Dyssynergic Defecation: Questions and Answers about a Common Cause of Chronic Constipation 237

Author: Satish S.C. Rao, M.D., PhD., FRCP (LON), AGAF, J. Harold Harrison, MD, Distinguished University Chair in Gastroenterology, Department of Gastroenterology/Hepatology, Augusta University, Augusta, Georgia

International Foundation for Gastrointestinal Disorders (www.iffgd.org)

Reading time: 12 minutes

Constipation affects nearly everyone at some point in their lives. Constipation that occurs now and then is termed "Occasional Constipation". It may result from many different factors such as dietary changes, some medicines, inactivity or travel. Occasional Constipation and will generally respond to simple lifestyle measures or fiber supplements or over-the-counter laxatives. But constipation that is long-lasting or keeps coming back (chronic) may require more effort to diagnose and treat. When that happens, a trip to the doctor is in order to find out the cause and develop a treatment plan. Over the last decade there have been significant advances in the understanding of the causes of constipation, the test to diagnose this problem, and its treatment.

Introduction

Constipation is defined as the experience one of more problems with bowel movements (BMs) such as

- infrequent bowel movements,
- hard and difficult to pass bowel movements,
- incomplete bowel movements,
- straining to have a bowel movement,
- prolonged duration of time needed to evacuate a bowel movement,
- use of digital maneuvers (use of fingers) to assist bowel movement.

A number of factors can cause constipation that is persistent or long-lasting (chronic constipation). Among the most common is a condition called *dyssynergic defecation*. About 40% of chronic constipation is caused by this condition.

What is Dyssynergic Defecation?

Dyssynergic defecation is an acquired condition in which there is a problem coordinating the abdominal, rectal and anal muscles (Pelvic Floor) to achieve a normal and complete bowel movement. The pelvic floor is a group of muscles located at the lower part of the abdomen, between the hip bones, that supports pelvic organs such as the rectum, uterus and urinary bladder (Figure 1). One of its most important functions is to help make possible

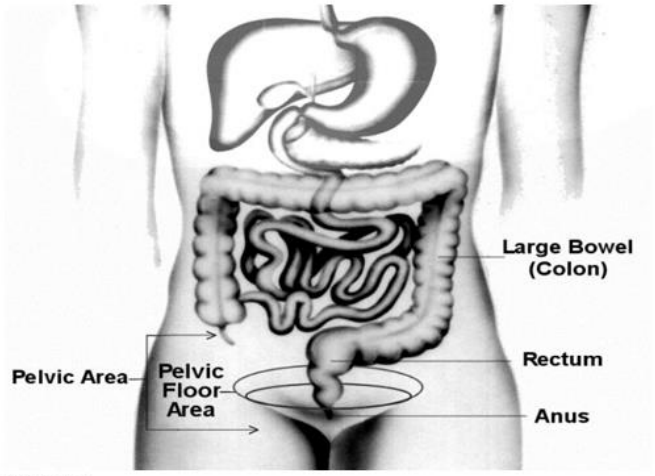

Figure 1

our ability to have orderly bowel movements. Working together, the pelvic floor nerves and muscles help maintain the ability to control movements of the bowels and bladder (also known as continence) until we have a bowel movement. Failure of this to happen can lead to problems of constipation.

When do Persons Develop Dyssynergic Defecation?

In a survey conducted of 100 patients with the condition, nearly one-third (31%), the problem began in childhood. About an equal number (29%) appeared to have developed the problem after a particular event, such as pregnancy or an injury. In the remaining 4 out of 10

persons (40%), there was no cause identified that may have brought on the condition in adulthood. It may be that too much straining over prolonged periods to expel hard bowel movements could be a factor that may lead to dyssynergic defecation.

