

## Abdominal Pain: A Common Complaint in College Health

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## Objectives

- Upon completion of this lecture, the participant will be able to:
  1. Perform a comprehensive abdominal examination
  2. Differentiate between a variety of diagnoses pertaining to the patient with an abdominal complaint
  3. Identify various abdominal emergencies

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## Statistics

- Abdominal pain is one of the most common presenting complaints in primary care
- Acute abdominal pain is the most common cause of hospitalization
- One study: Approximately 40% of patients who present with abdominal pain have no identifiable cause and <15% have surgical etiology

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## History

- Description of onset
  - sudden, gradual
- Progression since onset
  - better, worse, same
- History of previous episode
- Location
  - RUQ, RMQ, RLQ, LUQ, LMQ, LLQ, epigastric, periumbilical, or suprapubic

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## History

- Character
  - intermittent, steady, colicky
- Severity
  - 1-10 scale
  - Has it affected the person's ADL's
- Radiation
  - Intraabdominal
  - Extraabdominal locations

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## History

- Aggravating Factors
  - Movement, coughing, eating, respirations
- Alleviating Factors
  - Position, vomiting, flatulence, eating, meds
- Associated Symptoms
  - Nausea, vomiting, constipation, diarrhea, fever, chills, bloating, flatulence, eructation, black or bloody stools or vomitus, jaundice

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## Review of Systems

- Cardiac
  - Chest pain, palpitations
- Respiratory
  - Shortness of breath, cough, dyspnea
- Genitourinary
  - Dysuria, frequency, urgency, hematuria, gynecologic complaints, LMP

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## Additional History

- Past surgical history
- Medications
- Drug, food, or environmental allergies
- Cigarette, alcohol, drug or caffeine use
- Diet and food intolerance's
- Travel
- Family history
- Psychosocial information

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## Physical Examination

- General appearance
  - Restless
  - Rigid and motionless
  - Lying in a fetal position or rocking back in forth
- Vital signs
  - Orthostatic pulse and blood pressure
    - Tachycardia-acute abdomen
  - Temperature
    - Infectious or inflammatory process

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## Physical Examination

- Skin
  - Pallor: dissecting aneurysm, gastric ulcer
  - Diaphoresis: peritoneal inflammation
  - Mottling: dissecting aneurysm
  - Turgor: pancreatitis
  - Jaundice: hepatitis
- Eyes
  - Scleral Icterus: hepatitis

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## Abdominal Examination

- Inspection
  - Contour of abdomen
    - Flat
    - Scaphoid
      - Malnourished
    - Protuberant
      - Obesity
      - Gas distention from obstruction
      - Tumor
      - Pregnancy
      - Ascites

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## Abdominal Examination

- Inspection
  - Skin
    - Color and moisture
    - Scars and incision
    - Striae (Cushing's syndrome)
    - Dilated veins (Portal hypertension, cirrhosis)
    - Rashes or lesions (Cherry angiomas, herpes zoster, linea nigra)

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## Abdominal Examination

- Inspection
  - Symmetry
  - Visible Organ Enlargement/Masses
    - **Hernia: defect in the wall of the abdomen through which a mass of tissue and occasionally the intestine protrudes**
      - Should be reducible

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## Abdominal Examination

- Inspection
  - Umbilicus
    - **Contour (normally round; inverted or everted)**
      - Bulge-umbilical hernia
    - **Omphylitis**
      - Staphylococcus infection of the umbilicus
      - Can be chronic in some individuals
      - Thought to be caused by a remnant of the umbilical cord attachment
      - Treated with 1st Generation Cephalosporin

## Abdominal Examination

- Auscultation
  - Bowel sounds
    - **Very unreliable**
    - **Can be normal in the setting of serious pathology**
    - **Borborygmi: loud, prolonged gurgles that are indicative of hyperperistalsis**
      - Intestinal obstruction
      - Gastroenteritis

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## Abdominal Examination

- Palpation
  - Essential when assessing the abdomen
  - Light palpation
    - **Lightly palpate the entire abdomen**
    - **Purpose:**
      - Identify abdominal tenderness
      - Superficial masses
      - Muscular rigidity or guarding

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## Abdominal Palpation

- Deep palpation
  - Palpate all 4 quadrants
  - Purpose
    - **Identify masses**
    - **Peritoneal inflammation**
      - Rebound Tenderness (Blumberg's sign): Press fingers firmly and slowly in the area above the pain. Quickly withdraw your fingers
        - **Watch the individual and listen for pain**
        - **Pain induced by withdrawal: +rebound**

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## Liver Palpation

- Majority of the liver is under the right rib cage
- Place left hand behind and parallel to the patient to support the 11th and 12th ribs
- Press up with the left hand
- Place your right hand on the abdomen in the RUQ with your fingertips well below the lower border of the liver
- Press in with the right hand while the patient takes a deep breath

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## Liver

Liver normally feels soft, sharp, regular, smooth, and slightly tender.

