CONDITION

Radiation enteritis

Radiation enteritis is bowel irritation and damage caused by radiation treatment to the abdomen or pelvis.

WHAT IT IS
Bowel injury caused by radiation treatment

BODY SYSTEM
Digestive system

MAIN SYMPTOMS
Diarrhoea, abdominal cramps, nausea, rectal bleeding

WHAT CAUSES IT
Radiation damage to healthy bowel tissue

HOW IT IS DIAGNOSED
Treatment history, endoscopy, blood tests, and imaging

MAIN TREATMENT
Symptom control, nutrition support, and targeted procedures

CAN IT BE CURED?
Sometimes - acute injury often heals

IS IT AN EMERGENCY?
Sometimes - obstruction, perforation, or heavy bleeding

LONG-TERM OUTLOOK
Often manageable, though chronic damage may persist

Overview

Radiation enteritis is irritation and damage to the bowel caused by radiation therapy. It can happen when radiation is used to treat cancer in the abdomen, pelvis, or rectum. Although treatment is aimed at the cancer, nearby healthy bowel tissue may also receive some radiation.

The condition may affect the small intestine, large intestine, or rectum. Damage involving the rectum is often called radiation proctitis. You may also hear the broader term radiation enteropathy .

Acute radiation enteritis develops during treatment or within about three months of finishing it. The bowel lining becomes inflamed, which can cause diarrhoea, cramps, nausea, and urgency. These symptoms often improve in the weeks after radiation ends.

Chronic radiation enteritis appears or continues months to years later. Radiation can damage small blood vessels and cause scarring. This may narrow the bowel, interfere with nutrient absorption, or lead to bleeding. Chronic changes can be long-lasting, but treatment can often reduce their effects.

Radiation enteritis is not cancer, and it is not contagious. New bowel symptoms after cancer treatment still need assessment because infection, medicine side effects, cancer recurrence, and other bowel conditions can cause similar problems.

Symptoms

Symptoms depend on which part of the bowel was exposed, how much tissue was affected, and whether the condition is acute or chronic.

Acute symptoms may include:

Chronic radiation injury may cause ongoing or recurring diarrhoea, pain, urgency, or loss of bowel control. Bleeding from the rectum can occur when fragile new blood vessels form in damaged tissue. Slow bleeding may lead to anaemia, meaning there are not enough healthy red blood cells to carry oxygen.

Scarring can narrow the bowel. This is called a stricture. It may cause cramping after meals, vomiting, abdominal swelling, or difficulty passing stool or gas.

Some people have trouble absorbing fats, vitamins, or bile acids after small-bowel injury. Possible signs include greasy or pale stools, weight loss, weakness, or repeated loose stools. An overgrowth of bacteria in the small intestine can also cause bloating, wind, diarrhoea, and poor nutrient absorption.

Symptoms may come and go. Their severity does not always match the amount of visible bowel damage.

- Frequent or watery stools
- Abdominal cramps, bloating, or discomfort
- A sudden need to open your bowels
- Nausea or reduced appetite
- Mucus from the rectum
- Soreness around the anus after repeated diarrhoea

Causes and risk factors

Radiation works by damaging the genetic material inside cells. Cancer cells are less able to repair this damage, but healthy cells in the treatment area can also be affected.

The bowel lining normally replaces itself quickly. Radiation can interrupt this process and cause short-term inflammation. Over time, damage to blood vessels and deeper bowel tissue may reduce blood flow and lead to thickening or scarring.

The main risk factors relate to the treatment itself. Risk may be higher when:

Smoking, diabetes, blood vessel disease, and inflammatory bowel disease may make healthy tissue more vulnerable or slow healing. However, radiation enteritis can occur without these factors.

Modern treatment planning can reduce exposure to healthy bowel, but it cannot always prevent it. Your individual risk is shaped by the cancer's location and the radiation plan needed to treat it safely.

- A larger area or amount of bowel receives radiation
- The total radiation dose is higher
- Certain chemotherapy medicines are given with radiation
- Previous surgery has fixed loops of bowel within the treatment area
- Radiation is given again near an area treated before

Diagnosis

There is no single test that identifies every case of radiation enteritis. Assessment usually begins with your symptoms and details of previous radiation, including the body area treated and when treatment ended.