Why do People Develop Dyssynergic Defecation?
Muscles in the abdomen, rectum, anus, and pelvic floor must all work together in order to facilitate defecation. Most patients with dyssynergic defecation show an inability to coordinate these muscles. Most often this problem of coordination consists either of impaired abdominal or rectal muscle contraction together with tightening rather than relaxing of the anal muscles during defecation, or not enough relaxation of the anal muscles. This lack of coordination (dyssynergia) of the muscles that are involved in defecation is primarily responsible for this condition. In addition, at least one-half (50-60%) of patients with dyssynergic defecation also show evidence of a decrease in sensation in the rectum. In other words, their ability to perceive the arrival of a bowel movement in the rectum is abnormal. This condition is also known as rectal hyposensitivity.

What are the Symptoms of Dyssynergic Defecation?
Patients with dyssynergic defecation have a variety of bowel symptoms. As with many conditions involving the bowel, individuals may hesitate to speak plainly about these symptoms. Some may feel embarrassed to even mention bowel related matters. Others may simply not know how to describe their symptom experiences or know what to discuss.

It is important for individuals to keep in mind that anything out of the ordinary, rather than being a source of embarrassment, is often the very reason for the visit to their healthcare provider. It is necessary to speak plainly to the provider so they can most effectively diagnose and treat the problem. It is not unusual, for example, for a person with long-term constipation to find it necessary to use their finger to move stool out of the anus (providers call this disimpacting stool with digital maneuvers). Another common example is for women to use their fingers to press on their vagina to move bowel movements (providers call this vaginal splinting). In other words, these are medical signs that are meaningful to a healthcare provider but the individual needs to feel at ease talking them and describing these symptoms.

Patients and healthcare providers both benefit from establishing a relationship of comfort and trust. Open communication is essential. It may be easier to write down the troublesome signs and symptoms before the visit. The use of a symptom questionnaire or bowel movement diary is a helpful way to communicate and identify the exact nature of a bowel problem.

A number of studies have found that the following are common symptoms or signs associated with dyssynergic defecation:

- Excessive straining
- A feeling of incomplete evacuation
- The passage of hard bowel movements
- Having less than 3 bowel movements per week
- The use of digital maneuvers (fingers) to help have a bowel movement.
- Prolonged duration of sitting on the toilet.
- Making multiple visits a day to have a bowel movement.

Backache, heartburn, and anorectal surgery have been noted as more likely in patients with pelvic floor dysfunction. However, symptoms alone are usually not enough to predict dyssynergic defecation.

How is Dyssynergic Defecation Diagnosed?
General Issues – The healthcare provider will begin with a history. This is when they ask you to explain your symptoms and timeline of when they started as well as any other health problems you have. They will also do an examination of the abdomen and the area around the anus and rectum. The provider will want to rule out other conditions that can cause constipation, such as disease, injury, or inflammation. Many conditions, like an anal fissure, hemorrhoid, stricture, spasm, or tenderness can be diagnosed by examination in the doctor's office. If the healthcare provider suspects dyssynergic defecation, they may suggest one or more tests before making a definitive diagnose. Also, because many patients are unable to recall their symptoms accurately, a one-to-two-week bowel movement diary that can be kept on a mobile phone may be useful. There are several options for this type of diary, such as "constipation stool diary APP®" or "My GI Health".

Conditions may also co-exist with dyssynergic defecation. Examples of common tests to identify other conditions include blood tests, sigmoidoscopy (examination of the inside of the sigmoid colon and rectum using a thin, flexible, lighted tube), and colonic transit time tests. A colonic transit time test is a simple way to study how quickly the bowel movement moves through the colon. Capsules containing small plastic markers are swallowed and x-rays taken over several days. Transit time is measured based on the progress of the markers, which eventually pass out of the body. A newer and more comprehensive test that measures transit through the stomach, small bowel and colon, uses a swallowable capsule called the wireless motility capsule test. Slow or delayed transit time leads to infrequent bowel movements, straining, and hard BMs. But dyssynergic defecation can make bowel movement passage much more difficult regardless of whether transit time in the colon is normal or delayed.

