Abdomino-Phrenic Dyssynergia (APD) or Visible Abdominal Distension

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What is Abdomino-Phrenic Dyssynergia (APD) or Visible Abdominal Distension?

Abdominal distension occurs when the abdominal or belly area visibly expands. In most patients, distension develops during daily activity and tends to lessen or disappear after a night's rest. Many people with gastrointestinal (GI) illnesses experience visible abdominal distension.

Bloating or Distension? What's the Difference?

Bloating is described as the **feeling** of swelling or a build up of pressure in the abdomen. Sometimes it can be described as the feeling of an inflated balloon in your stomach or intestines. Distension, however, is the **visible** increase in the width of your abdominal girth, or the area between your hips and chest. Feeling bloated is not always accompanied by the physical symptom of distension.

Learn more about bloating and distension with IFFGD Fact Sheet No. 262 *Understanding Bloating and Distension*

What is considered "normal"?

Over the course of a day, the contents in the abdominal cavity will change. The abdomen includes digestive organs (stomach and intestines). The change in contents include any food or drink taken in and urine or bowel movements that are released. For that purpose, the walls of the abdomen actively change to fit what is inside. This is done by tight control of the muscles that make up the walls. In healthy people, an increase in contents within the abdomen causes the diaphragm to relax. The diaphragm is the muscle that separates the chest from the abdomen and helps with breathing. Relaxing this muscle allows the stomach and other organs to expand into the chest more. The GI tract then has room to hold more contents without having to expand outward.

What causes abdominal distension?

Abdominal distension has been researched by a series of studies. These studies look at the same person when their abdomen is feeling "normal" and when it is distended. These studies used two methods to measure this. First, the amount of contents in the abdomen are measured, including gas in the intestines. The structure of the abdominal walls are measured with CT scan and electromyography (EMG). A CT scan shows x-ray images of the inside of the body. In this case, the pictures show the abdomen wall and the diaphragm. The activity of the muscles in the abdomen are measured by the EMG. This test records the electrical impulses the muscles produce when they move and contract. These studies showed the following points:

- People with abdominal distension have a measurable increase in belly size and an extended stomach.
- Despite that many people believe abdominal distension is caused by extra intestinal gas, this is typically not the case. However, intestinal gas may be the cause in people who have an observed disease such as small intestinal bacterial overgrowth (SIBO). This condition results from a high number of bacteria in the small intestine.
- In the majority of patients, abdominal distension is produced by abnormal activity of the abdominal wall. The diaphragm contracts in a way that pushes abdominal contents downwards and causes the front of the abdomen to expand outwards. Some people experience breathlessness during episodes of abdominal distension which is caused by the diaphragm contracting this way.

What triggers abdominal distension?

People typically describe that distension begins quickly once it is triggered. In the studies described previously, distension occurred in less than 60 seconds in 35% of people, and less than 10 min in another in 26%. Events that can trigger distension may include certain foods and stressors. These potential causes are discussed below.

Eating Meals

Some people who suffer from abdominal distension have a more sensitive gut and intestines. This could cause a feeling of bloating to occur even with minor changes in the gut. In people who regularly respond like this, a small sensation may trigger the abnormal response that produces abdominal distension. In fact, bloating and distension may be related to food intake. A large number of people with bloating, describe that it develops or worsens shortly after meals. Some people express that they are unable to complete a full meal because of bloating. This effect is more obvious when eating large and especially fatty meals. Bloating after meals is a typical trait in specific groups of people. This can include those with dyspepsia and people who binge eat. High fiber foods or fiber supplements are often believed to worsen bloating. Fiber increases the volume of intestinal content, leading to a feeling of bloating.

Learn more about dyspepsia with IFFGD Fact Sheet No. 514 *Upper Abdominal or Stomach Pain (Indigestion)*

Food Intolerances

Specific food intolerances have also been connected with bloating and distension. One example is dairy products, however it has been shown that only a fraction of these cases are truly due to lactose intolerance. This intolerance occurs when the lactase enzyme is not present in the GI tract, preventing dairy from being broken down properly by the body. If symptoms occur with a low amount of dairy, it is unlikely to be caused by an intolerance. Fatty foods and carbonated drinks are other examples and are frequently reported as a cause. Some people say that eating lettuce and other green leafy vegetables cause them gas and abdominal distension.

A recent study showed that people are accurately recognizing distension after eating leafy greens. It is not uncommon for people to report bloating after eating salad. Although distension is occurring, often it is not produced by gas. This study showed that the true cause may be abdominal muscles not working together properly.

Constipation

Some people with bloating and abdominal distension have constipation due to anal dyssynergia. This condition occurs when muscles of the anus do not contract together properly. The anus is the lower opening of the GI tract. Normal bowel movements occur when the abdominal wall is pushing and is then followed by a relaxation and opening of the anal canal. It has been shown that correction of anal dyssynergia can relieve distension and bloating. This can be done through biofeedback, the use of electrical stimulation to help train muscles.

Learn more about constipation with IFFGD Fact Sheet No. 170 *What is Constipation Anyway?*

Diagnosing Abdomino-Phrenic Dyssynergia (APD)

Testing for Abdomino-Phrenic Dyssynergia (APD) or visible abdominal distension is typically not required given the previously discussed symptoms and data. If needed, a CT scan and electromyography (EMG) can be done. Due to the abnormal movement of the diaphragm, which can be associated with APD, an ultrasound can be done to help identify these movements. An ultrasound is a noninvasive test that uses sound waves to produce images of inside the body.

Managing APD

Unfortunately, there are no standardized treatments for APD presently, however there are multiple management strategies that can be explored with your healthcare provider.

Lifestyle and Dietary Modifications

The initial line of treatment in patients with abdominal distension would be to target triggers, such as increased content in the intestines. Specifically, it is wise to avoid diets rich in fermentable foods, such as yogurt, kimchi, and kefir, as well as fiber supplements.

Treating Underlying Constipation

If present, constipation should be treated to help with symptoms. Some common treatments for constipation are also known for causing bloating. It is best to always ask your healthcare provider before starting treatment. Treating constipation also varies depending on severity. Some known treatments for constipation are listed below:

- Increased hydration and exercise
- Biofeedback
- Laxatives
- Medications
- Bowel retraining

Learn more about treating constipation by visiting IFFGD's website: *https://aboutconstipation.org/treatment/treatment-overview/*

Prokinetics and Spasmolytics

How each person experiences symptoms, particularly bloating, is a key factor often associated with distension. As a result, treatment with prokinetics or spasmolytics may relieve abdominal symptoms. Prokinetics are drugs that increase the frequency of contractions in the GI tract. This may improve movement of contents through the GI tract and stomach emptying. Spasmolytics are drugs that help reduce smooth muscle spasms. Smooth muscles make up the lining of the GI tract and other organs.

Biofeedback

As mentioned previously, biofeedback is the use of electrical stimulation to help train muscles. Biofeedback has been proven useful to correct muscle tone and resolve distension. The use of this treatment, however, is limited as it can be complex and costly. A new standardized biofeedback technique has been developed in Spain. Unfortunately, it is not widely available but can be found in some specialized medical centers.

About IFFGD

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