

## **An overlook on various causes of irritable bowel syndrome (IBS)**

**Ratnaraj Patil\*<sup>1</sup>, Sachin Naik<sup>2</sup>**

1. PG Scholar (*Rognidan & Vikrutti Vidynan*),

2. MD (Ayu) Associate Professor,

Dept. of *Rognidan & Vikrutti Vidynan*, School of Ayurveda,

D.Y.Patil Univeristy, Nerul, Navi Mumbai Maharashtra, India

\*Corresponding author: [ratly007@gmail.com](mailto:ratly007@gmail.com)

### **ABSTRACT**

Irritable Bowel Syndrome (IBS), which is classified as a functional gastrointestinal disorder, is a chronic condition of the lower gastrointestinal tract. Not easily characterized by structural abnormalities, infection, or metabolic disturbances, the underlying mechanisms of IBS have for many years remained unclear. Recent research, however, has lead to an increased understanding of IBS. As a result, IBS is now considered an organic and, most likely, neurologic bowel disorder. The symptoms of the condition do not leave any visible signs of damage or disease on the digestive tract, making IBS hard to study microscopically. In this article we have tried to give an overlook over the causes of IBS.

Keywords: Irritable bowel syndrome, Causes

### **INTRODUCTION**

- IBS is often referred to as spastic, nervous or irritable colon. Its hallmark is abdominal pain or discomfort associated with a change in the consistency and/or

frequency of bowel movements. Although the causes of IBS have not to date been fully elucidated, it is believed that symptoms can occur as a result of a combination of factors, including visceral hypersensitivity, altered bowel motility, neurotransmitters imbalance, infection and psychosocial factors

- Exact Cause Remains Unknown, No Known Structural or Anatomical Explanation, Several Mechanisms Have Been Proposed, No single mechanism.

### **CONCEPT OF IBS**

#### **What is Irritable Bowel Syndrome (IBS)?**

Irritable Bowel Syndrome is a chronic condition of the lower gastrointestinal tract. The symptoms of IBS may include abdominal pain, distension, bloating, indigestion and various symptoms of defecation. There are three subcategories of IBS, according to the principal symptoms. These are pain associated with diarrhoea; pain associated with constipation; and pain and diarrhoea

alternating with constipation. Each patient's symptoms are unique. While IBS may occur as an occasional nuisance for some people, others may experience intense pain that compromises their quality of life.

Irritable bowel syndrome is a condition that affects the function and behaviour of the intestines. Normally, the muscles lining the intestines intermittently contract and relax to move food along the digestive tract. In IBS, this pattern is disturbed, resulting in uncomfortable symptoms. More than 40 million people are affected by IBS. It is important to remember that patients with Inflammatory Bowel Disorder (IBD) can also have IBS.

Irritable bowel syndrome is an intestinal disorder causing pain in the stomach, gas, diarrhoea, and constipation. IBS is associated with stress, anxiety, or depression.

### **Causes of IBS**

The exact cause of IBS is unknown. Potential causes may include sensitivity of the GI tract to gas and bloating, alteration of the faecal flora (bacteria) within the intestines, or altered levels of specific compounds or chemicals within the body, such as serotonin. Having a recent GI track infection and having a history of IBD may also be a risk factor for IBS. In addition, many people with IBS report more symptoms after eating specific foods and beverages, such as spicy foods, certain fruits and vegetables, foods containing wheat, coffee, alcohol and milk.

### **Possible Causal Contributors**

- Altered bowel motility
- Visceral hypersensitivity
- Psychological factors
- Imbalanced neurotransmitters

- Altered intestinal flora
- Increased cytokine production
- Poor general diet/balance of fibre
- Large consumption of irritants
- Food Intolerance
- Genetic/psychological

- **Overactive muscle contractions in the intestine:** The walls of the intestines are lined with layers of muscle that contract as food moves through the digestive tract. Contractions that are stronger and last longer than normal can result in bloating, gas and diarrhoea. On the other hand, weaker, shorter intestinal contractions can slow down the passage of food and lead to hard, dry stools and constipation.

