

Growth hormone used to control intractable bleeding caused by radiation-induced gastritis

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Abstract

Intractable bleeding caused by radiation-induced gastritis is rare. We describe a 69-year-old man with intractable hemorrhagic gastritis induced by postoperative radiotherapy for the treatment of esophageal

carcinoma. Although anti-secretory therapy with or without octreotide was initiated for hemostasis over three months, melena still occurred off and on, and the patient required blood transfusions to maintain stable hemoglobin. Finally growth hormone was used in the treatment of hemorrhage for two weeks, and hemostasis was successfully achieved. This is the first report that growth hormone has been used to control intractable bleeding caused by radiation-induced gastritis.

Key words: Growth hormone; Upper gastrointestinal bleeding; Radiation-induced gastritis

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Core tip: Intractable bleeding caused by radiation-induced gastritis is rare. We describe a 69-year-old man with intractable hemorrhagic gastritis induced by postoperative radiotherapy for the treatment of esophageal carcinoma. Anti-secretory therapy with or without octreotide seemed in vain. Finally growth hormone was used in the treatment of hemorrhage for two weeks, and hemostasis was successfully achieved. This is the first report that growth hormone has been used to control intractable bleeding caused by radiation-induced gastritis.

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INTRODUCTION

Although upper gastrointestinal bleeding caused by

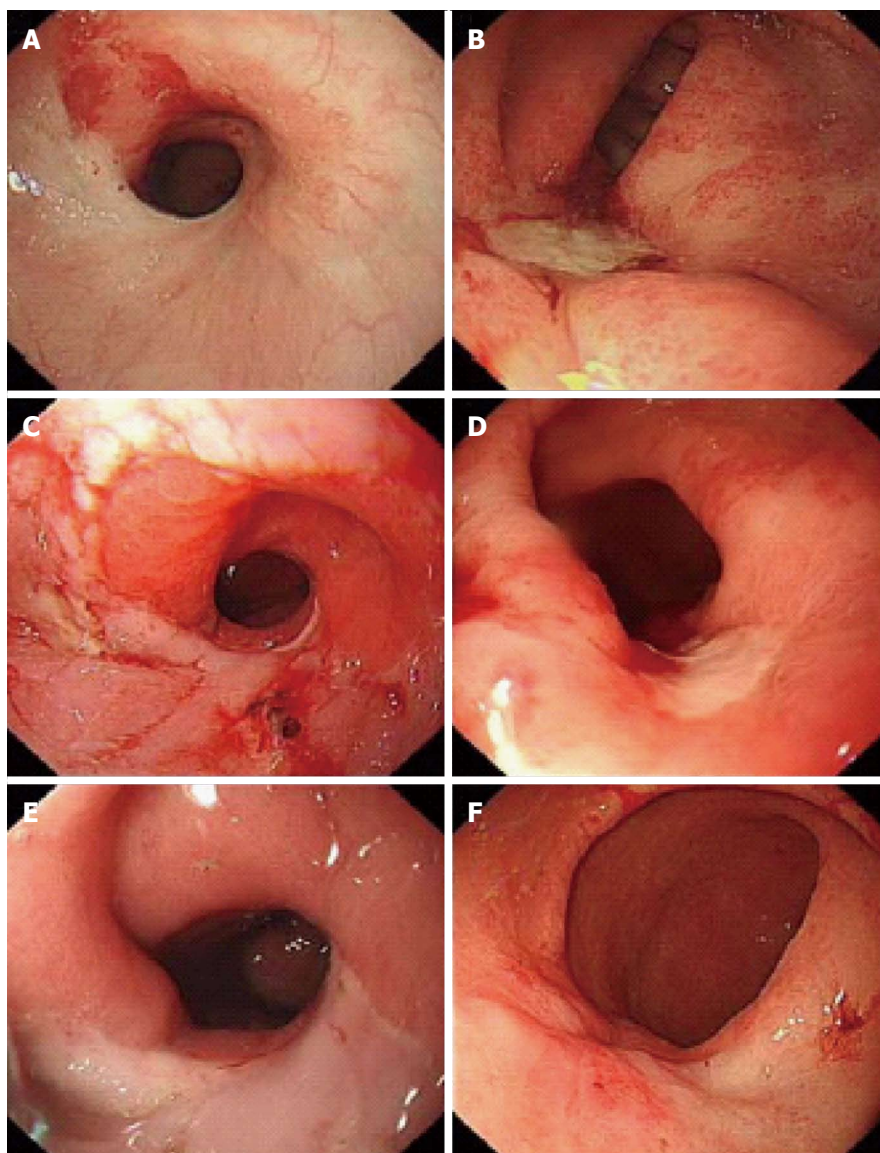


Figure 1 Endoscopic view. A: Diffuse edematous hyperemia and active bleeding from the esophagus-stomach anastomosis after radiation therapy; B: An ulcer with bleeding in the antrum after radiation therapy; C: Active oozing of blood from the esophagus-stomach anastomosis after three months of anti-secretory therapy; D: An ulcer with active bleeding after three months of anti-secretory therapy; E: No active oozing of blood from the esophagus-stomach anastomosis two months after growth hormone therapy; F: An ulcer scar without active bleeding two months after growth hormone therapy.

radiation-induced gastritis is infrequent, it is a very serious complication and is difficult to deal with. Nowadays, several methods were reported for treating upper gastrointestinal bleeding caused by radiation-induced gastritis, but there is still no standard treatment^[1,2]. We encountered a case of intractable bleeding caused by radiation-induced gastritis which was induced by postoperative radiotherapy for the treatment of esophageal carcinoma. Successful hemostasis was achieved with treatment of growth hormone. This is the first report that growth hormone has been used to control intractable bleeding caused by radiation-induced gastritis.