Digital Rectal Examination – The physical and digital examination of the anal and rectal area is not only important, but is often most helpful in making a diagnosis. The physical inspection will reveal visible, abnormalities to the skin and tissue. In the digital exam, the healthcare provider will carefully insert a lubricated, gloved finger into the anus. This again is helpful to reveal possible abnormalities, including lack of sensation in the rectum. During the digital exam, the patient is asked to bear down as if having a bowel movement. This exam provides clues to the provider, as to whether or not a patient has dyssynergic defecation.

Digital rectal examination is a good screening tool for identifying dyssynergia. Despite this, not all doctors have sufficient knowledge of this useful clinical tool. This is an area of clinical medicine where improved training is needed. Research shows that rectal examination by experts can detect dyssynergic defecation in about 80% of patients.
If dyssynergic defecation is suspected after the physical examination, the healthcare provider will likely order one or more tests to confirm the suspicion. These tests can measure different functions in the colon and rectum and identify abnormal features.

Anorectal manometry is a test that measure strength or weakness of the anal muscles as well as sensation and reflex activity in the rectum. Importantly, it can identify the abnormal or dyssynergic pattern of defecation, enabling the physician to recommend a treatment called biofeedback therapy. The test is performed with the patient lying down comfortably and by placing a flexible, pencil-thick plastic probe into the rectum. It is generally well tolerated and takes about an hour. It is an essential test for a diagnosis of dyssynergic defecation.

A balloon expulsion test examines pelvic floor relaxation and opening of the anal canal. A balloon filled with water is placed in the rectum and, in private, the person expels it. If unable to expel it in a timely manner, normally within one minute, dyssynergic defecation should be suspected. However, this test is most useful to rule out dyssynergia, but less useful to identify the condition.

Defecography uses a special x-ray machine to record moving images of a semi-solid paste (barium) as it passes through the rectum. This imitates passing a soft bowel movement and provides useful information about any changes to colon. However, many people are uncomfortable performing this test and it is costly.

Manometry, balloon expulsion test along with physical examination remains the preferred method of diagnosing Dyssynergic Defecation.

How is Dyssynergic Defecation Treated?
Dyssynergic defecation can be effectively treated with education and pelvic floor biofeedback therapy. The healthcare provider will begin by reviewing past strategies, which may have been used by the patient in trying to treat their constipation. The future treatment plan will depend on what underlying factors may now be contributing to the chronic constipation.

Standard Treatment – Different remedies may have been tried, with little success, to relieve symptoms prior to being diagnosed with dyssynergic defecation. Coexisting issues that are present in addition to the dyssynergic defecation still need to be addressed to move forward with successful treatment. For example, a review of all medicines and supplements being taken is important to identify any that may be constipating.

There is little evidence that changes in diet and exercise will improve chronic constipation. However, a balanced diet, adequate fiber (20 to 30 grams per day), and regular exercise promote good health in general.

When and how often to attempt bowel movements are important issues. Whenever possible, one should always respond to the urge to have a bowel movement, rather than hold it back. The body has internal mechanisms that naturally stimulate the bowel after waking and after meals. One can take advantage of this by attempting bowel movements, at least twice a day, about 30 minutes after meals. When attempting a bowel movement, it is important not to strain too long (no more than 5 minutes) nor push too much (no more than about one-half effort). Digital or manual maneuvers to empty BMs from the rectum should be stopped. Bowel re-training involves sitting on the toilet for 10 minutes at the same time each day, preferably 30 minutes after meals, so the gut can get reprogrammed into the habit of having regular bowel movements.

A healthcare provider may recommend laxatives in order to help change bowel movement consistency or increase movement through the bowel. Several types of laxatives are available. Bulk forming laxatives (fiber supplements), along with stool softeners and osmotic laxatives such as magnesium compounds or senna or polyethylene glycol (Miralax, Glycolax), change stool consistency. Stimulant laxatives cause rhythmic muscle contractions in the bowel to propel stool. All are available without prescription, but for chronic constipation, should be taken under a doctor's guidance. Today, several other prescriptions drugs are available for treatment of chronic constispation and this includes lubiprostone (Amitiza®), linaclotide®, plecanatide (Trulance®), prucalopride (Motegrity®), and a non-pharmacological capsule device called the Vibrant Capsule (Vibrant®).

