

Diverticulosis and diverticulitis

Information for patients from the Department of Colorectal Surgery

What is it?

The colon (or large Intestine) can develop small pouches, which bulge outward through the colon's muscular wall (see diagram below). These pouches develop in areas where blood vessels are entering the muscular wall, which is a weaker spot that allows these pouches to form.

Each pouch is called a diverticulum. Pouches are called diverticula. The condition of having diverticula is called **diverticulosis**.

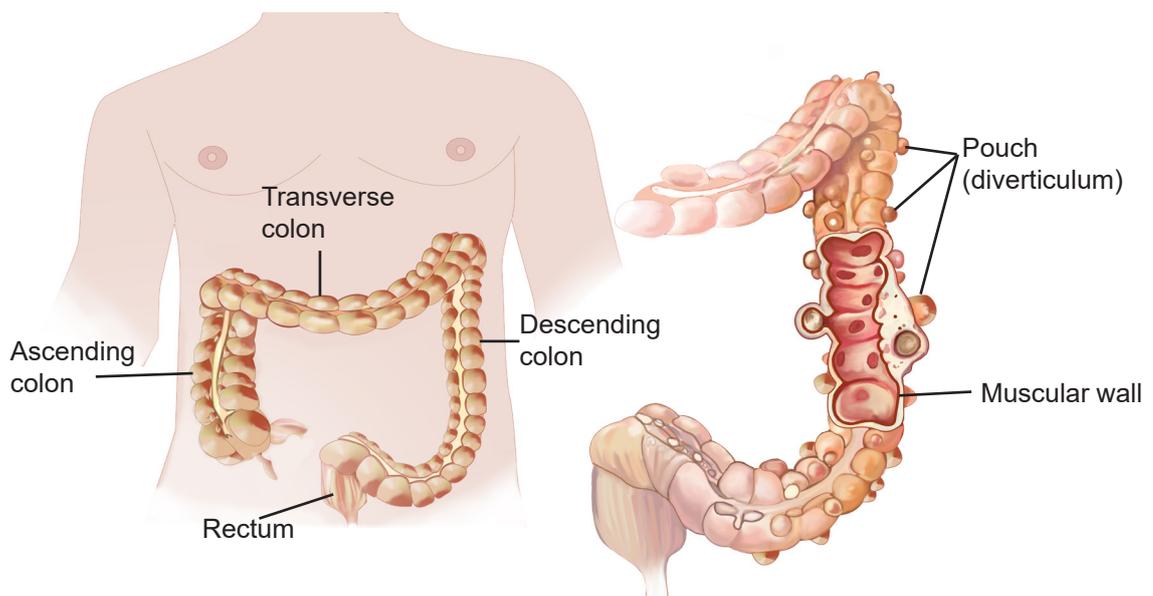


Diagram showing pouches (diverticulum) in the colon

When the pouches become infected or inflamed, the condition is called **diverticulitis**. This occurs in 10 to 25 in every 100 people with diverticulosis. Diverticulosis and diverticulitis are also known as **diverticular disease**.

Diverticular disease is extremely common in the developed world. Between 30% and 50% of this population will be affected during their lifetime.



What causes diverticular disease?

If your stools become small and hard instead of soft and bulky, your colon has to squeeze hard to push the stool forward. These contractions create high pressure in the muscular wall of your colon and, if this continues over the years, then these pouches develop at the weak areas in the wall of your colon. This is one of the reasons why diverticula are more likely to develop in the left side of the colon.

There is no exact cause of diverticular disease but the following have been shown to increase your risk of developing the disease - increasing age, obesity, high BMI (body mass index), and people on low fiber diets.

Diverticular disease is common in developed or industrialised countries - particularly the United States, England, and Australia - where low fibre diets are common. The disease is rare in the countries of Asia and Africa, where people eat high-fibre vegetable diets.

Fibre is the part of fruits, vegetables, and grains that the body cannot digest. Some fibre dissolves easily in water (soluble fibre). It takes on a soft, jelly-like texture in the intestines. Some fibre passes almost unchanged through the intestines (insoluble fibre). Both kinds of fibre help make stools soft and easy to pass. Fibre also prevents constipation.

What are the symptoms?

Diverticulosis

Most people with diverticulosis do not have any discomfort or symptoms. However, possible symptoms may include mild cramps, bloating, and constipation. Other diseases such as irritable bowel syndrome (IBS) and stomach ulcers cause similar problems, so these symptoms do not always mean a person has diverticulosis. You should visit your doctor if you have these symptoms.

