Symptomatic Approach to Gas, Belching and Bloating with OMT Treatment Options

Carly Gennaro, DO; Helaine Larsen, DO

1 Good Samaritan Hospital Medical Center, West Islip, NY

ABSTRACT: Intestinal gas production is a normal physiologic process. However, there are many pathophysiologic processes that can cause patients to experience bloating, abdominal pain, and distension from abnormal gas production or mobility. It is important for primary care physicians to understand the causes and mechanisms for both physiologic and pathologic gas and bloating in order to appropriately and effectively treat our patient population. This article will review the differential diagnosis of gas, bloating and belching, the necessary work-up, and the management of these disorders.

INTRODUCTION
Gas, bloating, and belching are common gastrointestinal (GI) symptoms reported in the primary care office. As many as 30% of the U.S. population experiences bloating symptoms, and most of these patients describe their symptoms as moderate to severe.1 Common causes of these symptoms include aerophagia, gastroesophageal reflux disease (GERD), Irritable Bowel Syndrome (IBS), small bacterial intestinal overgrowth (SIBO), and malabsorption. These disorders can lead to significant discomfort and pain. Once diagnosed, there are treatment options including dietary changes and medications that can provide relief and improve the patient’s quality of life.

GAS PRODUCTION
Ninety-nine percent of gas in the intestinal tract consists of nitrogen (N2), oxygen (O2), carbon dioxide (CO2), hydrogen (H2) and methane. Swallowing is the primary cause of gas in the stomach. Every time a person swallows air is ingested. This air then travels down the esophagus through peristalsis and accumulates in the proximal stomach. When beverages with CO2 and bicarbonate are ingested, several milliliters of gas, comprised mostly of nitrogen (N2), oxygen (O2), carbon dioxide (CO2), hydrogen (H2), and methane, are all ingested. Larger volumes of gas accumulate. As the stomach fills with gas, the stomach wall is stretched and the stomach muscles contract. This process is called “sphincter crural diaphragm relaxation” or “hypocontractility”. This relaxation allows intragastric air to escape. This mechanism prevents the stomach from becoming damaged by excessive distention.2

Many patients with GERD report increased belching. Transient lower esophageal sphincter (LES) relaxation is the major mechanism for both belching and GERD. Recent studies have shown that the number of belches is related to the number of times someone swallows air. These studies have concluded that patients with GERD swallow more air in response to heartburn and therefore belch more frequently.3 There is no specific treatment for belching in GERD patients, so for now, physicians continue to treat GERD with proton pump inhibitors (PPIs) and histamine-2 receptor antagonists with the goal of suppressing heartburn and chest pain symptoms. Some patients who undergo fundoplication as a treatment for reflux will lose the ability to belch leading to bloating and distention of the stomach and intestines.1

AEROPHAGIA
Aerophagia is the condition of excessive air swallowing and belching. Patients with this disorder can belch up to 20 times per minute. Stress can increase the frequency of belching. Aerophagia causes supragastric belching. There are two ways supragastric belching can occur. First, a patient can create negative intrathoracic pressure through inspiration against a closed glottis, allowing air to enter the esophageal body. Second, patients can bring air into the esophagus using their pharynx, palate and tongue. Supragastric belching or aerophagia usually does not occur with meals and does not have a scent or taste. It is considered a behavioral disorder exacerbated by anxiety. Treatment is usually behavior therapy or speech therapy to try to unlearn the belching behavior.2

FLATULENCE
Flatulence is flatus passed through the anus. For most people flatulence is normal and does not cause pain or discomfort. However, many people experience excessive bloating and pain and distension. The normal amount of flatus passed each day is usually between 500 and 1500 mL.5 In fact, most patients who complain of excessive flatus will still fall into this range. Physiologic gas can be caused by intake of lactose, fructose, sorbitol; indigestible starches in fruits, vegetables, and legumes; and complicated carbohydrates. Simethicone (Mylicon® and Gas-X®) is a common medication used for abdominal bloating but has not been shown to relieve excessive flatulence.6 Simethicone works by changing the surface tension of gas bubbles allowing for easier breakdown. Beano®, a dietary supplement that contains the enzyme, alpha-galactosidase, is a commonly used over-the-counter medication for excess flatulence. The polysaccharides and oligosaccharides found in foods such as legumes, broccoli and Brussels sprouts are metabolized and fermented by large intestinal flora to produce gases. The enzyme in Beano® breaks these complex sugars into simple sugars making them easier to digest with less gas production.4