Specific Treatment – When muscles under voluntary control in the pelvic floor fail to relax in the way needed for a normal pattern of defecation, their function is best improved through various learning procedures. Neuromuscular training using biofeedback techniques has been shown to be beneficial. Symptom improvement has been reported in more than two-thirds of patients.

The goal of biofeedback therapy is to restore a normal pattern of defecation. Biofeedback therapy is an instrument-based learning process. In biofeedback, special sensors and a computer are used to painlessly monitor muscle and sensory responses. Bowel training additionally may involve special devices used to practice having a bowel movement. Working with a knowledgeable therapist, the patient learns to change abnormal responses to more normal patterns. In patients with dyssynergic defecation, there are usually two goals for biofeedback therapy.

1. To correct the abnormal coordination (dyssynergia) of the abdominal, rectal and anal sphincter muscles in order to achieve a normal pattern and complete evacuation.
2. To improve rectal sensory perception if rectal sensation is abnormal.

The patient will undergo repeated sessions (typically 6) of biofeedback therapy training. During training, the individual will learn several things:

- How the muscles of the pelvic floor work during defecation
- How to use abdominal muscles and diaphragmatic breathing to improve push effort
- How to relax the pelvic floor during a bowel movement
- How to be more aware of the sensation of rectal fullness or desire to defecate

The number and length of neuromuscular training sessions varies depending on individual needs. Typically, each training session takes one hour. On average, 6 training sessions, performed once every week or two weeks. After completion of biofeedback therapy training, periodic reinforcements at six weeks, three months, six months, and twelve months may provide additional benefit, and also improve the long-term outcome.

There are several means and methods available to perform biofeedback therapy for dyssynergia defecation. Effective therapy requires a specially trained therapist working closely with a willing patient and a multi-disciplinary approach. The therapy has no adverse effects. This treatment is scientifically proven. However, effective biofeedback therapy to treat dyssynergic defecation is only offered in a few centers. This lack of

availability is in part due to lack of insurance payment for this simple, yet effective therapy and lack of standardized and dedicated equipment and protocol. Hopefully, through public awareness and education of insurance payors, and improved instruments including home biofeedback therapy this treatment program can become more widely available.

How Effective is Biofeedback Therapy?

In the last few years, several research studies in adults with dyssynergic defecation have been reported. While they differ significantly in the way in which they were conducted, the studies all concluded that biofeedback therapy is superior to controlled treatment approaches such as diet, exercise, laxatives, and several other methods.

In order to treat the large number of constipated patients in the community, development of a home based, self-training program will be essential. Recently, research has shown that home biofeedback therapy worked just as well in patients with dyssynergic defecation as in-office therapy. Newer, user friendly home biofeedback devices may be available in the near future.

Summary

Dyssynergic defecation is common and affects up to one-half of patients with chronic constipation. Unfortunately, it is not well recognized and on average it takes 5-10 years of constipation symptoms before patients are identified with this condition. It is due to an inability to coordinate the abdominal and pelvic floor muscles to evacuate bowel movements. It is possible to diagnose this problem through a medical history, physical examination, and specialized tests of anorectal function. Randomized controlled trials have now shown that biofeedback therapy is effective and superior to other treatment approaches. The symptom improvement is due to a change in underlying function of the muscles and nerves involved with defecation. Wider availability of biofeedback therapy including the use of home biofeedback therapy devices, could result in significant improvement of symptoms for patients with this disorder.

About IFFGD

The International Foundation for Gastrointestinal Disorders (IFFGD) is a 501(c)(3) nonprofit education and research organization. We work to promote awareness, scientific advancement, and improved care for people affected by chronic digestive conditions. Our mission is to inform, assist, and support people affected by gastrointestinal disorders. Founded in 1991, we rely on donors to carry out our mission. Visit our website at: www.iffgd.org.

IFFGD
537 Long Point Road, Unit 101
Mt Pleasant, SC 29464