Blood tests may check for anaemia, infection, dehydration, inflammation, or low nutrient levels. Stool tests can look for infection and other causes of diarrhoea.

A CT or MRI scan can show bowel thickening, narrowing, obstruction, an abnormal connection called a fistula, or signs that the cancer has returned. Special scans may be used to examine the small intestine more closely.

Endoscopy uses a thin, flexible camera to inspect the digestive tract. A colonoscopy examines the large bowel, while a flexible sigmoidoscopy looks at the rectum and lower colon. These tests may show swelling, ulcers, scarring, or fragile blood vessels.

A small tissue sample, called a biopsy, is sometimes needed to rule out cancer or another

condition. Because irradiated tissue may heal slowly, the benefits and risks are considered carefully.

A capsule camera is not suitable for everyone. If scarring may have narrowed the bowel, the capsule could become trapped.

Treatment and management

Treatment is matched to the symptoms and the part of the bowel affected. It may involve your cancer team, a digestive system specialist, a dietitian, or a surgeon.

Acute radiation enteritis is usually managed with fluids, nutrition support, skin care, and medicines to control diarrhoea, nausea, or cramps. Your radiation team may review the treatment plan if symptoms are severe. Do not stop or delay radiation without discussing it with that team.

Temporary diet changes may help during a flare. Some people tolerate smaller meals and less fatty food, lactose, caffeine, or insoluble fibre. These restrictions are not helpful for everyone and may reduce nutrition if continued unnecessarily. A dietitian can help you find foods that control symptoms while providing enough energy and protein.

For chronic symptoms, treatment is directed at the cause. Options may include medicines that bind excess bile acids, antibiotics like amoxicillin or doxycycline for bacterial overgrowth, or replacement of vitamins and minerals that are not being absorbed properly.

Bleeding from radiation damage in the rectum may be treated with medicines applied inside the rectum. An endoscopic procedure can seal fragile blood vessels. Hyperbaric oxygen therapy, in which you breathe oxygen in a pressurised chamber, may be considered for selected people with persistent radiation tissue injury.

A narrowed bowel may sometimes be widened during an endoscopic procedure. Surgery may be needed for a complete blockage, perforation, fistula, uncontrolled bleeding, or symptoms that remain severe despite other treatment. Operating on irradiated bowel can be complex because the tissue may be scarred and slow to heal.

Complications

Frequent diarrhoea can cause dehydration and loss of salts needed for normal body function. Ongoing poor absorption may lead to weight loss, low vitamin levels, weak bones, or malnutrition.

Repeated bleeding can cause iron-deficiency anaemia. You may feel tired, short of breath, dizzy, or unusually weak.

Scarring can partly or completely block the bowel. Less common complications include ulcers, a hole in the bowel wall called a perforation, or a fistula connecting the bowel to another organ or the skin.

Chronic symptoms can also affect sleep, work, travel, eating, and confidence about leaving home. Urgency or bowel leakage may be particularly disruptive. Continence services, dietetic support, and practical planning can improve day-to-day control.

Prevention

Radiation enteritis cannot always be prevented. Radiation must sometimes be delivered close to the bowel to treat a cancer effectively.

Radiation teams use planning scans and techniques that shape the radiation beams around healthy tissue. Depending on the treatment area, positioning, bladder filling, or other methods may help move bowel away from the highest-dose area.

If you are receiving radiation, report diarrhoea, pain, bleeding, or difficulty eating early. Prompt treatment can reduce dehydration and help you maintain nutrition. Do not begin a very restrictive diet or take non-prescription diarrhoea medicines without checking that they are suitable for your situation.

Not smoking may support blood flow and tissue healing, but it does not guarantee that radiation injury will be avoided.

Living with it and what to expect

Acute symptoms often begin during a course of radiation and may become more noticeable as treatment continues. They commonly settle over several weeks after treatment finishes, as the bowel lining repairs itself. Some people take longer to recover.

