Acute upper gastrointestinal hemorrhage with acute pulmonary embolism: A difficult decision?

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Case Report

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Abstract

Upper gastrointestinal hemorrhage and pulmonary embolism are potentially life-threatening conditions with high morbidity and mortality. However, acute upper gastrointestinal hemorrhage with acute pulmonary embolism (APE) is rare, and whether anti-coagulation is a difficult choice for doctors. We report the case of a 70-year-old man with a 3-day history of abdominal pain accompanied by a black stool. He was admitted to our department, then, he was diagnosed with gastric ulcers, and he suffered from a near-syncopal episode accompanied by heavy sweating. Computed tomography pulmonary angiography (CTPA) revealed a partial embolism in the two side pulmonary arteries. Anticoagulant treatment was performed after a complete hematologic assessment for 20 days. The patient improved and was discharged home on warfarin anticoagulation for 3 months without any complications. For patients with a high bleeding risk of pulmonary embolism, clinicians should evaluate adequately before deciding to take anticoagulant therapy.

Introduction

Acute pulmonary embolism and acute upper gastrointestinal hemorrhage are highly pathogenic and disabling diseases. Very few patients suffer from both, and the high bleeding risk often prevents clinicians from receiving anticoagulant therapy to patients. We report the case of a patient with acute pulmonary embolism combined with acute upper gastrointestinal bleeding who recovered completely after anticoagulant therapy.

Case Presentation

A 70-year-old male chef presented to the emergency department (ED) with “abdominal pain accompanied by a black stool for 3 days.” The patient was obese with a body mass index of 34.6 kg/m². He had a history of hypertension and complained of upper abdominal pain at home 3 days ago without a triggering event. He had one black stool with a volume of approximately 100 g. After defecation, abdominal pain was relieved. He denied eating blood products or animal viscera. He arrived at the ED with the following vital signs: blood pressure, 109/62 mmHg; temperature, 36.9 °C; pulse, 114 beats/min; and respirations, 20 breaths/min. Physical examination was remarkable for mild tenderness in the upper abdomen. Laboratory testing revealed the following: hemoglobin, 123.0 g/L; hematocrit, 32.4%; platelet count, 300 x10⁹/L; D2 polymers, 2.02 mg/L; and routine stool analysis (color, black; fecal occult blood test, ++). He was admitted to the patient department with an upper gastrointestinal hemorrhage. On hospital day 2 the hemoglobin concentration had decreased to 107.00 g/L, the routine stool analysis showed that the sample was black with occult blood (++), and abdominal ultrasound did not demonstrate any abnormal findings. The patient was fasted and received intravenous fluids and pantoprazole (60 mg bid). On hospital day 5, a gastroscopy was performed when the patient had been stabilized, which showed a gastric horn ulcer and gastric antrum ulcers (active period A2) (Figure1).

On hospital day 6, when the patient bore down to pass stool, he felt chest tightness and had a near-syncope episode accompanied by heavy sweating, but no periodic limb movements. The symptoms were transient and subsequently improved. A portable blood oximeter showed an oxygen saturation of 88% without external chest compressions. An electrocardiogram showed a sinus rate and complete right bundle branch block (SIQIIIITIII) (Figure 2). The arterial blood gas analysis showed the following: pH 7.394; PCO₂, 24.9 mmHg; PO₂, 66.9 mmHg; and D2 polymer, 2.87 mg/L. Cardiac ultrasound showed mild aortic and tricuspid regurgitation, increased pulmonary artery pressure (55 mmHg), and reduced left ventricular diastolic function. The next day, CTPA showed a partial embolism in the right pulmonary artery and its branch and the left pulmonary artery branch (Figure 3).

An arteriovenous ultrasound of both lower limbs showed no thromboses in the deep veins. Considering the active ulcer and the significant risk of rebleeding, anticoagulant treatment was initiated after a complete hematologic assessment. Low-molecular-weight heparin sodium injection (5,000 IU) was injected subcutaneously q12h; warfarin was administered orally at the same time. Three days later the low-molecular-weight heparin was discontinued and oral warfarin treatment was continued. Routine blood tests and fecal occult blood testing were performed during the treatment. After 20 days of warfarin treatment, the patient improved and was discharged home on warfarin anticoagulation. At the 3-month follow-up evaluation, no thrombus was detected on CTPA (Figure 4).