IRRITABLE BOWEL SYNDROME (IBS)
IBS is abdominal pain or discomfort associated with altered bowel habits. It is the most commonly diagnosed GI disorder accounting for about 30% of all GI referrals.8 Criteria for IBS is recurrent abdominal pain or discomfort associated with at least one of the following three symptoms: (1) pain with defecation; (2) pain change in stool frequency; (3) pain change in stool form. Defecation is identified as being formed using these clinical criteria and limited testing. Common symptoms are abdominal pain, bloating, alternating diarrhea and constipation, and pain relief after defecation. Pain can be present anywhere in the abdomen, but the lower abdomen is the most common location. Abdominal bloating is a common complaint for the majority of these patients. Abdominal distension may also occur. The difference between bloating and distension is that bloating is the sensation of gassiness and fullness while distension is an actual increase in abdominal girth.9 Studies have however shown that although patients with IBS feel gassy, they have a normal volume of gas in their intestinal tract compared to healthy individuals.10 It is now believed that the cause of bloating and distension is due to impaired gas transit causing gas retention.11

There are three main types of IBS: IBS with predominant diarrhea, IBS with predominant constipation and IBS with mixed bowel habits. Patients should be encouraged to use the Bristol stool form scale (Table 2) to record stool consistency. When using the scale patients should not be on any medications to treat bowel habits. Patients with constipation-variant IBS experience more abdominal distension due to prolonged transit time than those with diarrhea-variant IBS.11

<table>
<thead>
<tr>
<th>TABLE 2: Bristol stool form scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type 1</strong></td>
</tr>
<tr>
<td><strong>Type 2</strong></td>
</tr>
<tr>
<td><strong>Type 3</strong></td>
</tr>
<tr>
<td><strong>Type 4</strong></td>
</tr>
<tr>
<td><strong>Type 5</strong></td>
</tr>
<tr>
<td><strong>Type 6</strong></td>
</tr>
<tr>
<td><strong>Type 7</strong></td>
</tr>
</tbody>
</table>

Gas related symptoms are commonly associated with food intolerance after eating poorly absorbable fermentable carbohydrate and polyols (FODMAPs). IBS patients may have a heightened sensitivity to poorly absorbable carbohydrates. These carbohydrates are readily fermented by colonic bacteria leading to gas production, abdominal pain and flatulence.12 It is important to obtain a full history of the patient’s diet to try to determine which foods are exacerbating the patient’s symptoms.
Symptomatic Approach to Gas, Belching and Bloating with OMT Treatment Options

Carly Gennaro, DO;† Helaine Larsen, DO‡

†Good Samaritan Hospital Medical Center, West Islip, NY
‡Prevention and Wellness

Osteopathic Manipulative Treatment

Osteopathic Family Physician  |  Volume 11,  No. 2  |  March/April, 2019

© 2019 by the American College of Osteopathic Family Physicians. All rights reserved. Print ISSN: 1877-573X

ABSTRACT: Intestinal gas production is a normal physiologic process. However, there are many pathophysiologic processes that can cause patients to experience bloating, abdominal pain, and distension from abnormal gas production or mobility. It is important for primary care physicians to understand the causes and mechanisms for both physiologic and pathologic gas and bloating in order to appropriately and effectively treat our patient population. This article will review the differential diagnosis of gas, bloating, and belching, the necessary work-up, and the management of these disorders.

GAS PRODUCTION

Ninety-nine percent of gas in the intestinal tract consists of nitrogen (N2), oxygen (O2), carbon dioxide (CO2), hydrogen (H2) and methane. Swallowing is the primary cause of gas in the gastrointestinal tract. When beverages with CO2 and bicarbonate are consumed, the normal amount of flatus passed each day is usually between 500 and 1500 mL. In fact, most patients who complain of pain after eating poorly absorbable fermentable carbohydrate and polyols (FODMAPs). IBS patients may have a normal volume of gas in their intestinal tract compared to healthy individuals. It is now believed that the cause of bloating and distension is due to impaired gas transit causing gas retention. There are three main types of IBS: IBS with predominant diarrhea, IBS with predominant constipation and IBS with mixed bowel habits. Patients should be encouraged to use the Bristol stool form scale (Table 2) to record stool consistency. When using the scale patients should not be on any medications to treat bowel habits. Patients should be encouraged to use the Bristol stool form scale (Table 2) to record stool consistency. When using the scale patients should not be on any medications to treat bowel habits. Patients with constipation-variant IBS experience more abdominal distension due to prolonged transit time than those with diarrhea-variant IBS. It is important to obtain a full history of the patient’s diet to try to relieve excessive flatulence.