Chronic radiation enteritis can first appear months or years later. Scarring and blood vessel changes may not reverse completely. Symptoms may remain stable, improve with treatment, or return in episodes.

Long-term care focuses on identifying the specific cause of each symptom. For example, diarrhoea caused by bile acid problems needs a different approach from diarrhoea caused by bacterial overgrowth or a narrowed bowel. A new change should not automatically be assumed

to be radiation damage.

Keep track of bowel frequency, bleeding, foods, weight changes, and medicines if symptoms are difficult to explain. This can help your healthcare team identify patterns without requiring you to avoid many foods.

Many people manage the condition with medicines, targeted diet changes, and follow-up. A smaller number need endoscopic treatment, hyperbaric oxygen, or surgery. Regular review may be needed if you have ongoing bleeding, anaemia, weight loss, or nutrient deficiencies.

When to get medical help

Arrange routine medical review if bowel symptoms continue after radiation, return after a symptom-free period, or interfere with eating and daily life. Contact your care team if you develop ongoing diarrhoea, repeated urgency, unexplained weight loss, increasing pain, or small amounts of rectal bleeding.

Seek prompt medical advice if you cannot keep fluids down, have signs of dehydration, or feel increasingly weak. Signs of dehydration include a very dry mouth, dark urine, passing much less urine, and dizziness when standing.

Get emergency help for:

These symptoms can suggest bowel obstruction, major blood loss, perforation, or serious infection. They should not wait for a routine appointment.

- Severe or rapidly worsening abdominal pain
- A swollen abdomen with vomiting or inability to pass stool or gas
- Heavy rectal bleeding, fainting, or marked weakness
- Severe pain with fever or feeling acutely unwell
- Sudden chest pain, breathlessness, confusion, or collapse

Common questions

How long does radiation enteritis last?

Acute symptoms often improve within weeks after radiation ends, although recovery time differs. Chronic symptoms may continue or recur over months and years because scarring and blood vessel damage can persist.

Can radiation enteritis start years after treatment?

Yes. Chronic radiation injury can appear months or years after abdominal or pelvic radiation. New symptoms still need assessment because several other conditions can look similar.

What foods should I avoid with radiation enteritis?

There is no single diet for everyone. During diarrhoea, some people find fatty foods, alcohol, caffeine, lactose, or high amounts of rough fibre difficult to tolerate. Long-term restriction can cause nutritional problems, so changes should be based on your symptoms and reviewed if they continue.

Does radiation enteritis mean my cancer has returned?

No. Radiation enteritis is damage to healthy bowel tissue, not cancer. However, recurrence and other conditions can cause similar symptoms, so a new or changing problem should be checked rather than assumed to be radiation-related.

Can chronic radiation enteritis be cured?

Some specific problems can be corrected or controlled, but established scarring may not fully heal. Medicines, nutrition support, endoscopic treatment, hyperbaric oxygen, or surgery can reduce symptoms and treat complications.

Is rectal bleeding normal after pelvic radiation?

Light bleeding can occur when radiation leaves fragile blood vessels in the rectum, but it should still be reported. Heavy bleeding, fainting, shortness of breath, or marked weakness needs urgent or emergency assessment.

Sources

- National Cancer Institute. Gastrointestinal Complications, PDQ Cancer Information Summary
- MedlinePlus Medical Encyclopedia. Radiation enteritis
- Stacey R, Green JT. "Radiation-induced small bowel disease: latest developments and clinical guidance." Therapeutic Advances in Chronic Disease . 2014;5(1):15-29.
- Andreyev HJN, Davidson SE, Gillespie C, Allum WH, Swarbrick E. "Practice guidance on the management of acute and chronic gastrointestinal problems arising as a result of treatment for cancer." Gut . 2012;61(2):179-192.
- Paquette IM, Vogel JD, Abbas MA, Feingold DL, Steele SR. "The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Treatment of Chronic Radiation Proctitis." Diseases of the Colon & Rectum . 2018;61(10):1135-1140.

- Shadad AK, Sullivan FJ, Martin JD, Egan LJ. "Gastrointestinal radiation injury: symptoms, risk factors and mechanisms." World Journal of Gastroenterology . 2013;19(2):185-198.