CASE REPORT

A 69-year-old man was diagnosed with esophageal

cancer and had a radical surgery for esophageal carcinoma in June 2013. The tumor was pathologically diagnosed as high differentiation squamous-cell carcinoma. After surgery, from July 2013 to December 2013, he was treated with the chemotherapy regimen of nedaplatin 130 mg plus tegafur, gimeracil and oteracil potassium capsules 60 mg b.i.d. for 6 times. In February 2014, he was treated with radiotherapy (CTV D95 5880cGy/28F, PTV D95 5040cGy/28F). Three months after radiotherapy, he began to appear paroxysmal burning epigastric pain with melena and severe anemia, and laboratory examination indicated that hemoglobin dropped to 43 g/L. Gastroscopy was performed and indicated a diffuse edematous hyperemia and active bleeding from the gastric mucosa close to the esophagus-stomach anastomosis (Figure 1A) and the antrum, and an ulcer with bleeding

in the greater curvature (Figure 1B). As hemoglobin level went up and down, blood transfusion was administered once or twice a week. Furthermore, the dosage of esomeprazole was enhanced from 40 mg Q12H to 40 mg Q8H, and combined with the use of octreotide for hemostasis over three months. Melena still occurred off and on, and the patient required blood transfusions to maintain stable hemoglobin. Thus gastroscopy was performed for evaluating the patient's condition. It indicated active oozing of blood from the gastric mucosa close to the esophagus-stomach anastomosis (Figure 1C), and the gastric ulcer that was smaller than before with active bleeding (Figure 1D). A total of 16 units of packed red blood cells were transfused to maintain the level of hemoglobin at about 70 g/L.

Finally growth hormone (15 U QOD ih, 5 U mixed in 50 mL saline for 5 times, po) was used in the treatment of hemorrhage for two weeks, and hemostasis was successfully achieved. Without blood transfusions, the hemoglobin level improved to 90 g/L one month after the growth hormone therapy. The patient did not experience melena any more. The fecal occult blood test was negative, and the follow-up gastroscopy indicated no active oozing of blood from hemorrhagic lesions close to the esophagus-stomach anastomosis (Figure 1E), and an ulcer scar in the antrum without active bleeding (Figure 1F). The patient still receives proton pump inhibitor up to now, no gastrointestinal bleeding recurs, and his hemoglobin levels improve to 124 g/L without blood transfusions or iron supplements.

