

A case of Irritable Bowel Syndrome in the setting of Generalized Anxiety Disorder

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Case: (write it as you'd write a normal HPI + PE)

HPI:

- 23yo F presenting to family medicine for annual checkup, no acute complaints
She denies any fevers or chills, change in vision or hearing, sore throat, SOB, palpitations, chest pain, abdominal pain, dysuria, or muscle pain or weakness.
- PMH: IBS-M x 8yrs, GAD x 6yrs
 - GAD
 - Sx's à Nervousness, trembling, difficulty concentrating, persistent worrying
 - Intermittent in nature
 - Tx à Sertraline 75mg PO qd + weekly CBT with psychologist
 - She says that she has been dealing with this for as long as she can remember, but once it began to interfere with her schoolwork she began to seek professional help
 - IBS-M
 - Sx's à mixed bouts of constipation + diarrhea, cramping, uneasy feeling
 - Sx's relived by defecation
 - Intermittent in nature
 - No pathology seen on prior imaging or lab work, no gluten insensitivity
 - Tx à failed conservative Tx + medical management
 - Takes OTC medications to alleviate Sx's when they present
 - Some treatments that she had tried in the past were dietary changes (like cutting dairy, meat, and gluten from her diet), MiraLAX , Colace, and Dicyclomine. She still uses MiraLAX and Colace when indicated but says that Dicyclomine did not seem to help her.
- FHx
 - GAD (multiple relatives on mother's side)
 - Denies FHx of IBS or other GI pathologies
- SHx

- In school for nursing degree
- Avid runner
- Well balanced diet + adequate fluid intake
- 5-6 alcoholic drinks/week, denies smoking or illicit drug use

So this patient is in overall good health. She does not have any genetic predisposition to any GI pathologies that we know of, eats a healthy diet, gets an appropriate amount of exercise, and limits her intake of alcohol to a reasonable degree. Nothing obvious jumps out as something that she can change to lessen her symptoms, at least nothing that she hasn't already tried.

PE:

- Vitals: T 98.2° F, HR 87 bpm, RR 15 bpm, BP 118/76, 99% O2 sat, BMI 24.1kg/m
- Gen à well appearing, NAD, answers questions appropriately
- Psych à AAOx3, normal mood and affect, insight and judgement intact
- Heart à RRR without murmurs, gallops, or rubs, no lower leg edema
- Lungs à CTA in all lobes bilaterally without wheezes, crackles, or rhonchi
- Abdomen à soft, non-tender, tympanic to percussion, non-distended, normoactive bowel sounds in all four quadrants

So in summary, this physical exam was benign.

Labs

- CBC, BMP, Thyroid panel, Lipase all WNL

The CBC and BMP are labs that the patient likes to trend for herself yearly. Given her interest in nursing and healthcare in general, this makes a diagnosis like Illness Anxiety Disorder less likely, which came to my mind at first given her relatively clean bill of health. The thyroid and lipase values were obtained from notes from previous visits.

IBS Overview

Irritable Bowel Syndrome à functional GI disorder characterized by a relapsing-remitting course of abdominal discomfort and change in stool form/frequency in the absence of any structural or biochemical abnormalities

There are many proposed theories regarding the pathogenesis of IBS, including

- GI motility dysfunction
- Visceral hypersensitivity
- Alterations in fecal microflora
- Bacterial overgrowth
- Food insensitivity

- Carbohydrate malabsorption

These very well may be pieces, but not the whole puzzle, of what causes IBS

Some Common Sx's among IBS patients include

- Abdominal pain
- Abdominal bloating
- Diarrhea
- constipation

The Rome IV Criteria is used to Dx IBS. According to this criteria, a patient needs 2 or more of the following Sx's. These Sx's must be present for 1 or more days per week for at least 3 months on average.