Diverticulitis

The most common symptom of diverticulitis is abdominal pain. The most common sign is tenderness around the left side of the lower abdomen. If infection is the cause, fever, nausea (feeling sick), vomiting, chills, cramping, and constipation may occur as well. How bad your symptoms are depends on the extent of the infection and complications.

What are the complications?

Diverticulitis can lead to bleeding, infections, perforations (small holes), tears, or blockages. These complications always need treatment to prevent them from progressing and causing serious illness.

- **Bleeding**

Bleeding from diverticula is a rare complication. When diverticula bleed, blood may appear in the toilet or in your stool. Bleeding can be severe, but it may stop by itself and not need treatment. Bleeding diverticula are caused by a small blood vessel in a diverticulum that weakens and finally bursts. If you have bleeding from your rectum, you should see your doctor. If the bleeding does not stop, surgery may be needed.

- **Abscess, perforation, and peritonitis**

The infection causing diverticulitis often clears up after a few days of treatment with antibiotics. If the condition gets worse, an abscess may form in your colon. An abscess is an infected area with pus that may cause swelling and destroy tissue. Sometimes the infected diverticula may develop small holes called perforations. These perforations allow pus to leak out of the colon into your abdominal area. If the abscess is small and remains in your colon, it may clear up after treatment with antibiotics. If not, your doctor may need to drain it.

To drain the abscess, your doctor uses a needle and a small tube called a catheter. The doctor inserts the needle through the skin under a local anaesthetic (you will be awake but the area being treated will be numbed) and drains the fluid through the catheter. This procedure is called percutaneous catheter drainage. Sometimes surgery is needed to clear the abscess and, if necessary, remove part of your colon.

A large abscess can become a serious problem if the infection leaks out and contaminates areas outside your colon. Infections that spread into the abdominal cavity are called peritonitis. Peritonitis needs immediate surgery to clean the abdominal cavity and to remove the damaged part of your colon. Without surgery, peritonitis can be fatal.

- **Fistula**

A fistula is an abnormal connection of tissue between two organs or between an organ and the skin. When damaged tissues come into contact with one another during infection, they sometimes stick together. If they heal that way, a fistula forms. When diverticulitis related infections spread outside the colon, the colon tissue may stick to other nearby tissues. The organs usually involved are the bladder, small intestine, and skin.

The most common type of fistula happens between the bladder and the colon. It affects men more than women. This type of fistula can result in a severe, long-lasting infection of the urinary tract. The problem can be corrected with surgery to remove the fistula and the affected part of your colon.

- **Intestinal obstruction**

The scarring caused by infection may cause part or total blockage of your colon. When this happens, your colon is unable to move bowel contents normally. When the obstruction totally blocks your colon, emergency surgery is needed. Partial blockage is not an emergency, so the surgery to correct it can be planned.

How does your doctor diagnose diverticular disease?

To diagnose diverticular disease, your doctor will ask about your medical history, perform a physical examination, and may perform one or more tests. As most people do not have symptoms, diverticulosis is often found through tests ordered for another condition.

When taking a medical history, your doctor may ask you about your bowel habits, symptoms, pain, diet, and medications. The physical examination usually involves a digital rectal examination. To perform this test, your doctor inserts a gloved, lubricated finger into your rectum to check for any tenderness, blockages, or blood. Your doctor may check your stools for signs of bleeding and test your blood for signs of infection.

Your doctor will order further tests which may include a:

- **colonoscopy or flexible sigmoidoscopy:** where a tube with a camera is passed into your colon through your back passage, to view the inner lining of your whole colon. A sigmoidoscopy is a similar procedure that views mostly the left side of your colon. Medication can be given to make the procedure comfortable and you will be given something before your procedure to make sure you completely empty your bowels.
- **CT virtual colonoscopy** is an x-ray-based test although, as with the colonoscopy, you will need to completely clean your bowel with bowel preparation the day before.

What is the treatment for diverticula disease?

A high-fibre diet and occasionally, mild painkillers will help relieve symptoms in most cases. Sometimes an attack of diverticulitis is serious enough to need a hospital stay and surgery.