KEYWORDS:
Belching
Bloating
Gas
Osteopathic Manipulative Treatment
Prevention and Wellness

INTRODUCTION

Gas, belching, and bloating are common gastrointestinal (GI) symptoms reported in the primary care office. As many as 30% of the U.S. population experiences bloating symptoms, and most of these patients describe their symptoms as moderate to severe. Common causes of these symptoms include aerophagia, gastroesophageal reflex disease (GERD), irritable bowel syndrome (IBS), small bacterial intestinal overgrowth (SIBO), and malabsorption. These disorders can lead to significant discomfort and pain. Once diagnosed, there are treatment options including dietary changes and medications that can provide relief and improve the patient’s quality of life.

The primary cause of gas production in the colon is fermentation by colonic bacteria. Most people have about 100-200 milliliters of gas in our GI tract at any given time. Approximately 50% different species of bacteria reside within the colon, and nearly all of these species are anaerobes. Species of colonic bacteria differ between each individual depending on diet, antibiotic use, and how the patient feels as an infant. The volume of gas increases after eating. Some food products that are incompletely digested within the small intestine such as lactose, fructose, sorbitol, legumes, fiber, and complex carbohydrates are broken down in the colon by colonic bacteria. The enzyme in Beano (β-galactosidase, is a commonly used over-the-counter medication that is effective in the treatment of lactose intolerance). Simethicone works by changing the surface tension of gas bubbles allowing for easier breakdown. Betadine, a dietary supplement that contains the enzyme, alpha-galactosidase, is a commonly used over-the-counter medication for excessive flatulence. The polysaccharides and oligosaccharides found in foods such as legumes, broccoli and brussels sprouts are metabolized and fermented by large intestinal flora to produce gases. The enzyme in Beano breaks these complex sugars into simple sugars making them easier to digest with less gas production. This mechanism prevents the stomach from becoming damaged by excessive dilatation.

Many patients with GERD report increased belching. Transient lower esophageal sphincter (LES) relaxation is the major mechanism for both belching and GERD. Recent studies have shown that the number of belches is related to the number of times someone swallows air. These studies have concluded that patients with GERD swallow more air in response to heartburn and therefore belch more frequently. There is no specific treatment for belching in GERD patients, so for now, physicians continue to treat GERD with proton pump inhibitors (PPIs) and histamine-2 receptor antagonists with the goal of suppressing heartburn and chest pain symptoms. Some patients who undergo fundoplication as a treatment for reflux will lose the ability to belch leading to bloating and distal ileus of the stomach and intestines.

Belching is the condition of excessive air swallowing and belching. Patients with this disorder can belch up to 20 times per minute. Stress can increase the frequency of belching. Aerophagia causes supragastric belching. There are two ways supragastric belching can occur. First, a patient can create negative intrathoracic pressure through inspiration against a closed glottis, allowing air to enter the esophageal body. Second, patients can bring air into the esophagus using their pharynx, palate and tongue. Supragastric belching or aerophagia usually does not occur with meals and does not have a scent or taste. It is considered a behavioral disorder exacerbated by anxiety. Treatment is usually behavior therapy or speech therapy to try to unlearn the belching behavior.

FLATULENCE

Flatulence is flatus passed through the anus. For most people flatulence is normal and does not cause pain or discomfort. However, many patients experience excessive belching and pain. The normal amount of flatus passed each day is usually between 500 and 1500 mL. In fact, most patients who complain of excessive flatus will still fall into this range. Physiologic gas can be caused by intake of lactose, fructose, sorbitol; indigestible starchy starches in fruits, vegetables, and legumes; and fermented beverages. Simethicone (Mylicon® and Gas-X®) is a common medication used for abdominal bloating but has not been shown to relieve excessive flatulence. Simethicone works by changing the surface tension of gas bubbles allowing for easier breakdown. Betadine, a dietary supplement that contains the enzyme, alpha-galactosidase, is a commonly used over-the-counter medication for excessive flatulence. The polysaccharides and oligosaccharides found in foods such as legumes, broccoli and brussels sprouts are metabolized and fermented by large intestinal flora to produce gases. The enzyme in Beano breaks these complex sugars into simple sugars making them easier to digest with less gas production. This mechanism prevents the stomach from becoming damaged by excessive dilatation.

