Poster #10

Hand-Held Ultrasound Detection of Immune Checkpoint Inhibitor-Associated Colitis: A Novel Diagnostic Approach in Oncologic Emergency Medicine

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Background

Despite its revolutionary therapeutic impact, Immune Checkpoint Inhibitor (ICI) therapy can cause immune-related adverse events (irAEs) in 35-50% of patients. ICI-related colitis is among the most common irAE, seen in roughly 14% of patients receiving combination ICI-therapy. Early detection is critical to guide prompt immunosuppressive therapy. Point-of-care ultrasound (POCUS) has long been shown to reliably identify inflammatory bowel conditions including ulcerative colitis (UC) via primarily bowel wall thickening (BWT) and color doppler signal (CDS) intensity. Here, we report, to our knowledge, the first case of ICI-related colitis detected in the emergency department using a hand-held ultrasound (hhUS) device.

Case Presentation

- A 52-year-old male with metastatic melanoma on ICI therapy (ipilimumab/nivolumab, 5 days prior) presented with several days of nausea, vomiting, and severe diarrhea (10 episodes/day; CTCAE grade 3), requiring nightly diaper use.
- A GE Vscan Air CL hhUS ultrasound was used to obtain still images and video clips of the colon, demonstrating colonic wall thickening >5 mm, suggestive of colitis (Fig 1).
- CT of the abdomen/pelvis showed new diffuse colitis (Fig 2). Stool testing revealed no infectious source, lactoferrin positive, and calprotectin >3000 mcg/gm (normal <50 mcg/gm).
- The patient was admitted for ICI-colitis and underwent colonoscopy, which yielded colonic biopsy specimens that confirmed the diagnosis of ICI-colitis (Fig 3). The patient received solumedrol, Vedolizumab, and cholestyramine, and was discharged 10 days later with resolution of GI symptoms.

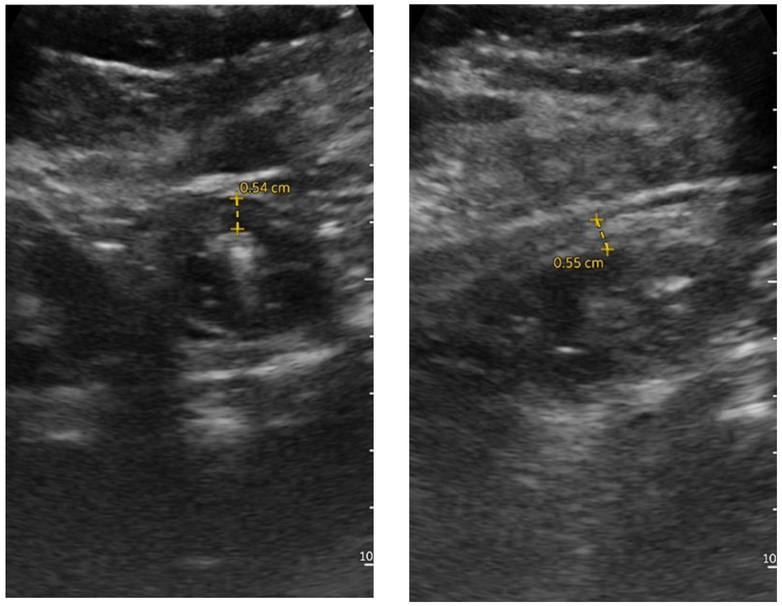

Fig. 1 *Hand-held ultrasound images of the colon demonstrating >5 mm bowel wall thickening, consistent with colitis.*

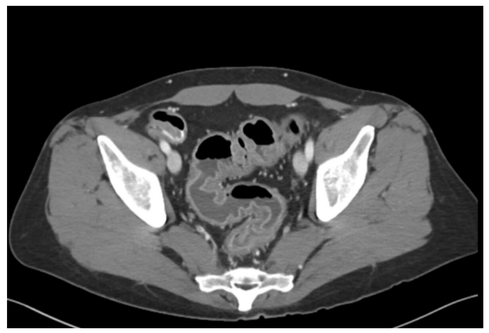

Fig. 2 *CT abdomen and pelvis demonstrating diffuse colonic wall thickening without focal obstruction, suggestive of colitis.*

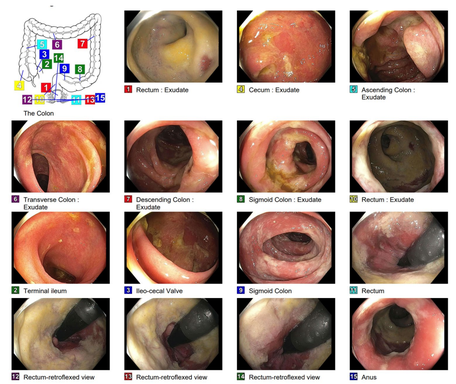

Fig. 3 *Colonoscopy images showing exudate throughout colon. Pathology report from biopsies yielded 'colonic mucosal injury with mixed patterns, likely immunotherapy related.'*

Discussion

This case highlights the potential role of hhUS as an early diagnostic adjunct for gastrointestinal irAEs in oncology patients presenting to acute care settings. POCUS is known to reliably detect colitis through bowel wall thickening and surrounding inflammatory changes, and its portability allows for rapid bedside assessment without radiation exposure.

While prior literature supports the use of ultrasound in identifying inflammatory bowel pathology, reports specifically describing its use in the ED setting in diagnosing ICI-associated colitis are lacking. Early identification using hhUS may expedite specialist consultation, reduce reliance on advanced imaging, and facilitate prompt initiation of immunosuppressive therapy.

Conclusions

Hand-held ultrasound successfully identified ICI-associated colitis in this patient, suggesting that it may serve as a practical first-line diagnostic tool in emergency and outpatient oncology settings. BWT (≥4 mm) and increased CDS are key factors in the Milan Ultrasound Criteria for UC, and appear to be useful in detection of ICI-colitis. Further studies should seek to define the diagnostic performance of POCUS for ICI-colitis, and measure the impact of its use in all patients.

References

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