Discussion

The clinical manifestations of upper gastrointestinal bleeding are mainly characterized by black stools or hematemesis, reflecting upper digestive diseases. Peptic ulcers, digestive tract tumors, and nonsteroidal drugs are the most common causes. The Rockall scoring system is useful for predicting poor outcomes in patients with bleeding peptic ulcers such as rebleeding and death ^[1]. In our case, the Rockall score was 3; thus, the risk of bleeding and death was low.

Syncope is the most common symptom of a pulmonary embolism, maybe the only or earliest sign, and is most often accompanied by hypotension, right heart failure, and hypoxemia. The association between syncope and short-term mortality in patients with pulmonary embolism is due to a difference in hemodynamic instability, emphasizing the importance of risk stratification by hemodynamic status in patients with and without syncope ^[2]. Our patient was assessed to be a low-risk patient based on favorable vital signs, stable blood flow dynamics, and normal levels of cardiac markers ^[3]. Moreover, CTPA confirmed partial embolization of the pulmonary arteries bilaterally and their branches; therefore, anticoagulant therapy was initiated rather than thrombolysis.

Gastrointestinal bleeding combined with pulmonary embolism is rare; however, there is a concern regarding hemorrhage and anticoagulation. The patient was assessed using the Rockall scoring system to be at low risk for gastrointestinal rebleeding, while the HAS-Bled scoring system score was 2. Patients with acute venous thromboembolism (VTE) with a HAS-BLED score ≥ 3 points are at an increased risk of significant bleeding. These results warrant the correction of the potentially reversible risk factors for

major bleeding and careful international normalized ratio monitoring in acute VTE patients with a high HAS-BLED score ^[4]. Although our patient had active gastric ulcers, this finding was not an absolute contraindication to anticoagulation therapy. Monreal et al. reviewed their experience with 166 patients admitted because of venous thromboembolism, gastroduodenal ulcers were found in 24 of these patients, demonstrating that peptic ulcers were not contraindications for anticoagulation ^[5]. We obtained a lower extremity arteriovenous ultrasound to exclude common causes, such as deep vein thrombosis, and did not detect a lower limb deep vein tumor ^[6] or other unusual causes; thus, we considered pulmonary embolism to be related to obesity and long-term standing. Existing guidelines and most experts agree that patients with subsegmental PE and no proximal DVT in the legs who have a high risk for recurrent VTE should receive anticoagulation therapy over clinical surveillance ^[7].

Warfarin is a classic anticoagulant and is not only economical, but the anticoagulant effect is good. According to the available guidelines, how effectively a previous cause of bleeding is important for parenteral anticoagulation during the first 10 days, but less important for long-term or extended anticoagulation ^[7]. During treatment with warfarin, we closely monitored vital sign changes, routine blood and stool testing, and clotting function. The patient had no evidence of further gastrointestinal bleeding. Therefore, we decided to extend anticoagulation therapy to 3 months or more while monitoring INR. According to a literature review, there was only one reported case of PE combined with gastrointestinal bleeding, apixaban was used as monotherapy for anticoagulation in a 20-year-old woman with ulcerative colitis, which resolved without complications ^[8].

Through the diagnosis, treatment, and follow-up of this case and a review of the relevant literature, we believe that anticoagulation procedures can be performed with an acceptable balance of risks and benefits for patients with a high bleeding risk of pulmonary embolism.

Declarations

Ethics approval: The study was approved by the Ethics Committee of The Second Affiliated Hospital of Jiaxing University,

Consent for publication: the patient provided informed consent for the publication of this case.

Availability of data and materials: data and materials that support the findings of this study are available from the corresponding author upon reasonable request.

Conflict of interest: none declared.

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Figures

Figure 1

Gastroscopy showing a gastric horn ulcer and gastric antrum ulcers (active period A2) where the yellow arrows point.

Figure 2

electrocardiogram showed a sinus rate and complete right bundle branch block (SIQIIITIII).

Figure 3

Computed tomography pulmonary angiography showing a partial embolism in the right pulmonary artery and its branch and the left pulmonary artery branch where the yellow arrows point.

Figure 4

Computed tomography pulmonary angiography showing no thrombuses in the pulmonary arteries.