Many patients with GERD report increased belching. Transient lower esophageal sphincter (LES) relaxation is the major mechanism for both belching and GERD. Recent studies have shown that the number of belches is related to the number of times someone swallows air. These studies have concluded that patients with GERD swallow more air in response to heartburn and therefore belch more frequently. There is no specific treatment for belching in GERD patients, so for now, physicians continue to treat GERD with proton pump inhibitors (PPIs) and histamine-2 receptor antagonists with the goal of suppressing heartburn and chest pain symptoms. Some patients who undergo fundoplication as a treatment for reflux will lose the ability to belch leading to bloating and distal ileus of the stomach and intestines.

IRRITABLE BOWEL SYNDROME (IBS)

IBS is abdominal pain or discomfort associated with altered bowel habits. It is the most commonly diagnosed GI disorder and accounts for about 30% of all GI referrals. Criteria for IBS is recurrent abdominal pain at least one day per week in the last three months associated with at least two of the following: 1) association with defecation, 2) change in stool frequency, 3) change in stool form. Diagnosis should be made using these clinical criteria and limited testing. Common symptoms are abdominal pain, bloating, alternating diarrhea and constipation, and pain relief after defecation. Pain can be present anywhere in the abdomen, but the lower abdomen is the most common location. Abdominal bloating is a common complaint for the majority of these patients. Abdominal distension may also occur. The difference between bloating and distension is that bloating is the sensation of gassiness and fullness while distension is an actual increase in abdominal girth. Studies have however shown that although patients with IBS feel gassy, they have a normal volume of gas in their intestinal tract compared to healthy individuals.

FLATULENCE

Flatulence is flatus passed through the anus. For most people flatulence is normal and does not cause pain or discomfort. However, many patients experience excessive belching and pain. The normal amount of flatus passed each day is usually between 500 and 1500 mL. In fact, most patients who complain of excessive flatus will still fall into this range. Physiologic gas can be caused by intake of lactose, fructose, sorbitol; indigestible starchy starches in fruits, vegetables, and legumes; and fermented beverages. Simethicone (Mylicon® and Gas-X®) is a common medication used for abdominal bloating but has not been shown to relieve excessive flatulence. Simethicone works by changing the surface tension of gas bubbles allowing for easier breakdown. Betadine, a dietary supplement that contains the enzyme, alpha-galactosidase, is a commonly used over-the-counter medication for excessive flatulence. The polysaccharides and oligosaccharides found in foods such as legumes, broccoli and brussels sprouts are metabolized and fermented by large intestinal flora to produce gases. The enzyme in Beano breaks these complex sugars into simple sugars making them easier to digest with less gas production. This mechanism prevents the stomach from becoming damaged by excessive dilatation.

Many patients with GERD report increased belching. Transient lower esophageal sphincter (LES) relaxation is the major mechanism for both belching and GERD. Recent studies have shown that the number of belches is related to the number of times someone swallows air. These studies have concluded that patients with GERD swallow more air in response to heartburn and therefore belch more frequently. There is no specific treatment for belching in GERD patients, so for now, physicians continue to treat GERD with proton pump inhibitors (PPIs) and histamine-2 receptor antagonists with the goal of suppressing heartburn and chest pain symptoms. Some patients who undergo fundoplication as a treatment for reflux will lose the ability to belch leading to bloating and distal ileus of the stomach and intestines.

Flatus is flatus passed through the anus. For most people flatulence is normal and does not cause pain or discomfort. However, many patients experience excessive belching and pain. The normal amount of flatus passed each day is usually between 500 and 1500 mL. In fact, most patients who complain of excessive flatus will still fall into this range. Physiologic gas can be caused by intake of lactose, fructose, sorbitol; indigestible starches in fruits, vegetables, and legumes; and fermented beverages. Simethicone (Mylicon® and Gas-X®) is a common medication used for abdominal bloating but has not been shown to relieve excessive flatulence. Simethicone works by changing the surface tension of gas bubbles allowing for easier breakdown. Beano, a dietary supplement that contains the enzyme, alpha-galactosidase, is a commonly used over-the-counter medication for excessive flatulence. The polysaccharides and oligosaccharides found in foods such as legumes, broccoli and brussels sprouts are metabolized and fermented by large intestinal flora to produce gases. The enzyme in Beano breaks these complex sugars into simple sugars making them easier to digest with less gas production. This mechanism prevents the stomach from becoming damaged by excessive dilatation.

