

**Ethical approval and consent to participate**: All included patients provided informed consent.

**Abstract**

Point-of-care ultrasound (PoCUS) is increasingly used in many medical specialties. Fecal impaction (FI) is common among elderly individuals living in nursing homes. Because it is a major source of morbidity, with a multifactorial etiology, improving its diagnosis is crucial. Combining physical examination and PoCUS could enhance the diagnostic approach to FI. In this prospective interventional multicenter study, we assessed the value of PoCUS in diagnosing FI compared with abdominal X-ray in the emergency department. The secondary objectives were to evaluate the impact of body mass index, echogenicity, final diagnosis, bladder repletion, difficulty performing PoCUS, and FI consistency on FI diagnosis by PoCUS. A total of 172 patients were enrolled in the study and data from 163 patients were analyzed. The specificity and sensitivity of PoCUS in diagnosing FI were 0.94 and 0.84, respectively. The positive and negative likelihood ratios were excellent (14.8) and good (0.16), respectively. Regarding subgroup analyses, PoCUS sensitivity and specificity did not significantly differ according to BMI category, bladder repletion, or difficulty performing PoCUS. Specificity was good enough to diagnose FI without performing complementary examinations, thus avoiding the need for invasive procedures such as digital rectal examination. Although sensitivity was acceptable, it was not good enough not to consider abdominal X-ray when the clinical presumption is high. Given the good likelihood ratios, we showed that FI diagnosis can be made or excluded during clinical management based on the PoCUS result. Overall, this study supports the use of PoCUS for diagnosing FI in elderly patients in emergency departments.

**Trial registration:** NCT06333106 in ClincialTrials.gov (registered on March 27, 2024)