CONDITION

Rectal cancer

Rectal cancer is cancer that begins in the final part of the large bowel.

WHAT IT IS
Cancer beginning in the rectum

BODY SYSTEM
Digestive system

MAIN SYMPTOMS
Rectal bleeding, bowel habit changes, urgency, pelvic discomfort

WHAT CAUSES IT
Acquired DNA changes, sometimes with inherited risk

HOW IT IS DIAGNOSED
Colonoscopy with biopsy; MRI and CT determine stage

MAIN TREATMENT
Surgery, radiation therapy, medicines, or combined treatment

CAN IT BE CURED?
Sometimes - especially before cancer has spread distantly

IS IT AN EMERGENCY?
Sometimes - heavy bleeding or bowel obstruction

LONG-TERM OUTLOOK
Often curable when localized; poorer after distant spread

Overview

Rectal cancer starts in the rectum, the last part of the large bowel before the anus. Most rectal cancers begin in gland-forming cells in the bowel lining. This type is called an adenocarcinoma.

Rectal cancer and colon cancer are often grouped together as colorectal cancer. However, the rectum sits deep within the pelvis, close to the bladder, reproductive organs, nerves, and muscles controlling bowel movements. This location affects how rectal cancer is treated.

Some cancers are found during bowel screening before symptoms develop. Others cause bleeding, a persistent change in bowel habits, or a feeling that the bowel has not emptied fully.

The outlook is strongly linked to the stage. Stage describes how far the cancer has grown and whether it has reached lymph nodes or distant organs. Cancer limited to the rectum and nearby tissues can often be treated with the aim of curing it. Cancer that has spread can still be

treated to control growth, ease symptoms, and sometimes achieve long periods of stability.

Symptoms

Possible symptoms include:

Slow bleeding can cause iron-deficiency anaemia, meaning there are not enough healthy red blood cells because the body has lost iron. This may cause tiredness, weakness, breathlessness, or pale skin.

These symptoms do not prove that you have rectal cancer. Haemorrhoids, small tears around the anus, infections, and inflammatory bowel conditions can cause similar problems. New or persistent rectal bleeding should still be assessed rather than assumed to be haemorrhoids.

Some early rectal cancers cause no noticeable symptoms and are found through screening.

- Blood in or on the stool
- A lasting change in how often you pass stool
- Diarrhoea, constipation, or narrower stools
- Urgency or feeling that you still need to pass stool
- Rectal, lower abdominal, or pelvic discomfort
- Unexplained tiredness, weight loss, or reduced appetite

Causes and risk factors

Rectal cancer develops when DNA changes allow cells in the rectal lining to grow and survive when they should not. These cells can form a tumour and may eventually invade nearby tissue or spread elsewhere. There is usually no single identifiable cause.

Risk generally rises with age, although younger adults can also develop rectal cancer. Factors linked with a higher risk include:

Having a risk factor does not mean you will develop rectal cancer. Some people have several risk factors and never develop it, while others have no known risk factors.

Inherited genetic changes cause only a minority of cases. Genetic counselling or testing may be offered when cancer occurs at a young age, several relatives are affected, or tumour testing suggests an inherited condition.

- A previous colorectal cancer or certain bowel polyps

- A close family history of colorectal cancer
- Inherited conditions such as Lynch syndrome or familial adenomatous polyposis
- Long-standing ulcerative colitis or Crohn's disease affecting the colon
- Smoking
- Higher alcohol intake
- Excess body weight and low physical activity
- A diet high in processed meat

Diagnosis

Assessment usually begins with a discussion of your symptoms and medical and family history. A clinician may examine your abdomen and perform a digital rectal examination, using a gloved finger to feel inside the rectum.

Rectal cancer is confirmed by examining a tissue sample, called a biopsy, under a microscope. The sample is usually collected during a colonoscopy. This procedure uses a flexible camera to examine the rectum and the rest of the large bowel. Polyps or other abnormal areas may also be removed or sampled.

If cancer is confirmed, further tests establish its stage and help plan treatment. These commonly include:

CEA cannot confirm or rule out rectal cancer by itself.

The biopsy may be tested for molecular features such as mismatch repair deficiency or microsatellite instability. These changes affect how cells repair DNA and may influence treatment choices. Additional biomarker tests may be useful if the cancer has spread.

- MRI of the pelvis to show how deeply the tumour has grown and its relationship to nearby structures
- CT scans to look for cancer in lymph nodes, the liver, lungs, or other areas
- Blood tests, including checks for anaemia and liver function
- A carcinoembryonic antigen, or CEA, blood test to provide a baseline for later monitoring

Treatment and management

Treatment is planned according to the cancer's stage and location, its biological features, your

general health, and what matters to you. Rectal cancer care often involves surgeons, cancer specialists, radiologists, pathologists, specialist nurses, and stoma professionals.

Very small, early cancers may sometimes be removed through the anus without major abdominal surgery. Other localized cancers usually require surgery to remove part or all of the rectum along with nearby lymph nodes.

The remaining bowel may be joined to the anus or lower rectum. Some operations require a stoma, an opening in the abdomen through which stool passes into a bag. A stoma may be temporary while the bowel heals or permanent when a safe join is not possible. Not everyone needs one.

Radiation therapy and chemotherapy are often used before surgery for cancers that have grown through the rectal wall or reached nearby lymph nodes. Giving treatment before surgery can shrink the tumour and reduce the risk of cancer remaining in the pelvis. Chemotherapy may also be given after surgery in some situations.