Gas related symptoms are commonly associated with food intolerance after eating poorly absorbable fermentable carbohydrate and polyols (FODMAPs). IBS patients may have a heightened sensitivity to poorly absorbable carbohydrates. These carbohydrates are rapidly fermented by colonic bacteria leading to gas production, abdominal pain and flatulence. It is important to obtain a full history of the patient’s diet to try to determine which foods are exacerbating the patient’s symptoms.
used anticholinergic agents. These medications may help patients with gas retention and abdominal distension. Constipation as it has similar, if not greater efficacy, and has less side effects. Milk of magnesia for the use in chronic constipation and IBS with diarrhoea. In patients who fail fiber therapy, polyethylene glycol (Miralax) can be given one tablespoon per day in patients with IBS with constipation to induce diarrhoea. However, some patients will experience abdominal pain and bloating from Miralax. Fiber supplementation is a common treatment for patients who present with chronic constipation. It is very important to determine the cause of constipation before starting on therapy. A lactase dose of pyridoxal (Miralax) is recommended. Miralax works as an osmotic laxative, improving the transit time of food to pass through the GI tract. There is a diverse population of microflora in the intestinal tract. A disruption in this microbiome can cause overgrowth of bacteria. The human body defends itself against overgrowth with gastric acid, intestinal motility, the ileocecal valve, immunoglobulins, and bacteriastic pancreatic and biliary secretions. SIBO syndrome is usually due to disorders of these protective mechanisms including achlorhydria (due to chronic atrophic gastritis or long-term PPI use) and pancreatic exocrine insufficiency. Small intestine obstruction secondary to adhesions, tumors, and strictures can cause slow bowel transit with stasis of feces. Patients with dysmotility may lose all of ileocecal valve secondary to primary peritonitis. In short bowel syndrome, patients may also have loss of the ileocecal valve, allowing large intestinal bacteria to colonize into the small bowel. The connective tissue, scleroderma affects the GI tract in most patients, leading to pseudo-obstruction. Patients with diabetes mellitus may experience delayed gastric emptying due to reduced gastric motility. HAND. Common symptoms of mild SIBO include bloating, flatulence, abdominal pain, and diarrhea. A patient with the more severe disease might have malabsorption. It is very important to consider SIBO as a diagnosis in all patients with motility disorders and abnormalities of the small bowel. Microbial testing of jejunal aspirates is the gold standard for diagnosis. The most common bacteria found in SIBO are Streptococci, Bacteroides, Escherichia, and Lactobacilli. Clinically significant SIBO is diagnosed when bacterial counts exceed 10,000 organisms/mL on jejunal aspirate throughout endoscopy. Because this test is invasive, expensive, and the bacterial overgrowth could be missed during aspiration, this test is not commonly used. The most commonly used testing is by a hydrogen and methane breath test. Carbohydrate fermentation by colonic bacteria is the only source of hydrogen and methane gas production in the human body. During this test, lactulose, glucose or xylose are administered to the patient. The patient is then asked to exhale into a tube and hydrogen or methane is measured. In there are early peak in breath hydrogen or methane levels because the carbohydrate administered will be metabolized in the small bowel by colonic bacteria producing these gases. Treatment of SIBO should start with treating the underlying disease. Antibiotics should cover the bacteria that are associated with causing SIBO. Rifaximin is a commonly used antibiotic as it has direct inhibition and covers gram positives, gram negatives, aerobic and anaerobic bacteria. Other options for treatment are ciprofloxacin, amoxicillin-clavulanic, and metronidazole plus sulfamethoxazole/trimethoprim.

LACTOSE INTOLERANCE

Lactose intolerance occurs after ingestion of lactose in patients with lactase deficiency. When lactase is unavailable, lactose is not able to be digested and instead is fermented by bacteria in the colon. Many common symptoms include abdominal pain, gas, bloating and diarrhoea. Lactose intolerance is diagnosed by hydrogen breath testing and lactose ingestion. The hydrogen breath test is more sensitive and specific than the lactase tolerance test and is widely available.

