Diverticular disease is the fifth most important gastrointestinal condition in terms of direct and indirect health care costs in Western countries. People with this condition usually have no symptoms, but complications can lead to hospitalization and rarely, death. Diverticulosis describes the presence of several pocket-like protrusions along the colon wall. A single pocket is called a diverticulum. When these pockets become inflamed or infected, the condition is referred to as diverticulitis. Diverticular disease includes both diverticulosis and diverticulitis.

Although diverticulosis is now common in both men and women, it was virtually unknown in the previous century. The incidence of diverticular disease in westernized countries has increased from a range of 5 percent to 10 percent 80 years ago to 35 percent to 50 percent today. It is increasingly common with advancing age; it is estimated that up to 65 percent of people over 80 years of age have this condition.

Diverticulosis progresses to diverticulitis in roughly 15 percent to 25 percent of people with diverticular disease. Nearly all diverticulitis is mild, and it usually responds well to medical treatment.

Causes
Diverticular disease is more common in developed countries, which suggests that lifestyle and environment significantly contribute to the development of this condition.

While specific triggers of diverticulitis are not known, the most important factor influencing the development of diverticulosis is diet. It is known that low dietary fiber increases the chance of developing diverticulosis. Diverticulosis is rare in underdeveloped countries unless a westernized diet has been adopted. Lifelong vegetarians also seem to have fewer diverticula, most likely because fruits and vegetables are important sources of fiber and represent the majority of the vegetarian diet. A low-fiber diet causes constipation—small, hard stools that put pressure on colon walls, pushing the walls outward. Frequent, abnormal contractions or spasms of the colon wall pressure. Over time, weaknesses in the walls develop into diverticula. Dietary fiber counteracts this process by softening stools. Softer stool passes through the colon faster, thus limiting pressure on the walls of the colon.

Other factors influencing diverticulosis may include physical activity, obesity, and genetic predisposition.

Symptoms
Diverticulosis usually has no symptoms and is most often found incidentally. Mild symptoms can include occasional bloating; flatulence; irregular stools; hard, pellet-like stools; or attacks of diarrhea. Major complications of diverticulosis include diverticulitis and diverticular bleeding.

The most common symptom of diverticulitis is pain in the left lower abdomen; the severity of symptoms depends on the extent and degree of inflammation. Nausea, vomiting, fever, constipation, diarrhea, problems with urination, and rectal bleeding can also occur. Diverticulitis can range from mild, single attacks to severe, recurrent disease. Complicated diverticulitis involves the formation of an abscess (collection of pus), a fistula (an abnormal tract between organs), obstruction or blockage of the colon, perforation (a hole in the colon), or sepsis (overwhelming infection spreading throughout the body). Cases like these require hospitalization.

Diverticular bleeding occurs in 3 percent to 5 percent of people with diverticulosis. Diverticula are formed near blood vessels, and when these
vessels are affected by constant inflammation over time, they can rupture into the colon. Most often the bleeding is painless and stops spontaneously. Bleeding that continues or is massive requires hospitalization.

**Diagnosis**

Radiologic evaluation of the colon is the easiest way to diagnose diverticular disease. A computer tomographic (CT) scan or magnetic resonance imaging (MRI) scan can easily find diverticulosis. These imaging studies provide a two-dimensional picture of the abdomen in cross-section. A newer type of CT scan, sometimes called a “virtual colonoscopy,” allows physicians to view the colon in three dimensions.

A barium enema, which uses a contrast dye, can be placed in the colon to enhance its outline on a plain x-ray.

Finally, doctors can perform a colonoscopy or a flexible sigmoidoscopy, using a flexible tube with a light and a camera to look directly at the colon lining. A colonoscopy allows examination of the entire large intestine; a flexible sigmoidoscopy examines only the lower third.

**Treatment**

Diverticulosis without symptoms does not require treatment.

Simple diverticulitis can be treated at home with oral antibiotics, rest, and a clear liquid diet for a few days.

Complicated diverticulitis requires hospitalization, antibiotics and fluids by vein, and possibly surgery. Improvement generally occurs in most patients within 48 to 72 hours of admission.

Diverticular bleeding usually stops without intervention, but angiography is used to stop serious blood loss. This test, done by a radiologist, involves injecting contrast dye into the colon vessels, much as cardiologists do to examine heart vessels. Substances can then be injected to “plug up” the bleeding vessel. This technique is successful 85 percent of the time, but when it fails to control blood loss, surgery is needed.

Surgery is reserved for very severe cases or for people with multiple episodes. Between 15 percent and 30 percent of patients admitted to the hospital with acute, complicated diverticulitis eventually need surgery. Emergency surgery is sometimes needed for severe, acute attacks. For chronic, recurrent disease, the timing of surgery is controversial. The American Society of Colon and Rectal Surgeons suggests that this decision be made on a case-by-case basis. Surgery is usually considered when there have been three or four acute attacks.

**Prevention**

Once diverticulosis is present, it does not go away. The best way to prevent further formation of diverticula is to follow a high-fiber diet that includes fruits, vegetables, and whole grains. The American Dietetic Association (ADA) recommends consuming 20 to 35 grams of fiber daily. While it is possible to obtain this much fiber in food, the ADA says most Americans consume only about half the recommended amount. An easy way to increase fiber consumption is to add fiber supplements such as psyllium (Metamucil) and methylcellulose (Citrucel) to the diet. These preparations offer between 3 and 4 grams of fiber per dose.

Health providers frequently advise patients to avoid nuts and seeds, with the idea that these might become lodged in the diverticula and lead to diverticulitis. However, there is no evidence that this occurs. A recent study showed that nuts, corn, and popcorn consumption did not lead to increased episodes of diverticulitis and diverticular bleeding. In fact, those who ate nuts at least twice a week had a 20 percent lower risk of diverticulitis, and those who ate popcorn twice weekly had a 28 percent lower risk.

A combined strategy of increasing fiber intake, engaging in moderate exercise, maintaining a healthy weight, and drinking enough water daily will contribute to long-term colon health.

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