Diverticulosis

Increasing the amount of fibre in your diet may reduce symptoms of diverticulosis and prevent complications such as diverticulitis. Fibre keeps stools soft and lowers pressure inside the colon so that bowel content can move through easily. Twenty to 35 grams of fibre is recommended daily. The table on the next page shows the amount of fibre in some foods that you can easily add to your diet.

Your doctor may also recommend taking a fibre product such as Fybogel once a day. These products are mixed with water and provide about two to 3.5 grams per tablespoon, mixed with eight ounces of water. Fybogel and Psyllium seed products are available in pharmacies.

Until recently, many doctors suggested avoiding foods with small seeds such as tomatoes or strawberries because they believed that the seeds could lodge in the diverticula and cause inflammation. However, it is now generally accepted that only foods that may irritate or get caught in the diverticula cause problems. Foods such as nuts, popcorn hulls, and sunflower, pumpkin, caraway, and sesame seeds should be avoided. The seeds in tomatoes, courgettes, cucumbers, strawberries, and raspberries, as well as poppy seeds, are generally considered harmless. People differ in the amounts and types of foods they can eat. Decisions about your diet should be made based on what works best for you. Keeping a diary may help identify individual items in your diet.

If cramps, bloating, and constipation are problems, your doctor may prescribe a short course of pain medication. However, many medications can cause constipation.

You should take regular exercise, lose weight if you are overweight or obese, and stop smoking. Although studies do not show that these changes will definitely help all patients, changes to a person's lifestyle will bring additional wider benefits in general health and wellbeing.

Amount of fibre in some foods

Breakfast cereals	Typical portion (weight)	Fibre/portion
All-Bran	1 medium sized bowl (40g)	9.8 grams
Shredded Wheat	2 pieces (44g)	4.3 grams
Bran Flakes	1 medium sized bowl (30g)	3.9 grams
Weetabix	2 pieces (37.5g)	3.6 grams
Muesli (no added sugar)	1 medium sized bowl (45g)	3.4 grams
Muesli (swiss style)	1 medium sized bowl (45g)	2.9 grams
Fruit 'n' Fibre	1 medium sized bowl (40g)	2.8 grams
Porridge (milk or water)	1 medium sized bowl (250g)	2.3 grams
Cornflakes	1 medium sized bowl (30g)	0.3 grams

Bread/rice/pasta	Typical portion (weight)	Fibre/portion
Crispbread (rye)	4 crispbread (36g)	4.2 grams
Pitta bread (wholemeal)	1 piece (75g)	3.9 grams
Pasta (plain, fresh cooked)	1 medium portion (200g)	3.8 grams
Wholemeal bread	2 slices (70g)	3.5 grams
Naan bread	1 piece (160g)	3.2 grams
Brown bread	2 slices (70g)	2.5 grams
Granary bread	2 slices (70g)	2.3 grams
Brown rice (boiled)	1 medium portion (200g)	1.6 grams
White bread	2 slices (70g)	1.3 grams
White rice (boiled)	1 medium portion (200g)	0.2 grams

Vegetable	Typical portion (weight)	Fibre/portion
Baked beans	Half can (200g)	7.4 grams
Red kidney beans	3 tablespoons (80g)	5.4 grams
Peas (boiled)	3 heaped tablespoons (80g)	3.6 grams
French beans (boiled)	4 heaped tablespoons (80g)	3.3 grams
Brussel sprouts (boiled)	8 sprouts (80g)	2.5 grams
Potatoes (old, boiled)	1 medium size (200g)	2.4 grams
Spring greens (boiled)	4 heaped tablespoons (80g)	2.1 grams
Carrots (boiled/sliced)	3 heaped tablespoons (80g)	2.0 grams
Broccoli (boiled)	2 spears (80g)	1.8 grams
Spinach (boiled)	2 heaped tablespoons (80g)	1.7 grams

Salad vegetables	Typical portion (weight)	Fibre/portion
Pepper (green/red)	Half (80g)	1.3 grams
Onions (raw)	1 medium (80g)	1.1 grams
Olives (in brine)	1 heaped tablespoon (30g)	0.9 grams
Tomato (raw)	1 medium / 7 cherry (80g)	0.8 grams
Lettuce (sliced)	1 bowl (80g)	0.7 grams