- **Nervous system abnormalities/overstimulation:** The abdomen normally stretches when there is gas or stool present. However, abnormalities in the nerves of the digestive system may cause 1) greater than normal stretching that leads to discomfort or 2) overactive signals suggesting stretching when everything is actually normal. In either scenario, the dysfunctional nerves result in pain, diarrhoea or constipation.

- **Inflammation in the intestines:** Some people with IBS have an increased number of immune-system cells in their intestines. This immune system response is associated with pain and diarrhoea.

- **Infections:** Other theories concerning IBS associate the inflammation of enteric mucosa or neural plexuses with symptoms. It is hypothesized that inflammatory cytokines may activate peripheral sensitization or hyper motility. One group of researchers was able to predict the development of IBS in patients with infectious enteritis in the presence of stressful life events and hypochondriasis. Researchers in Ontario

recently demonstrated that post infection inflammation (*Trichomonas spiralis*) alters visceral sensitivity. In this particular study, NIH Swiss mice were infected with *T. spiralis*. Six days after infection the mice experienced jejunal enteritis, which returned to normal after 28 days. Using a latex balloon placed in the distal colon, investigators found hyperalgesic sensory response following distension that persisted despite the lack of acute inflammation. IBS can develop after a severe infection of the gastrointestinal tract (gastroenteritis) caused by bacteria or a virus. IBS may also be associated with a surplus of bacteria in the intestines (bacterial overgrowth). Changes in bacteria in the gut (microflora or microbiome): Microflora is the "good" bacteria that live in the intestines and play a key role in health. The microflora in people with IBS may be dysfunctional or differ from the microflora found in healthy people.

- Neurotransmitters IBS patients demonstrate significant differences in pain perception, and a variety of perceptual abnormalities related to gastrointestinal stimuli may be more frequent in irritable bowel sufferers. This sensitivity develops as a result of visceral hyperalgesia. Studies evaluating somatic stimuli have demonstrated that the lower tolerance for pain in patients with IBS occurs primarily in the bowel. Recent studies associate neurotransmitters with IBS. Serotonin is located in the central nervous system (5%) and the gastrointestinal tract (95%), and when it is released into the body it results in the stimulation of intestinal secretion and peristaltic reflex and in symptoms such as abdominal pain,

bloating, nausea, and vomiting. These preliminary studies suggest increased serotonin levels in the plasma and in the rectosigmoid colon of patients with IBS.

**In addition, there are certain triggers that can cause IBS symptoms to flare up or remerge**

- **Stress:** Most people with IBS experience worse or more frequent signs and symptoms during periods of increased stress. Though stress may aggravate symptoms, it does not cause them.
- **Specific foods:** True food allergies do not cause IBS but many people experience worse symptoms when they eat or drink certain foods or beverages such as wheat, dairy, beans, and carbonated drinks.
- **Hormonal changes:** Hormones may also play a role. For example, many women often report more symptoms when they are menstruating. The role of hormones (especially estrogen) can trigger IBS; many women report increased or worsening symptoms according to their menstrual cycles

## SUMMARY

- Lifestyle disorders like unhealthy dietary habits, physical habits, disturbed sleep and rest patterns are the principal factors that cause many digestion related disease. Irritable bowel syndrome (IBS) is also one such disease which occurs due to the ingestion of unwholesome diet.
- Irritable bowel syndrome is not a disease, but rather a condition that affects the function and behaviour of the intestines. It is characterized by recurrent abdominal pain and bowel

movement issues that can be difficult to treat. Signs and symptoms of IBS are usually not severe or life-threatening, but finding relief may be frustrating.

- Treatment of IBS is multifactorial and includes management of lifestyle factors such as diet and stress as well as medications.
- There are also a number of medications specifically approved for IBS that are designed to combat some of the proposed causes of IBS, such as overactive muscle contraction or bacterial overgrowth. These may include linaclotide (Linzess), rifaximin (Xifaxan), or eluxadoline (Viberzi)

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*Ratnaraj Patil, Sachin Naik*

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