The side effects were minimal, though there was no effect on survival. The number needed to treat was estimated to be 6 according to the three trials that were reviewed. Selective 5-hydroxytryptamine receptor antagonists, such as granisetron 3 mg iv q24h, has also been demonstrated to be useful.

Surgical treatment is beneficial in a small number of patients. In a retrospective analysis of data on 68 operations performed on 64 patients, the mean time from original diagnosis of ovarian cancer to obstruction was 2.8 years. Surgical correction (intestinal surgery performed for relief of obstruction) was attained in 57 of 68 (84%) cases. Successful palliation (the ability to tolerate a regular or low-residue diet at least 60 days postoperatively) was achieved in 71% of cases where surgical correction was possible. Perioperative mortality rate was 6%. The median survival of the entire cohort was 8 months. However, results from literatures were heterogeneous. Cochrane review in 2000 by Feuer and Broadley showed no definite conclusion on effectiveness of surgery for intestinal obstruction.

References

Diarrhea in Acute Radiation Proctitis
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ABSTRACT
A case of acute radiation-induced proctitis treated with prednisolone enemas in palliative care was reported. A 51-year-old man, with history of advanced carcinoma of lung and bone secondaries, was admitted to palliative medical unit for in-patient radiotherapy to lumbar spine. During his stay, he developed profuse diarrhea due to radiation-induced proctitis. He was treated with prednisolone enema treatment with good response. DISCUSSION: Acute radiation-induced proctitis is a common adverse effect of radiotherapy to the lower spine and pelvic area. The risk factors, diagnosis and the use of Amifostine and Sulfasalazine for prevention of radiation proctitis are reviewed. Topical steroid and Butyrate enema have been found to be useful in small randomized trials. Potential useful medications included topical steroid, topical Butyrate and Sulfasalazine, but large controlled studies are warranted.

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Acute radiation proctitis usually resolves after stopping the radiotherapy. However, the symptoms are sometimes bothersome and need medical treatment. The following case illustrates a good example.

Case history
Mr. Lam was a 51-year-old gentleman. The diagnosis of advanced carcinoma of lung with bony metastasis was made in 2005 and he was given genfitinib for palliative treatment. He had
hypertension and suffered from stroke with left hemiplegia in 2006. Since then, he became chair-bound and was cared by his wife at home. His son was studying aboard in Australia.

He was admitted to our unit for pain control. He also received radiotherapy to lumbar spine (L5) during the hospital stay. The original plan was to give radiotherapy for 10 days. However he complained of severe diarrhea after 3 days of the treatment and the diarrhea failed to respond to conventional treatments including diphenoxylate/atropine (Lomotil) and loperamide. All the work up for infectious cause including stool culture, stool for ova, cyst, and clostridium difficile toxin were negative. He was suspected to suffer from acute post-radiation proctitis after ruling out the other causes.

In view of persistent symptoms, the radiotherapy treatment was withheld. Topical enema in the preparation of a mixture of Prednisolone 30 mg and the fleet enema was given for 2 days. The clinical response was satisfactory, with markedly decrease in bowel frequency. Although the radiotherapy was withheld, pain control could be achieved by adjusting the dose of morphine.

Diarrhea in Acute Radiation Proctitis

Radiation injury to the lower intestine is usually encountered following treatment of cancers of the anus, rectum, cervix, uterus, prostate, urinary bladder, and testes. Thus, the rectum and sigmoid colon are most often affected. The type of injury caused by radiation exposure can be divided into two categories: acute and chronic. Acute radiation injury occurs within six weeks of therapy. Symptoms include diarrhea, rectal urgency or tenesmus, and, uncommonly, bleeding. These symptoms usually resolve without specific therapy within two to six months. Various risk factors have been identified and listed in Table 1.

Table 1  Risk factors for developing acute radiation proctitis
- Advanced patient age
- Prior abdominal surgery leading to intraperitoneal adhesions (Adhesions fix portions of the small or large intestine in the radiated field.)
- History of pelvic inflammatory disease
- Hypertension
- Diabetes mellitus
- Thin physique
- Administration of chemotherapy
- Other risk factors (eg, collagen vascular diseases, xeroderma pigmentosum, Cockayne syndrome)

Analysis of multiple risk factors for predictive value demonstrates that multiple laparotomies, hypertension, and thin physique have the highest correlation with the development of radiation enteritis. Administration of chemotherapy with radiation therapy correlates with an increased incidence of radiation-related intestinal damage.

