A case of radiation-induced giant rectal ulcer

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Introduction
Radiation therapy for malignant tumors of the pelvic organs sometimes induces various complications. Radiation enteritis accounts for approximately 1.5 to 12% of the complications and are usually intractable. We experienced a patient who developed a giant rectal ulcer after radiation therapy.

Case
A 77-year-old female, who had been diagnosed by colonoscopy to work up for hematochezia, which had been evident since June 2008. The patient was followed up at the outpatient department but was admitted to the hospital in August because the anemia had progressed from Hb; 9.8g/dl to 6.9g/dl.

Her medical history were hypertension, diabetes, and cervical cancer, which was treated by chemoradiotherapy in August 2007 (whole pelvic radiation 48.6 Gy, intracavitary radiation 24 Gy, 2 courses of cisplatin 20mg/day × 5 days).

Status at admission were that Blood pressure 116/60mmHg, pulse rate 85/min. No abnormal findings were noted in the abdomen.

Blood test at admission revealed severe anemia (Hb 6.9g/dl)

Colonoscopy revealed A bleeding, giant half-circular ulcer located mainly in the anterior wall of the lower rectum, directly over the anal verge, with thick clots and white coating on the ulcer bed (Color 1).

MRI findings showed Thickening of the anterior wall of the lower rectum (Fig. 1). The patient was diagnosed with radiation proctitis based on the above-mentioned findings, and underwent conservative therapy, including fasting and intravenous hyperalimentation (IVH). However, the hematochezia continued, and a colostomy at transverse colon was performed on Day 15 to control the bleeding. The postoperative course was good and the hematochezia disappeared. The patient was discharged on Day 24.

In the postoperative colonoscopy 6 months after the colostomy, an ulcer with a thin white coating and redness was found in the anterior wall of the lower rectum directly over the anal verge, but the oral side of the rectal mucosa was normal (Color 2). The ulcer was also observed from the vaginal side, which was performed with the patient’s consent. And a large fistula from the vagina to the anterior wall of the lower rectum was observed from the vaginal side (Color 3).

Discussion
Radiation-induced rectal ulcer is included in radiation proctitis. Radiation proctitis is an iatrogenic disease that is caused by radiation to malignant tumors in the pelvic organs. The incidence rate ranges from 1.5 to 12%[1], and a radiation dose of 60 to 70 Gy may damage the intestinal tract[2]. The onset occurs between 6 and 18 months after radiation[3], and the onset in this case was at 10 months. The symptoms include hematochezia, diarrhea, abdominal pain, and mucus, and anal pain and constipation caused by stricture may appear as the inflammation progresses. Colonoscopy findings usually demonstrate redness and dilatation of the capillaries, and ulcer formation, stricture, and fistula formation are observed as the symptoms worsen. The Sherman[4] classification has been widely used for diagnostic endoscopy (Table 1). Our case was Grade II of the Sherman classification while the hematochezia occurred, but which progressed to Grade IV 6 months later after the colostomy. It was considered that the fistula had occurred after the colostomy because the anterior wall of the rectum and a part of the posterior wall of the vagina became fused gradually by the effect of radiation. Because of her symptom free, we didn’t perform a postoperative therapy. However that might have been one of the causes of the fistura. And we considered that the progress of ulcer was associated with her history of diabetes and hypertension.

The pathological biopsy revealed inflammatory cell infiltration as well as inflammatory changes, granulation tissue, regenerated epithelium and no findings of vascular changes, which was exactly the same as the findings of radiation proctitis. Todd[5] proposed the staging by pathological change and classified radiation enteritis into acute and late reactions. The acute reaction is a direct damage induced by acute inflammation of the mucosa. On the other hand, the late reaction is an indirect damage caused by clots, which are formed when endarteritis occurs and may result in mucosal erosion, ulcer, and fibril formation of the
Submucosa. Effective treatment for the symptoms includes medical therapy using steroids, sucralfate, intestinal infusion of ecabet sodium solution, and formalin fixation, and endoscopic hemostasis, such as argon plasma coagulation (APC) ablation. Grade II or more of the Sherman classification is not relieved by medical therapy alone, and generally requires appropriate surgical procedures, including colostomy to alleviate the rectal symptoms, and radical operation, such as Miles operation, Hartmann operation, and low anterior resection. The prognosis is good in the acute reaction cases, but some late reaction cases experience relapse. The hemorrhagic symptom improved in this patient after the colostomy was performed, but a rectovaginal fistula developed and the disease progressed. Careful selection of the treatment and attention to the subsequent changes in symptoms is necessary in order to treat severe cases of radiation proctitis.

References

Table 1 The Sherman classification.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>I</td>
<td>a) Localized erythema and telangiectasis: friable mucosa that bleeding easily; no ulceration or stricture. b) Erythema is more diffuse with accompanying periproctitis, marked pain and sensitivity.</td>
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<tr>
<td>II</td>
<td>Characterized by the presence of ulceration.</td>
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<tr>
<td>III</td>
<td>Characterized by the presence of stricture, pula proctitis and ulceration.</td>
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<tr>
<td>IV</td>
<td>Characterized by proctitis, ulceration, stricture and rectovaginal fistula or bowel perforation.</td>
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</tbody>
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Fig. 1 MRI findings showed Thickening of the anterior wall of the lower rectum (arrow).