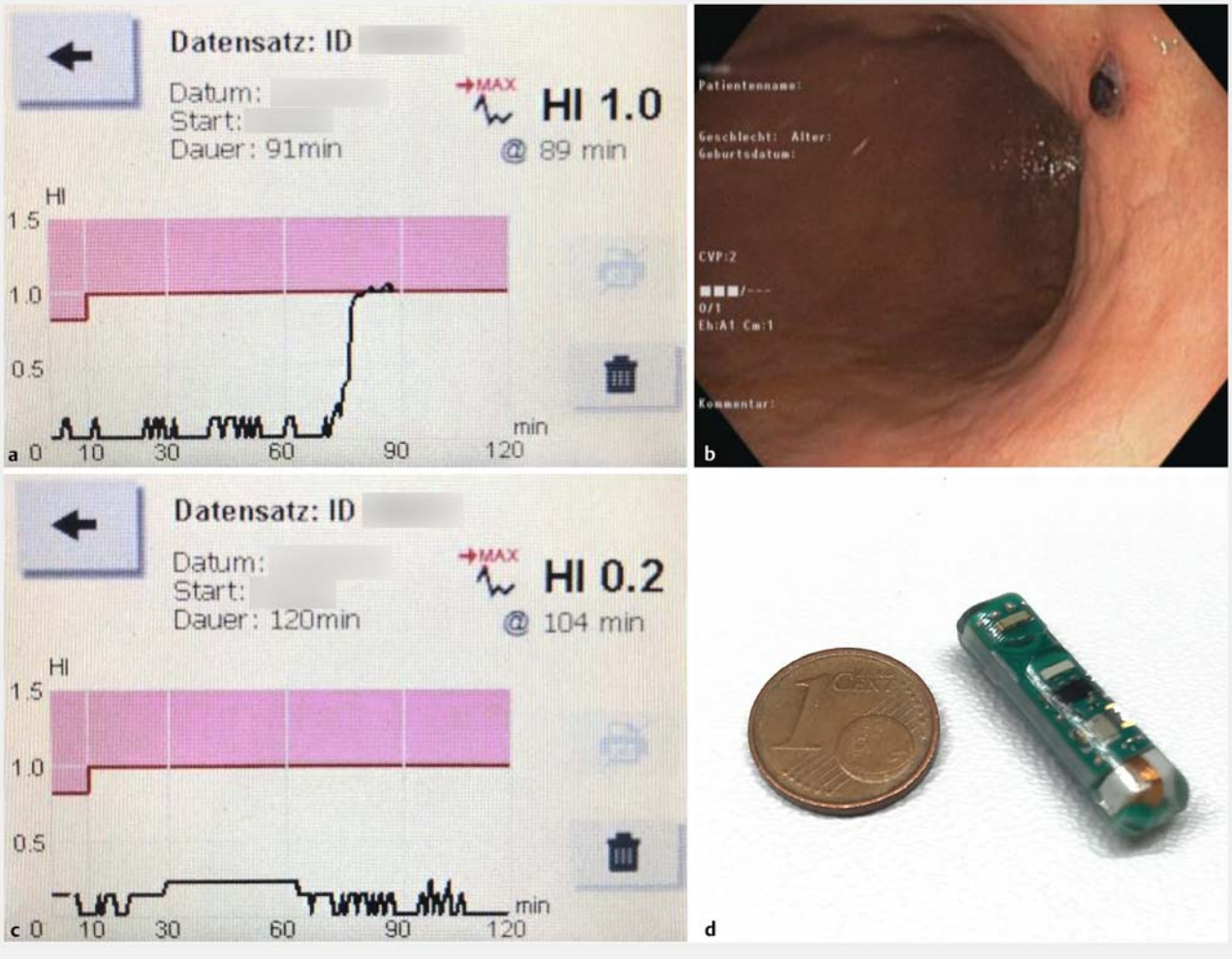
Potential use of a novel telemetric sensor capsule in patients with suspected gastrointestinal bleeding during the COVID-19 pandemic

Upper gastrointestinal endoscopy during the COVID-19 pandemic carries a risk of disease transmission [1, 2]. The HemoPill (Ovesco Endoscopy, Tübingen, Germany) is composed of an orally administered telemetric sensor capsule that is capable of detecting blood and hematin, and a wireless receiver for data display [3 – 5]. Results are expressed as the HemoPill indicator (HI). A HI value ≥ 0.8 during the first 10 minutes of the examination or ≥ 1.0 thereafter denotes a positive test result. We evaluated this sensor capsule in patients with confirmed or suspected COVID-19.

Case #1 was a patient with COVID-19, congestive heart failure, and severe obesity who reported melena and had a drop of hemoglobin from 14.6 g/dL to 11.3 g/dL. She required low-flow oxygen but was otherwise clinically stable. The maximum HI value was 1.0 after 89 minutes (▶ **Fig. 1a**). Endoscopy subsequently showed a gastric ulcer with a non-bleeding visible vessel (▶ **Fig. 1b**).

Patient #2 suffered from dyspnea and anemia (hemoglobin 4.3 g/dL) with possible gastrointestinal bleeding. She was routinely tested for SARS-CoV-2 and isolated until receipt of her result. The



▶ **Fig. 1** Images of HemoPill examination in two patients showing: **a** a screenshot of the HemoPill Receiver in patient #1, which revealed a maximum HI of 1.0 after 89 minutes of examination, therefore denoting a positive test result; **b** endoscopic image in patient #1, with a non-spurting visible vessel identified in the stomach that was treated with through-the-scope clips; **c** a screenshot of the HemoPill Receiver in patient #2, which revealed a negative test result; **d** a photograph of the HemoPill capsule, an orally administered telemetric sensor capsule capable of detecting liquid blood or hematin.

maximum HI value was 0.2 (▶ **Fig. 1c**). Her endoscopy, which showed no evidence of gastrointestinal bleeding, was postponed for 48 hours until receipt of negative test result.

Patient #3 suffered from COVID-19 and was therefore receiving anticoagulant therapy. He underwent endoscopic retrograde cholangioscopy with papillotomy because of biliary pancreatitis; he reported a single episode of hematochezia 1 week after the endoscopy and his hemoglobin had dropped by 4.5 g/dL to 7.9 g/dL. His maximum HI value was 0.8 and no endoscopy was performed. No further episodes of bleeding were reported and the patient's hemoglobin remained stable.

This sensor capsule (▶ **Fig. 1 d**) might aid in decision-making during the COVID-19 pandemic. In patients with as yet unavailable COVID-19 test results, it might aid in determining the appropriate timepoint for endoscopy. In patients who are positive for COVID-19 with suspected gastrointestinal bleeding, it could help in deciding whether to perform an endoscopy or not and thereby potentially help minimizing risk of disease transmission.

Competing interests

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