1. increasing or improving pain related to defecation
2. change in stool frequency
3. change in stool form

It is important to note that IBS is a Dx of exclusion, so in these patients labs like CMP, Lipase and bilirubin are typically within normal limits, and imaging procedures like colonoscopies, abdominal US or CT scans, and GI tissue biopsies are benign.

Tx for IBS is focused on symptomatic relief. Some medication classes used are...

- prokinetics
- antispasmodics
- bulk-forming laxatives
- antidiarrheals

Lifestyle modifications like changing diet, exercising, and even psychotherapy can be trialed as well.

Currently there is no long term Tx for IBS, neither is there any prophylactic medication these patients can take to avoid these Sx's.

Given that this patient has anxiety and IBS, it led me to think about how maybe there is some sort of Brain-Gut Interaction occurring with her.

Studies show Anxiety is the most common comorbidity between IBS patients

- Stress has been found to be a common exacerbating factor in IBS episodes
- One way causality between the two pathologies has not been established

So it is not fair to say that all IBS patients suffer from anxiety, or vice versa, but there is enough of an overlap present to wonder could this link have some physiologic basis.

There is no established structural abnormality in IBS patients, but could there be a neural chemical link between anxiety and IBS?

The Brain gut axis is Bidirectional neural pathways between enteric nervous system (GI) and central nervous system (brain + spinal cord)

- This describes Autonomic, neuroimmune, neuroendocrine links between brain and gut
- Some Functions include secretion, blood flow, and motility among others
- If gut function is disturbed without an abnormality in the gut itself, one could look to the brain for possible answers due to this relationship
 - fMRI has shown IBS patients have altered cortical functions in response to gut stimulation
 - This provides evidence of brain-gut regulatory differences in IBS patients compared to healthy subjects

Neurotransmitters

- So what mediates these neural connections between the brain and gut?
- Serotonin, epinephrine, norepinephrine, and dopamine are common to both the central and enteric nervous systems
- Anxiety is known to have autonomic dysregulation mediated primarily by these neurotransmitters
 - The 1st line Tx for GAD are selective serotonin reuptake inhibitors, or SSRIs
 - SSRIs help to more tightly regulate serotonin levels in the brain, in this context

Serotonin (5HT)

- In the gut, serotonin is Secreted via enterochromaffin cells in gut
 - These cells are located in the epithelial lining of digestive tract lumen
- Serotonin helps to Regulate peristalsis, secretion, sensation in gut
- Studies show reduced gut serotonin levels in IBS-C patients, and increased levels in IBS-D patients
 - This evidence points to some sort of 5HT dysregulation in IBS patients
 - Based on this evidence, serotonin may be a logical target for medication management in IBS patients

SSRIs and TCAs

- 2 medication classes traditionally used to treat anxiety and other mood disorders
 - Also have shown effectiveness in IBS patients
- SSRIs tend to have secretory effect in gut à SE of diarrhea
 - Potentially helpful to IBS-C patients suffering from concomitant anxiety
- TCAs tend to have anticholinergic effects in gut à SE of constipation
 - Potentially helpful to IBS-D patients suffering from concomitant anxiety
- 5HT balance more elusive in IBS-M patients, as they can oscillate between episodes of diarrhea and constipation
- Given the success of tighter 5HT regulation in GAD patients, could this potentially be an avenue to more effective IBS management?

Further research

- In conclusion, there is no sufficient scientific evidence to back up this theory. However, studying the role of Neurotransmitter dysregulation in IBS patients, namely serotonin, seems to be a logical target for further research
- Reviewing newer brain-gut axis literature could point to clues on the effect of neurotransmitter dysregulation on GI pathologies like IBS
 - Specifically, looking at the link between anxiety and IBS
 - It would be interesting to see the effect of other neurotransmitter regulating medications on IBS patients, not only SSRIs
- Another avenue of research could be looking at Genetic or epigenetic link between anxiety and IBS
 - Genetics is a Booming area of scientific literature with the emergence of gene altering tools such as CRISPR
- In any case, further research must be done in this area so that we can better manage patients like the one presented in this case study.