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The magic of gravity in acute upper gastrointestinal bleeding: Sir Isaac Newton would be proud!

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The effectiveness of endoscopic evaluation and treatment of acute upper gastrointestinal bleeding is dependent upon the ability of the endoscopist to visualize the upper gastrointestinal tract fully and accurately. This includes the esophagus, stomach (including in gastric retroflexion), and the duodenum to the second and third portion. However, at the time of upper endoscopy, the endoscopist can be faced with residual blood and blood clots pooling in the gastric fundus that interferes with their ability to adequately visualize and pinpoint the cause of bleeding, and/or inhibits endoscopic hemostasis [1]. This can lead to a suboptimal examination and missed lesions, and necessitate repeat endoscopy. To clear the upper gastrointestinal tract of blood and clots, a variety of pre-endoscopy and intra-endoscopy interventions have been reported. These include the age-old technique of nasogastric or orogastric lavage, prokinetic agents, distal clear caps with suction, mechanical devices to break up clots, and even the spraying of 3% hydrogen peroxide to dissolve clots [2, 3, 4, 5]. Nasogastric or orogastric lavage is time-consuming, increases the risk of aspiration, is uncomfortable for the patient (and the endoscopist), and has limited efficacy in clearing the upper gastrointestinal tract. The prokinetic agent erythromycin is recommended in guidelines as part of the management of acute upper gastrointestinal bleeding [6, 7]. However, erythromycin may not be readily available at many hospitals and an alternative prokinetic agent, metoclopramide, has limited efficacy. In addition, these medications are contraindicated in selected patients and have the potential to cause adverse events. The other proposed innovative interventions have very low-level evidence to support their routine use.

In this issue of Endoscopy International Open, Patra and colleagues from Mumbai, India, report on a single-center prospective case series carried out over 1 year in patients admitted to hospital with acute upper gastrointestinal bleeding [8]. All patients underwent upper endoscopy within 12 to 24 hours of presentation and received metoclopramide 10 mg intravenously prior to endoscopy. All patients underwent upper endoscopy initially in the standard left lateral decubitus position (primary position), and then in the left lateral “semi-recumbent” position (secondary position) with the head of the bed raised. The aim of this study was to evaluate the efficacy of repositioning the patient to the “semi recumbent” left lateral position (secondary position) to clear any fundal pool of blood or clots and facilitate endoscopic therapy. Patients who had fundal pooling of blood or clots that could not be cleared with water flushing and suctioning or extraction using a Roth net were enrolled in the study. Outcomes evaluated included the percentage of patients with adequate visualization of the fundus when repositioned to the left lateral semi-recumbent position, identification of the bleeding source, and effectiveness of endoscopic hemostasis. Of 860 patients presenting with acute upper gastrointestinal bleeding, 44 (5.1%) had persistent fundal pooling of blood and clots in the standard left lateral position (primary position) despite the aforementioned efforts. Seventy-three

percent of the included patients had decompensated cirrhosis and 64% were endotracheally intubated at the time of endoscopy, and thus they were a high-risk population. At upper endoscopy performed initially in the primary position, 37 of 44 (84%) had their source of upper gastrointestinal bleeding identified and treated. After repositioning patients to the "semi-recumbent" secondary position, all remaining seven patients (100%) had their source of bleeding identified and were considered a "technical success". Moreover, an additional five patients who already had a source of bleeding localized in the primary position had a second possible source of bleeding identified in the fundus or cardia. Those bleeding sources included gastric varices, Dieulafoy's lesion in the gastric cardia, Cameron ulcers, and a fundal mass lesion. Thus, overall, a source of bleeding was found to be in the fundus in 27% of the included patients. The repositioning of the patients to a "semi recumbent" position allowed for the movement of blood and clots out of the fundus because of gravity. Endoscopic therapy was able to be performed in 100% of the patients in the semi-recumbent position.

In reviews about managing upper gastrointestinal bleeding, other authors have commented on positioning the patient in the semi-recumbent position. I have done this myself and, indeed, gravity facilitates the movement of blood and clots out of the fundus and into the distal stomach. But this appears to be the first published study formally evaluating the technical feasibility and patient outcomes of such a simple maneuver. Repositioning of the patient to a semi- recumbent position is usually easy to do, appears to be safe, even when a patient is endotracheally intubated, and has no added costs because no additional accessories are required.

We must keep in mind that all studies have limitations, including this one. Although the data were prospectively collected, this remains an observational study (e. g., prospective case series) with no comparison group. Thus, there is the risk of bias being introduced, in this case, patient selection bias. The overall number of included patients was small. There was no formal definition of the "semi recumbent" position. We can assume this means raising the head of the bed to an elevation of 30 degrees to 45 degrees, but cannot be 100% sure. Moreover, it should be noted that most included patients had decompensated cirrhosis with bleeding from esophagogastric varices. However, there is no reason to believe that repositioning of a patient would be less effective with non-variceal bleeding etiologies.

Conclusions

In conclusion, I commend the authors for performing this study and publishing these data. In future updated guidelines for acute upper gastrointestinal bleeding, consideration should be given to adding recommendations for techniques beyond the use of prokinetic agents for clearing the upper gastrointestinal tract. Moreover, I agree with the investigators that randomized studies are warranted to better evaluate modalities to improve endoscopic visualization in upper gastrointestinal bleeding. I look forward to such studies.

Conflict of Interest

Astra-Zeneca, Boston Scientific, Check Cap, Clexio Biosciences, Motus GI, Medtronic

References

[1] Stollman NH, Putcha RV, Neustater BR et al. The uncleared fundal pool in acute upper gastrointestinal bleeding: implications and outcomes. Gastrointest Endosc 1997; 46: 324–327 doi:10.1016/s0016-5107(97)70119-6

[2] Moreels TG, Lotry M, Roth B et al. Distal cap to facilitate removal of blood clots during endoscopic hemostasis for upper gastrointestinal bleeding. Endoscopy 2009; 41: E152

[3] Barkun AN, Bardou M, Martel M et al. Prokinetics in acute upper GI bleeding: a meta-analysis. Gastrointest Endosc 2010; 72: 1138–1145 doi:10.1016/j.gie.2010.08.011

[4] Gregor H, Segal D, Rammal A et al. A randomized clinical trial to determine the efficacy of the Biovac direct suction device during upper gastrointestinal bleeding: a feasibility analysis. J Can Assoc Gastroenterol 2018; 1: 403–404

[5] Kalloo AN, Canto MI, Wadwa KS et al. Clinical usefulness of 3% hydrogen peroxide in acute upper GI bleeding: a pilot study. Gastrointest Endosc 1999; 49: 518–521 doi:10.1016/s0016-5107(99)70055-6

[6] Gralnek IM, Stanley AJ, Morris AJ et al. Endoscopic diagnosis and management of nonvariceal upper gastrointestinal hemorrhage (NVUGIH): European Society of Gastrointestinal Endoscopy (ESGE) Guideline – Update 2021. Endoscopy 2021; 53: 300–332 doi:10.1055/a-1369-5274

[7] Gralnek IM, Camus Duboc M, Garcia-Pagan JC et al. Endoscopic diagnosis and management of esophagogastric variceal hemorrhage: European Society of Gastrointestinal Endoscopy (ESGE) Guideline. Endoscopy 2022; 54: 1094–1120

[8] Patra BR, Harindranath S, Abu Aasim A et al. Utility of gastroscopy in left lateral semi-recumbent position: a blood-free coup. Endosc Int Open 2023; 11: E1168–E1174 doi:10.1055/a-2202-8050