Fruit	Typical portion (weight)	Fibre/portion
Avocado pear	1 medium (145g)	4.9 grams
Pear (with skin)	1 medium (170g)	3.7 grams
Orange	1 medium (160g)	2.7 grams
Apple (with skin)	1 medium (112g)	2.0 grams
Raspberries	2 handfuls (80g)	2.0 grams
Banana	1 medium (150g)	1.7 grams
Tomato juice	1 small glass (200ml)	1.2 grams
Strawberries	7 strawberries (80g)	0.9 grams
Grapes	1 handful (80g)	0.6 grams
Orange juice	1 small glass (200ml)	0.2 grams

Dried fruit/nuts	Typical portion (weight)	Fibre/portion
Apricots (semi-dried)	3 whole (80g)	5.0 grams
Prunes (semi-dried)	3 whole (80g)	4.6 grams
Almonds	20 nuts (33g)	2.4 grams
Peanuts (plain)	1 tablespoon (25g)	1.6 grams
Mixed nuts	1 tablespoon (25g)	1.5 grams
Brazil nuts	10 nuts (33g)	1.4 grams
Raisins/sultanas	1 tablespoon (25g)	0.5 grams

Other food	Typical portion (weight)	Fibre/portion
Quorn (pieces)	1 serving (100g)	4.8 grams
Chicken curry (takeaway)	1 portion meat/sauce (150g)	3.0 grams
Vegetable pasty	1 medium sized (150g)	3.0 grams
Bran (wheat)	1 tablespoon (7g)	2.5 grams
Potato crisps (low fat)	1 bag (35g)	2.1 grams
Pakora/bhajia (vegetable)	1 portion (50g)	1.8 grams
Pizza (cheese and tomato)	1 slice, deep pan (80g)	1.8 grams

Diverticulitis

Treatment for diverticulitis focuses on clearing up the infection and inflammation, resting your colon, and preventing or minimising complications. An attack of diverticulitis without complications may respond to antibiotics within a few days, if treated early enough.

To help your colon rest, your doctor may recommend bed rest and a liquid diet, along with pain relief.

When is surgery necessary?

If your attacks are severe or happen often, your doctor may advise surgery. The surgeon removes the affected part of your colon and joins the remaining sections. This type of surgery is called colon resection, and aims to keep attacks from coming back and prevents complications. Your doctor may also recommend surgery for complications of a fistula or intestinal obstruction.

If antibiotics do not correct an attack, emergency surgery may be needed. Other reasons for emergency surgery include a large abscess, perforation, peritonitis, or continued bleeding. Emergency surgery usually involves two operations. The first surgery will clear the infected abdominal cavity and remove part of your colon. Because of infection and sometimes obstruction, it is not safe to rejoin your colon during the first operation, instead, your surgeon creates a temporary hole, or stoma, in your abdomen. The end of your colon is connected to the hole, a procedure called colostomy, to allow normal eating and bowel movements. The stool goes into a bag attached to the opening in your abdomen. In the second operation, your surgeon rejoins the ends of your colon.

Points to remember

- Diverticulosis occurs when small pouches, called diverticula, bulge outward through weak spots in your colon (large intestine).
- The pouches form when pressure inside your colon builds, usually because of constipation.
- Most people with diverticulosis never have any discomfort or symptoms.
- The most likely cause of diverticulosis is a low fibre diet because it increases the likelihood of constipation and pressure inside your colon.
- For most people with diverticulosis, eating a high-fibre diet is the only treatment needed.
- You can increase your fibre intake by eating foods such as wholegrain breads and cereals; fruit like apples and peaches; vegetables like kidney beans and lima beans.
- Diverticulitis occurs when the pouches become infected or inflamed and cause pain and tenderness around the left side of your lower abdomen.

Further information

- **NHS** www.nhs.uk/live-well/eat-well/
- **British Dietetic Association (BDA)** has information on healthy eating on their website. Visit their Food Facts section at www.bda.uk.com/food-health/food-facts.html

If you have any further questions or concerns, please speak to the healthcare professional responsible for your care.

If you would like this information in **another language, audio, Braille, Easy Read, or large print** please ask a member of staff. You can ask someone to contact us on your behalf.

Any complaints, comments, concerns, or compliments please speak to your doctor or nurse, or contact the Patient Advice and Liaison Service (PALS) on 01227 78 31 45, or email ekh-tr.pals@nhs.net

Patients should not bring in large sums of money or valuables into hospital. Please note that East Kent Hospitals accepts no responsibility for the loss or damage to personal property, unless the property had been handed in to Trust staff for safe-keeping.

Further patient leaflets are available via the East Kent Hospitals web site www.ekhuft.nhs.uk/patientinformation