Small Intestine Bacterial Overgrowth:

Often-Ignored Cause of Irritable Bowel Syndrome

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Our experience has been that naturopathic approaches to irritable bowel syndrome (IBS) tend to be highly successful. Often, uncovering and removing hidden food intolerances, adding mindfulness to a rushed approach to meals, or restoring production of digestive acid or enzymes is the key to resolving IBS. But what about those cases in which bloating, abdominal pain, constipation, or diarrhea remain unchanged? After more life-threatening diagnoses are ruled out, where do you turn?

Small intestine bacterial overgrowth (SIBO) is a condition in which abnormally large numbers of commensal bacteria are present in the small intestine. SIBO is a common cause of IBS – in fact it is involved in over half the cases of IBS and as high as 84% in one study using breath testing as the diagnostic marker.[1,2] It accounts for 37% of cases wherein endoscopic cultures of aerobic bacteria are used for diagnosis.[3] Eradication of this overgrowth leads to a 75% reduction in IBS symptoms.[4] Bacterial overgrowth leads to impairment of digestion and absorption and produces excess quantities of hydrogen and/or methane gas. These gases are not produced by human cells but are the metabolic product of fermentation of carbohydrates by intestinal bacteria. When commensal bacteria (oral, small intestine or large intestine) multiply in the small intestine to the point of overgrowth, IBS is likely. Hydrogen/methane breath testing is the most widely used method of testing for this overgrowth. *Stool testing has no value in diagnosing SIBO.*

Symptoms of SIBO include:

- bloating/ abdominal gas
- flatulence, belching
- abdominal pain, discomfort, or cramps
- constipation, diarrhea or a mixture of the two
- heartburn
- nausea
- malabsorption: steatorrhea, anemia
- systemic symptoms: headache, joint/ muscle pain, fatigue, rosacea

Other diseases associated with SIBO include hypothyroidism, lactose intolerance, Crohn's disease, systemic sclerosis, celiac disease, chronic pancreatitis, diabetes with autonomic neuropathy, fibromyalgia and chronic regional pain syndrome, hepatic encephalopathy, nonalcoholic steatohepatitis, interstitial cystitis, restless leg syndrome, and acne rosacea.[5–17]

In our practices we have found that the following indicators increase the chances that a patient's IBS is caused by SIBO:

- when a patient develops IBS following a bout of acute gastroenteritis.
- when a patient reports dramatic transient improvement in IBS symptoms after antibiotic treatment
- when a patient reports worsening of IBS symptoms from ingesting probiotic supplements which also contain *pre*biotics
- when a patient reports that eating more fiber increases constipation and other IBS symptoms
- when a celiac patient reports insufficient improvement in digestive symptoms even when following a gluten-free diet
- when a patient develops constipation type IBS (IBS-C) after taking opiates
- when a patient has chronic low ferritin levels with no other apparent cause

Mechanisms by which Overgrowth is Prevented

An important protective mechanism against SIBO is proper small intestine motility via the migrating motor complex because stasis promotes bacterial growth.[18] Also key in prevention is gastric, pancreatic, and gall bladder secretion, since hydrochloric acid, enzymes, and bile are bactericidal/static.[19] The use of proton pump inhibitors encourages overgrowth, especially of the hydrogen producing type.[20,21] We also suspect an important role for proper ileocecal valve function in preventing reflux of colonic bacteria into the small intestine.[22]

Definition

Traditionally, $\geq 10^5$ colony-forming units (CFU) per mL of proximal jejunal aspiration has been the definition of SIBO in culturing studies. $\geq 10^3$ CFUs is now the suggested definition due to recent studies revealing $\leq 10^3$ CFUs is the normal level in healthy controls.[23,24] The bacteria most commonly overgrown are both commensal anaerobes (*Bacteroides* 39%, *Lactobacillus* 25%, *Clostridium* 20%) and commensal aerobes (*Streptococcus* 60%, *Escherichia coli* 36%, *Staphylococcus* 13%, *Klebsiella* 11%, *Escherichia coli* 37%, *Enterococcus spp* 32%, *Klebsiella pneumonia* 24%, *Proteus mirabilis* 6.5%).[20,25]

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