Radiation Therapy for Colorectal Cancer

Radiation therapy is a treatment using high-energy rays (such as x-rays) or particles to destroy cancer cells. It is more often used to treat rectal cancer than colon cancer. For some colon and rectal cancers, treating with chemotherapy at the same time can make radiation therapy work better. Using these 2 treatments together is called **chemoradiation**.

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Radiation therapy for colon cancer

It's not common to use radiation therapy to treat colon cancer, but it may be used in certain cases:

- Before surgery (along with chemo) to help shrink a tumor and make it easier to remove.
- After surgery, if the cancer has attached to an internal organ or the lining of the belly (abdomen). If this happens, the surgeon can't be sure that all of the cancer has been removed. Radiation therapy may be used to try to kill any cancer cells that may have been left behind.
- During surgery, right to the area where the cancer was, to kill any cancer cells that may be left behind. This is called **intraoperative radiation therapy** or **IORT.**
- Along with chemo to help control cancer if a person is not healthy enough for surgery.
- To ease symptoms if advanced colon cancer is causing intestinal blockage, bleeding, or pain.
- To help treat colon cancer that has spread to other areas, such as the bones, lungs, or brain.

Radiation therapy for rectal cancer

For rectal cancer, radiation therapy is a more common treatment and may be used:

- Either before and/or after surgery, often along with chemotherapy, to help keep the cancer from coming back. Many doctors now favor giving radiation therapy before surgery, as it may make it easier to remove the cancer, especially if the cancer's size and/or location might make surgery difficult. This is called **neoadjuvant treatment.** Giving chemoradiation before surgery can also help lower the chances of damaging the sphincter muscles in the rectum when surgery is done. In either case, nearby lymph nodes are usually treated too.
- During surgery, right to the area where the tumor was, to kill any rectal cancer cells that may be left behind. This is called **intraoperative radiation therapy** or **IORT.**
- With or without chemo to help control rectal cancer if a person is not healthy enough for surgery or to ease symptoms if advanced rectal cancer is causing intestinal blockage, bleeding, or pain.
- To re-treat rectal tumors that come back in the pelvis after radiation was given.
- To help treat rectal cancer that has spread to other areas, such as the bones, lungs, or brain.

Types of radiation therapy

Different types of radiation therapy can be used to treat colon and rectal cancers.

External-beam radiation therapy (EBRT)

EBRT is the type of radiation therapy used most often for people with colon or rectal cancer. The radiation is focused on the cancer from a machine outside the body. It's a lot like getting an x-ray, but the radiation is more intense. How often and how long a person gets radiation treatments depends on the reason the radiation is being given and other factors. Treatments might be given over the course of a few days or several weeks.

Newer EBRT techniques, such as three-dimensional conformal radiation therapy (3D-CRT), intensity modulated radiation therapy (IMRT), and stereotactic body radiation therapy (SBRT), have been shown to help doctors treat colorectal cancers that have spread to the lungs or liver more accurately while lowering the radiation exposure to nearby healthy tissues. They are typically used if there are only a small number of tumors and if the tumors are causing symptoms and surgery is not an option.

Internal radiation therapy (brachytherapy)

Brachytherapy might be used to treat some rectal cancers, but more research is needed to understand how to best use and when to use brachytherapy.

For this treatment, a radioactive source is put inside your rectum next to or into the tumor. This allows the radiation to reach the rectum without passing through the skin and other tissues of the belly (abdomen), so it's less likely to damage nearby tissues.

Endocavitary radiation therapy: For this treatment, a small balloon-like device is placed into the rectum to deliver high-intensity radiation for a few minutes. This is typically done in 4 treatments (or less), with about 2 weeks between each treatment. This can let some patients, particularly elderly patients, avoid major surgery and a colostomy. This type of treatment is used for some small rectal cancers or in cases where radiation was already given in the pelvic area and the rectal cancer has come back. Sometimes external-beam radiation therapy is also given.

Interstitial brachytherapy: For this treatment, a tube is placed into the rectum and right into the tumor. Small pellets of radioactive material are then put into the tube for several minutes. The radiation travels only a short distance, limiting the harmful effects on nearby healthy tissues. It's sometimes used to treat people with rectal cancer who are not healthy enough for surgery or have cancer that has come back in the rectum. This can be done a few times a week for a couple of weeks, but it can also be just a one-time procedure.

Radioembolization

Radiation can also be given during an embolization procedure. You can find more details in Ablation and Embolization to Treat Colorectal Cancer.

Possible side effects of radiation therapy

If you're going to get radiation therapy, it's important to ask your doctor about the possible short- and long-term side effects so that you know what to expect. Possible side effects of radiation therapy for colon and rectal cancer can include:

- Skin irritation at the site where radiation beams were aimed, which can range from redness to blistering and peeling
- Problems with wound healing if radiation was given before surgery
- Nausea
- Rectal irritation, which can cause diarrhea, painful bowel movements, or blood in the stool

frequency), burning or pain while urinating, or blood in the urine

- Fatigue/tiredness
- Sexual problems (erection issues in men and vaginal irritation in women)
- Scarring, fibrosis (stiffening), and adhesions that cause the tissues in the treated area to stick to each other

Most side effects should get better over time after treatment ends, but some problems may not go away completely. If you notice any side effects, talk to your doctor right away so steps can be taken to reduce or relieve them.

More information about radiation therapy

To learn more about how radiation is used to treat cancer, see Radiation Therapy.

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects.

Written by References

The American Cancer Society medical and editorial content team

Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as editors and translators with extensive experience in medical writing.

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