Some people receive all planned chemotherapy and radiation before surgery. This is known as total neoadjuvant therapy. The exact approach is selected for the individual cancer rather than used for everyone.

If tests show no remaining tumour after treatment, carefully selected people may enter a structured non-operative surveillance programme, sometimes called "watch and wait." This requires frequent examinations, scans, and endoscopy because cancer can regrow locally. Surgery remains the usual option when there is an incomplete response or regrowth.

Cancer that has spread may be treated with chemotherapy, targeted medicines, immunotherapy, surgery, radiation, or combinations of these. The options depend partly on tumour biomarkers and where the cancer has spread. Treatment may aim to remove limited areas of spread or to control the cancer and relieve symptoms.

Supportive care can help with pain, nausea, nutrition, bowel control, emotional health, sexual concerns, and stoma management at any stage.

Complications

The tumour can bleed, causing anaemia, or narrow the bowel enough to cause an obstruction. It may grow into nearby pelvic structures or spread to organs such as the liver or lungs.

Possible effects of treatment include infection, blood clots, bowel leakage after surgery, and changes in bladder or sexual function. Chemotherapy can cause temporary or lasting effects such as fatigue or nerve symptoms. Pelvic radiation may affect bowel, bladder, sexual, or reproductive function.

After rectal surgery, some people develop frequent stools, urgency, leakage, or difficulty emptying the bowel. Together, these problems are called low anterior resection syndrome. Diet changes, medicines, pelvic-floor care, and specialist bowel-management programmes may help.

Stomas can sometimes develop skin irritation, leakage, blockage, or changes in shape. A stoma nurse can help with equipment and practical care.

Prevention

Rectal cancer cannot always be prevented. Age, family history, and inherited genetic changes cannot be changed.

Colorectal screening can find and remove some precancerous polyps before they become cancer. It can also detect cancer earlier, when treatment may be more effective. The starting age and type of screening differ by country and personal risk.

People with an inherited cancer syndrome, a strong family history, previous advanced polyps, or long-standing inflammatory bowel conditions may need earlier or more frequent bowel examinations.

Not smoking, limiting alcohol, staying physically active, maintaining a weight that is healthy for you, and eating a fibre-rich diet with less processed meat may reduce risk. These steps cannot guarantee prevention.

Living with it and what to expect

Treatment may last several months, especially when chemotherapy or radiation is given before or after surgery. Recovery from rectal surgery is gradual. Energy, appetite, and bowel function may change during this period.

Bowel habits may remain different over the long term. Some people need more frequent access to a toilet or have urgency after meals. Others adjust well with time, dietary changes, medicines, pelvic-floor treatment, or stoma support. Changes in sexual function, fertility, or bladder control can also occur and deserve specific care.

Follow-up usually includes symptom reviews, examinations, CEA blood tests, scans, and colonoscopy. Follow-up is often most intensive in the first few years, but the exact schedule reflects the original stage and treatment.

Cancer may return in the pelvis or elsewhere, even after treatment intended to cure it.

Follow-up aims to find recurrence early and manage lasting treatment effects. Many people return to work, travel, exercise, and ordinary activities, although recovery and long-term adjustments are different for each person.

When cancer cannot be removed completely, treatment may continue or change over months and years. Periods on treatment may alternate with breaks, depending on how the cancer responds and how treatment affects daily life.

When to get medical help

Arrange a medical assessment if you develop rectal bleeding, a persistent change in bowel habits, unexplained weight loss, ongoing pelvic discomfort, or symptoms of anaemia. These symptoms often have a non-cancerous cause, but they should not be ignored.

If you have already been treated, report new bleeding, worsening bowel problems, persistent pain, unexplained weight loss, or new breathing symptoms promptly. Routine concerns about diet, bowel frequency, sexual function, stoma equipment, or ongoing side effects can usually be discussed during planned follow-up or with your treatment team.

Seek urgent or emergency help for:

Follow the urgent-care instructions provided by your cancer service, as some treatment complications need assessment the same day.

- Heavy or continuous rectal bleeding, especially with faintness or weakness
- Severe abdominal pain or swelling with vomiting
- Inability to pass stool or gas, which may indicate bowel obstruction
- Sudden chest pain, severe breathlessness, confusion, or collapse
- Fever with marked illness during chemotherapy or other treatment that lowers immunity

Common questions

Is rectal cancer the same as colon cancer?

Both are colorectal cancers, but they begin in different parts of the large bowel. The rectum's position in the pelvis means radiation therapy, surgical methods, and the possibility of a stoma may differ from colon cancer care.

Can haemorrhoids turn into rectal cancer?

No. Haemorrhoids do not become cancer. However, both conditions can cause bleeding and

can occur at the same time, so new or persistent bleeding should be assessed.

Will I need a permanent colostomy?

Not necessarily. Whether a permanent stoma is needed depends on how close the tumour is to the anal muscles, how much rectum must be removed, and whether the bowel can be joined safely. Some stomas are temporary.

Can rectal cancer be cured?

Sometimes. Cure is more likely when the cancer can be completely removed and has not spread to distant organs. Selected people with limited spread may also be treated with curative intent. Advanced cancer that cannot be removed is usually treated to control it rather than cure it.

How quickly does rectal cancer spread?

There is no single timeline. Growth is influenced by the tumour's biology, size, stage, and molecular features. Scans, biopsy results, and changes over time give more useful information than symptoms alone.

Can rectal cancer come back after treatment?

Yes, recurrence is possible in the pelvis or another organ. The risk is linked to the original stage and response to treatment. Scheduled follow-up helps monitor for recurrence and manage long-term effects.

Sources

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