Small bowel bacterial overgrowth (SIBO), a condition where non-IBS patients. Anxiety, sleep disturbance and somatic symptoms include nausea, vomiting, indigestion and bloating. Other common symptoms are hives, cough, sneezing, asthma and anaphylaxis that are not seen in celiac disease. The mainstay of treatment for celiac disease is adherence to a gluten free diet. Patients should avoid wheat, rye, barley, and most beans. Rice, tapioca, soy, corn, potatoes and wine are safe to eat. Many patients with celiac disease may also develop lactose intolerance but this can be reversed once the immune system heals with gluten restriction.

PROBIOTICS

Various studies have been performed that looked at the efficacy of probiotics in several gastrointestinal diseases. In IBS, multiple studies have shown that the probiotic Bifidobacterium infantis improves symptoms of IBS.[35] In a study that compared Lactobacillus GG to a low FODMAP diet in IBS, both were shown to aid in alleviation of symptoms.[36] Lactobacillus GG is sold under the brand name Culturie, in a study that compared B. infantis to placebo, no better effect was seen for both placebo and Lactobacillus in alleviating IBS symptoms.[37] B. infantis is sold under the brand name Align®. A systematic review of probiotics in IBS showed a trend for improved symptoms. Some probiotics in IBS may relieve symptoms of abdominal pain but have not been shown to decrease the incidence of SIBO.[38] Patients trying to avoid fructose should have a low diet in fructose and juices containing high amounts of fructose should be avoided. Fruits that are high in fructose include: sweet cherries, prunes, dates, beverages sweetened with high fructose corn syrup, honey, and sorbitol containing gum and candy, as sorbitol can decrease fructose absorption.
FIBER-SEQUENT

SMALL INTESTINAL BACTERIAL OVERGROWTH (SIBO)

LACTOSE INTOLERANCE

CELIAC DISEASE

PROBIOTICS
OSTEOPATHIC MANIPULATIVE TREATMENT

Osteopathic manipulative treatment to the abdomen visceral is a useful way for primary care physicians to address abdominal bloating in the office. One commonly used technique for abdominal bloating and constipation is the mesenteric lift technique. The mesenteric lift technique is the mesentry that attaches the intestines to the abdominal wall. The goal of this technique is to improve blood flow and drainage of the vessels to and from lymphatics that course through the mesentery. This in turn will help restore normal intestinal motility. To perform this technique the patient lies supine with knees flexed. The physician places fingers medial to the anterior superior iliac spine (ASIS) and lifts the abdominal contents toward the umbilicus until a release is felt. This technique should be repeated from the opposite lower quadrant. The patient should then apply traction from the left upper quadrant toward the umbilicus and then the right upper quadrant toward the umbilicus. Traction should be held until a release is felt.14

Another technique that can help with abdominal bloating is ganglion inhibition. The celiac ganglion, superior mesenteric ganglion, and inferior mesenteric ganglion carry sympathetic innervation to the intestines. This technique helps to normalize sympathetic innervation to the intestines. For this technique, the patient lies supine and the physician uses his fingers to apply pressure to the ganglion. The celiac ganglion is located inferior to the xiphoid process, inferior mesenteric ganglion under the umbilicus and just in between the two points is the superior mesenteric ganglion. Gentle pressure is applied by the physician’s fingertips at all three points. As the patient exhales the physician allows his or her fingers to sink in, and while the patient exhales the physician presses. Pressure is held until a release is felt. This technique also helps to restore normal intestinal motility.15

CONCLUSION

Normal intestinal gas production is caused by bacterial metabolism in the colon. Belching is a normal physiologic process that can be exacerbated by excessive air swallowing and GERD. Symptoms of bloating are often caused by impaired gastrointestinal transit and slow transit constipation. Foods high in FODMAPs and high gas producing foods can also cause the sensation of bloating. Lastly, bacterial overgrowth and malabsorption syndromes can cause increased gas production in the intestines. Treatment can help in treating the underlying cause. Severe symptoms of abdominal pain and bloating caused by intestinal gas can be debilitating for many patients. Proper diagnosis and treatment can help patients live more normal lives.

AUTHOR DISCLOSURES:

No relevant financial affiliations

REFERENCES:

CONCLUSION

Normal intestinal gas production is caused by bacterial metabolism in the colon. Belching is a normal physiologic process that can be exacerbated by excessive air swallowing and GERD. Symptoms of bloating are often caused by impaired GI transit such as in constipation and IBS. Foods high in FODMAPs and high gas producing foods can also cause symptoms of bloating and abdominal pain. Proper diagnosis and treatment can help patients live more normal lives.

AUTHOR DISCLOSURES: No relevant financial affiliations.

REFERENCES:


