

CASE STUDIES
**in Lifestyle
 Medicine**

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No More Pain in the Gut: Lifestyle Medicine Approach to Irritable Bowel Syndrome

Abstract: *Irritable bowel syndrome has often underestimated negative impact of quality of life. Traditional symptomatic treatment does not address underlying complex etiology. Superior results might be achieved with combination of lifestyle medicine, correction of underlying microbial imbalances and retraining of autonomic nervous system as demonstrated in this case presentation.*

Keywords: irritable bowel syndrome; small intestine bacterial overgrowth; low FODMAP diet; microbiome-gut-brain axis



RL met RL for the first time in March of 2009 during her visit to Canyon Ranch spa in Massachusetts, when she came to see me for another opinion on her chronic irritable bowel syndrome (IBS).

At that point RL was a 43-year-old divorced woman, who had been suffering from abdominal cramps and diarrhea since high school. She had an extensive workup that led to the diagnosis of IBS, and over the years she was treated with dicyclomine, hyoscyamine, and other antispasmodics. At age 28, she was hospitalized for acute

pancreatitis attributed to gallstones, and underwent cholecystectomy. Through her 30s she had recurrent episodes of pancreatitis felt to be due to common bile duct stones. She continued to experience severe abdominal pain with each meal for many years for which she was eventually prescribed a narcotic analgesic. She suffered from 6 to 7 loose stools a day, 3 to 4 of those in the morning, and would often be finishing her breakfast sitting on the toilet in pain.

abusive and led to a divorce 3 years later. She lost 30 lbs around the time of her divorce due to worsening abdominal pains and diarrhea. She was started on “as needed” benzodiazepines by her therapist at that time and underwent evaluation for celiac disease, including multiple intestinal biopsies, which were negative.

At the time of her initial appointment with me she had been on alprazolam (Xanax) 0.5 mg 4 times a day and

 **The severity of the impact of IBS on patients' quality of life is often underestimated.** 

She would often notice undigested food particles in the stool, but pancreatic enzymes offered to her by her gastroenterologist in the past provided no relief. She tried a low-fat diet for some time but had no improvement of her diarrhea with that, either.

RL had also been suffering from anxiety since high school. She did not drink alcohol, use tobacco or any drugs. She married young but her marriage was

hydrocodone with ibuprofen (Vicoprofen) 7.5/200 mg with each meal, 3 times a day for 7 years. She felt “addicted” to the medications and wanted to get off them.

RL was a self-described “foodie” who loved food, but could not eat much of it due to pain. She would be awakened by her stomach feeling hungry, then have a bowl of cereal or scrambled eggs (after premedicating herself with Vicoprofen).

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This was followed by 3 to 4 loose stools and abdominal cramps. By 9:30 AM she was “starving” again and would grab a sandwich, croissant, cookie, or a granola bar. At lunch, she had another chicken or turkey sandwich, or hamburger. Vegetables like broccoli and cauliflower were “killing” her stomach, as did red meat and salmon. Pasta or pizza “did not sit well” in her stomach. Lettuce or corn “went right through her,” undigested. She was avoiding dairy or using Lactaid as needed.

RL worked as a secretary for a not-for-profit organization, which she did only as a source of income, but with no pleasure. She felt that her life was not worth living, and if she had to continue living with all this pain she would rather die. She denied any suicidal plan and stated she would never consider hurting herself. She just wished she would not wake up one morning.

She was not motivated to exercise and was mostly sedentary.

Her past medical history was significant for hyperlipidemia and elevated fasting glucose.

Family history was unremarkable except for hyperlipidemia.

Her medications included progesterone intrauterine device (Mirena), hydrocodone/ibuprofen (Vicoprofen) 7.5/200 mg 3 times a day and alprazolam (Xanax) 0.5 mg 3 times a day.

She did not take any vitamins, supplements, or herbs.

Her physical examination was unremarkable, except for a body mass index of 28 kg/m². Her abdomen was not distended, nontender, with no hepatosplenomegaly, and no mass.

Diagnostic Testing and Treatment

Within the 4 days of her stay in our spa we obtained a stool sample, which showed low pancreatic elastase and elevated fat (consistent with pancreatic insufficiency), and 3+ yeast. Given her previous lack of improvement with prescription pancreatic enzymes, she was started on a nutraceutical comprehensive digestive enzyme blend that included

cellulase, hemicellulase, and pectinase in addition to lipase, pepsin, and amylase to improve breakdown of carbohydrate and plant and vegetable fiber.¹ with each meal. For dysbiosis, she was treated with a month-long course of botanicals—oil of oregano and berberine as well as probiotics containing *Bifidobacter infantis*.² Customized blend of amino acids, minerals, and vitamins (based on her plasma amino acid analysis and red blood cell mineral evaluation) was initiated along with prebiotics (2 g of fructo-oligosaccharides and 1.4 g of inulin per day).³

She was referred to a nutritionist to learn about a low-FODMAP diet designed to minimize the intake of fermentable oligosaccharides, disaccharides, monosaccharides, and polyols.

She was also referred to behavioral therapist skilled in biofeedback and hypnotherapy.

Over the subsequent couple of months, RL experienced some improvements that gave her hope and some disappointments that made her more anxious and hopeless again. She did not tolerate customized amino acids, which she felt caused more abdominal discomfort, but she felt that probiotics and digestive enzymes helped with pain and made her stools more formed and less frequent (3 a day). Her probiotics were increased and diet refined. A demulcent herb (deglycyrrhizinated licorice) was added before each meal. She required a lot of reassurance and ongoing behavioral therapy but gradually experienced further improvements, enough so that she started weaning herself off Vicoprofen. As her pain diminished, she was able to start walking and committed to walking 2 miles 3 times a week.

A year later, RL looked like a different person. She was off Vicoprofen altogether, continued on a low-FODMAP diet, regimen of digestive enzymes and probiotics and for the first time in 25 years she was able to eat without pain. She rescued a shelter dog and walked with him at least 2 miles every day. She lost about 8 lbs.

She decided to change jobs, as she noticed that stress caused flare-ups of her IBS. She was able to control her flares with the above supplements and biofeedback, which she was using religiously. She felt ready to start weaning off her Xanax.

To wean off her short-acting alprazolam she was initially switched to an equivalent dose of a longer acting benzodiazepine, diazepam, which also allowed for finer dose adjustments and flexibility. Over the course of the next year, she slowly weaned herself off, by 1 mg of diazepam every couple of weeks as tolerated. She continued to do weekly Skype biofeedback sessions with her therapist and by 2011 was off benzodiazepines altogether.

Interestingly, after an unforeseen interruption in her use of digestive enzymes due to recall she continued to do well without them. Repeat stool analysis showed normal levels of both pancreatic elastase and normalized fecal fat. She started including more foods into her diet, such as fish, string beans, and salads, and tolerated them well.

Another year later, RL remarried and moved with her husband to California. At that point she was lost to follow-up for a few years, but just recently sent an email to let me know she continued to do well and was very grateful for the work we did together. She is happy and can't believe she once did not want to live due to her irritable bowel symptoms.

Discussion

IBS is a common condition affecting 10% to 15% Americans. It accounts for 25% to 50% of visits to gastroenterologists, many primary care physician visits, and is the second largest medical reason for missing work (after the common cold). As illustrated by RL, IBS can have a significant negative impact on quality of life, often being associated with anxiety and depression. The severity of the impact of IBS on patients' quality of life is often underestimated. In a survey of

1966 patients with IBS, responders would be willing to sacrifice on average 15.1 years of life (~25% of remaining years) in exchange for effective treatment allowing them to achieve “perfect health.”⁴

IBS, long felt to be a chronic functional disorder characterized by abdominal pain and altered bowel habits in the absence of organic disease, is in fact a complex disorder characterized by dysregulated microbiome-gut-brain axis⁵ and frequent histological abnormalities in the gut neuro-endocrine system (the largest endocrine organ in our body)⁶ with underlying genetic component,⁷ psychosocial components,⁸ as well as environmental component. Affluent childhood is associated with increased risk of IBS possibly through lesser exposure to infectious organisms; while growing up in crowded conditions with lower socioeconomic status provides protective benefit against postinfectious IBS later in life possibly thanks to development of immune tolerance (“hygiene hypothesis”).⁹ An expanding volume of evidence suggests that intestinal microbiota play a role in the early programming and later responsiveness of the stress system.¹⁰ Stress, on the other hand, can alter the composition of gut microbiota¹¹ and increase intestinal permeability leading to further activation of the hypothalamic-pituitary-adrenal axis.¹⁰ Early maternal separation leads to an altered microbiome as well as visceral hypersensitivity,^{12,13} another common feature of IBS.

Breath tests indicate presence of small intestine bacterial overgrowth in 54% (if lactulose is used) and 31% (if glucose is used) of patients meeting criteria for IBS.¹⁴ Clinical studies reveal altered microbial diversity and stability in patients with IBS and demonstrate that manipulations of intestinal microbiota can influence key symptoms of IBS.⁵

In our patient, recurrent pancreatitis resulting in poor digestion of protein and fat may have created substrate for bacterial overgrowth in the small intestine. Unfortunately, breath test for small intestine bacterial overgrowth (SIBO) was not performed in 2009 but

would be part of my evaluation now. Luckily, a month-long course of botanicals chosen empirically for dysbiosis/yeast may have sufficiently suppressed coexisting SIBO.^{15,16}

RL had a good response to hypnotherapy and biofeedback, both for her abdominal symptoms as well as anxiety, and which was felt crucial in successful weaning off her benzodiazepines. In pediatric studies, full remission of IBS was achieved in 69.2% of patients using heart rate variability biofeedback, and partial remission was achieved in 30.8% of IBS patients.¹⁷ Therapeutic effects of hypnotherapy were superior to standard medical care in children and adults with IBS as well.^{18,19}

The low-FODMAP diet seemed to have played a significant role in RL. FODMAPs are short-chain carbohydrates that are poorly absorbed, osmotically active,²⁰ and rapidly fermented²¹ by intestinal bacteria. FODMAPs also seem to have both direct and indirect effects on intestinal microbiota.²² While 40% to 50% of patients in the United States reported adequate relief of their diarrhea-predominant IBS symptoms on a low FODMAP or mNICE diet (modified National Institute for Health and Care Excellence guidelines),²³ its long-term health effects, nutritional consequences, and effect on intestinal microbiome are unknown. Eighty-two percent of patients reported improvement in bloating, 85% reported improvement in abdominal pain, and 87% noted improvement in flatulence on a low-FODMAP diet, which appears to be more effective than standard dietary advice for symptom control in IBS.²⁴

Last, but not least, RL's increased physical activity likely contributed to her success. Even mild physical activity enhances intestinal gas clearance and reduces symptoms in patients complaining of abdominal bloating.²⁵ A randomized controlled trial of physical activity in 38 women with IBS showed significant improvement.²⁶ Moreover, the benefits of physical activity in IBS persist long term.²⁷

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. **AJLM**

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