DISCUSSION

Radiation-induced gastritis may be more frequent than we realized, for many patients do not have obvious symptoms. The tolerance dose of radiation in the stomach and intestine is 45 Gy and 55 Gy, respectively^[3]. In our case, the patient was treated with 58.8 Gy in CTV and 50.4 Gy in PTV. It induced intractable hemorrhagic gastritis. The primary typical injury of radiation-induced gastritis is acute inflammation of the gastric mucosa. When injury progresses, it might lead to mucosal ischemia, ulceration, and telangiectasis^[4].

The standard treatment method for radiation-induced hemorrhagic gastritis has not been established. Argon plasma coagulation has been reported for successful hemostasis of radiation-induced hemorrhagic gastritis, colitis and proctitis^[3,5-7]. However, our patient had extensive lesions, thus we could not use this strategy. Meanwhile, prednisolone^[1,2], hyperbaric oxygen therapy^[8], aminocaproic acid^[4], and endoscopic band ligation^[9] have also been reported for treating radiation-induced hemorrhagic gastritis. In our case, although anti-secretory therapy with or without octreotide was initiated for hemostasis over three months, melena still occurred off and on, and the

patient required blood transfusions to maintain stable hemoglobin.

Growth hormone was reported to be able to increase protein synthesis, attenuate protein catabolism and stimulate cell proliferation and differentiation to facilitate wound healing, and in animal models it was also reported useful for gastric ulcer healing^[10-12]. Thus in this case, we thought that it might be efficient for hemostasis. Maybe part of growth hormone taken orally could not have very good effect because of the function of digestion. Thus in this situation, digestive enzyme could not function well, and growth hormone could have an effect on the surface of the ulcer to facilitate the ulcer healing. Finally growth hormone (15 U QOD ih, 5 U mixed in 50 mL saline for 5 times, po) was used in the treatment of hemorrhage for two weeks, and hemostasis was successfully achieved. Without blood transfusions, the hemoglobin level improved to 90 g/L one month after growth hormone therapy.

Up to now, the patient still receives proton pump inhibitor, no gastrointestinal bleeding recurs, and his hemoglobin levels improve to 124 g/L without blood transfusions or iron supplements. Thus we recommend that growth hormone therapy can be tried as a first choice for intractable bleeding caused by radiation-induced gastritis.

COMMENTS

Case characteristics

A 69-year-old man presented paroxysmal burning epigastric pain with melena and severe anemia.

Clinical diagnosis

The abdomen is soft with minimal tenderness but no rebound tenderness.

Differential diagnosis

Gastric ulcer and recurrent esophageal cancer.

Laboratory diagnosis

Hemoglobin dropped to 43 g/L.

Imaging diagnosis

Gastroscopy was performed and indicated a diffuse edematous hyperemia and active bleeding from the gastric mucosa close to the esophagus-stomach anastomosis and the antrum, and an ulcer with bleeding in the greater curvature.

Treatment

Anti-secretory therapy with or without octreotide was initiated for hemostasis over three months, melena still occurred off and on, and the patient required blood transfusions to maintain stable hemoglobin. Finally growth hormone was used in the treatment of hemorrhage for two weeks, and hemostasis was successfully achieved.

Related reports

Intractable bleeding caused by radiation-induced gastritis is rare. Previous case reports indicated that argon plasma coagulation (APC), prednisolone, hyperbaric oxygen therapy, aminocaproic acid, and endoscopic band ligation might be useful for intractable bleeding.

Term explanation

APC is a medical endoscopic procedure which is primarily used to control bleeding from gastrointestinal tract lesions.

Experiences and lessons

Growth hormone therapy can be tried as a first choice for intractable bleeding caused by radiation-induced gastritis.

Peer-review

This interesting article is the first report that growth hormone has been used to control intractable bleeding caused by radiation-induced gastritis. The authors did good work effort. While because of the rarity, it still needs multicentric studies and long-term outcome and prognosis evaluation.

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