Diagnosis

In most patients, the diagnosis can be confirmed during colonoscopy or sigmoidoscopy. Mucosal features consistent with radiation injury include pallor with friability, and telangiectasias, which can be multiple, large, and serpiginous; these changes tend to be continuous.

Although mucosal biopsies are not diagnostic, they can help to exclude other causes of proctitis such as infection or inflammatory bowel disease. A histological classification system has been proposed but its role has not yet been defined.

In a sequential clinicopathologic study during pelvic radiotherapy,1 endoscopic pathology was maximal at 2 weeks. Biopsies obtained during treatment exhibited atrophy of the surface epithelium, acute cryptitis, crypt abscesses, crypt distortion and atrophy, and stromal inflammation. Histologic changes, particularly those in the surface epithelium, were consistently more pronounced at 2 weeks than they were at 6 weeks.

In contrast to clinical symptoms, endoscopic changes stabilize and histological changes regress from the 2nd to the 6th week of treatment. These results may have implications for the design and timing of prophylactic and therapeutic interventions to reduce radiation proctitis.

Prevention

In addition to modifications in the radiation technique and dose, a number of other preventive strategies have been applied in an effort to lessen the incidence and severity of radiation proctitis. Clinical trials have provided some evidence suggesting that there is a benefit associated with the use of amifostine and oral nonabsorbed salicylates (sulfasalazine and balasalazide).

1. Amifostine

Several controlled trials have shown a benefit for prophylactic amifostine in reducing treatment-related toxicity, without diminishing antitumor efficacy.

In a randomized trial of 100 patients with advanced inoperable rectal cancer undergoing external beam radiation: patients treated with

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daily IV amifostine prior to radiation had no moderate or severe delayed radiation toxicity to normal pelvic tissue compared with 14 percent in patients treated with radiotherapy alone.2

A reduction in both acute and late gastrointestinal toxicity was noted in a second trial in which 205 patients undergoing radiation therapy for various pelvic malignancies were randomly assigned to daily IV amifostine or no amifostine. The rates of grade 2 gastrointestinal toxicity were significantly less in the amifostine group at week 3 (22 versus 6 percent), and this difference was even more pronounced at week 7 (40 versus 0 percent).3

2. Sulfasalazine
Nonabsorbed salicylates appear to have some protective effect against radiation-induced proctitis. This approach was evaluated in a trial in which 87 patients were randomly assigned to sulfasalazine (500mg oral twice daily) or placebo while receiving radiotherapy to the pelvis for rectal, gynaecologic, prostate, or bladder cancer. Diarrhea was significantly less in patients assigned to sulfasalazine (55 versus 86 percent), but whether this could prevent long-term radiation injury remains to be determined.4

The Multinational Association of Supportive Care in Cancer and the International Society for Oral Oncology recommend the routine use of oral sulfasalazine (500mg orally twice daily) to help reduce the incidence and severity of radiation-induced enteropathy in patients receiving radiation therapy to the pelvis.5

**Medical treatment for diarrhea in acute radiation proctitis**

1. Topical steroid
It was found to be effective when used alone 6 or in combination with oral sulfasalazine7 for the treatment of acute radiation-induced proctitis. The steroid includes hydrocortisone and prednisolone (40mg daily). However these were only small trials.

2. Topical butyrate
The effect of topical butyrate has been evaluated in a randomized, crossover trial for the treatment of acute radiation-induced proctosigmoiditis. The advantage of butyrate over placebo, expressed as CI (confidence interval), odds ratio, and p value was significant for almost all the clinical, endoscopic and histological factors taken into consideration.8 However, it has shown to have no impact on the incidence and severity of late proctitis in a recent study.9

**Summary**
Diarrhea in acute radiation proctitis can vary from mild to severe in intensity. Potential useful medications include topical steroid, topical butyrate, sulfasalazine, but large controlled studies are warranted.

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