



Letter to the Editor

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Commentary on “Bedside Ultrasonography for Acute Appendicitis: an Updated Diagnostic Meta-Analysis” (Int J Surg 2019, Epub ahead of print).

Acute appendicitis is one of the most common surgical emergencies and places a substantial burden on the healthcare system [1]. Despite the high radiation risk, the American College of Radiology (ACR) appropriateness criteria categorizes abdominal and pelvic computerized tomography (CT) with intravenous contrast as “usually appropriate” in the setting of right lower quadrant abdominal pain and suspected appendicitis whereas ultrasound (US) is categorized as “may be appropriate.” [2] With a growing number of patients presenting to the emergency department (ED) each year, the use of quick and accessible tools for diagnostic evaluations has become increasingly more relevant.

The meta-analysis by Shen and colleagues examines the diagnostic performance of bedside US in the ED for acute appendicitis given the inconclusive results of prior work [3]. The authors highlight this diagnostic modality as an important screening tool given its safety profile, simplicity, efficiency, low cost, and non-invasiveness. Of the 27 studies included, the authors report a mean sensitivity of 90% (95% CI: 82–95%) and specificity of 95% (95% CI: 82–98%) [3]. The authors should be congratulated on their exhaustive review of the existing literature on a commonly-encountered surgical problem.

The authors conclude that US is an acceptable alternative for rapid screening by both novices and experts; however, they are unable to measure sonographer experience and examine the influence of such variable experience in their overall findings. Only 3 of the included studies report resident physicians as the initial US performer, which is insufficient to make any conclusions about the generalizability of US for the diagnosis of appendicitis throughout all levels of experience.

The authors recommend using US as a screening tool for acute appendicitis diagnosis. However, there is little discussion about which specific patients should be screened and the role that CT scans should have in the diagnosis algorithm. Prior studies have shown that older patients and patients with higher body mass index (BMI) are more likely to have a non-diagnostic US [4]. This is consistent with the authors’ findings, which demonstrate sensitivity of US as only 83% in the United States. This is important as the United States has one of the highest rates of obesity in the world. To avoid delays in treatment, ED providers and surgeons may be better suited to consider alternatives to US in this specific patient population.

The authors highlight the mean sensitivity of US for acute appendicitis in patients of all ages as 90%. However, this finding may be erroneous due to the inclusion of pediatric patients, a population which generally has fewer non-diagnostic US results [4]. In fact, although not statistically significant, adults alone have only an 86% sensitivity rate for the diagnosis of appendicitis by US as compared to 95% in children. Future studies may consider separate evaluations for adult and pediatric populations given differences in guidelines between the two groups.

Despite the study’s limitations, we agree that US should be part of the initial algorithm for the evaluation of acute appendicitis; however, selecting for younger patients with lower BMIs may lead to fewer non-diagnostic exams and avoid delays in treatment.

Data statement

None.

Conflicts of interest

None.

Provenance and peer review

Not Commissioned, internally reviewed.

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Michelle M. Shnyder

Department of Radiology, University of Michigan, Ann Arbor, MI, USA
E-mail address: shnyder@med.umich.edu.

Pasithorn A. Suwanabol*

Department of Surgery, University of Michigan, Ann Arbor, MI, USA
E-mail address: pasuwan@med.umich.edu.

* Corresponding author.