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## Palpation of the Spleen

- Located in the left upper quadrant
- Enlarges anteriorly, downward, and medially
- Palpation can confirm an enlargement identified with percussion but often misses the splenomegaly that doesn't descend below the costal margin
- A small percentage of individuals normally have a palpable spleen edge

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## Technique

- With left hand, reach over and around the patient placing left hand under the lower rib cage
- With right hand, palpate the right upper quadrant while the patient takes a deep breath
- Tip may descend to meet your fingers

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## Costovertebral Angle Tenderness

- Tap gently on the area above the 10-12th ribs posteriorly
- Continue tapping as you move downward
- "What if anything do you feel?"
- CVAT-pyelonephritis

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## Differential Diagnosis According to Location

- Right Upper Quadrant
  - Cholelithiasis
  - Cholecystitis
  - Hepatitis
  - Hepatic carcinoma
  - Right kidney stone
  - Right pyelonephritis
  - Right lower lobe pneumonia

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## Differential Diagnosis According to Location

- Left Upper Quadrant
  - Splenic rupture
  - Splenic infarction
  - Left kidney stone
  - Left pyelonephritis
  - Gastritis
  - Left lower lobe pneumonia

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## Differential Diagnosis According to Location

- Epigastric Region
  - Gastritis
  - Gastric ulcer
  - Gastric cancer
  - Esophagitis
  - Duodenal ulcer
  - Pancreatitis
  - Pancreatic cancer

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## Differential Diagnosis According to Location

- Right Lower Quadrant
  - Appendicitis
  - Meckel's diverticulum
  - Crohn's disease
  - Right ovarian cyst
  - PID
  - Inguinal hernia
  - Diverticulitis
  - Ectopic pregnancy<sup>Wright, 2012</sup>

## Differential Diagnosis According to Location

- Left Lower Quadrant
  - Diverticulitis (Sigmoid)
  - Left ovarian cyst
  - PID
  - Inguinal hernia
  - Ectopic pregnancy
  - Appendicitis (rarely)

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## Differential Diagnosis According to Location

- Hypogastric
  - PID
  - Irritable Bowel Syndrome
  - Ulcerative Colitis
  - Ectopic pregnancy
  - Cystitis

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## Differential Diagnosis According to Location

- Generalized Pain
  - Peritonitis
  - Gastroenteritis
  - Obstruction
  - Dissecting Aortic Aneurysm

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## Don...

Don is a 17 yowm who presents with an 8 hour history of worsening abdominal pain. Woke him from sleep. Epigastric at onset. Now seems lower in right side of abdomen. Associated with nausea and vomiting for the past 2 hours and a temp of 100. Denies bowel changes, urinary symptoms.

Meds: none; Allergies: NKDA

What is going on with Don?

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## Appendicitis

- Inflammation/Infection of the Appendix
  - Can lead to ischemia and perforation of the appendix
- Etiology
  - Most common age: 10-19 years
  - Incidence: 1.1/1000 Persons each year
  - Males > females
  - Whites > Nonwhites
  - Summer-most common time of year
  - Midwest-highest incidence

## Appendicitis

- Mortality and morbidity rates remain high
- Perforation rates: 17-40%
  - Perforation has been known to occur within 1st 24-48 hours of the infection

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## History of a patient with appendicitis

- Careful history is the most important aspect
  - Individual is usually a teen or young adult
- Classic presentation: awakens in the night with vague periumbilical pain
  - **Worsens over the period of 4 hours**
  - **Subsides as it migrates to the RLQ**
  - **Worsened with movement, deep respirations, coughing**

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## History of a patient with Appendicitis

- Pain precedes anorexia, nausea or vomiting
  - Nausea and anorexia are very common
  - Vomiting may or may not be present
  - Question the diagnosis if patient is hungry
- Low grade fever or none at all
- Usually seek attention within 12-48 hours
- Patient will often report feeling constipated

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## Clinical Pearl

The presence of pain before vomiting is highly suggestive of appendicitis.

Diarrhea before pain is more likely to be gastroenteritis.

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## Physical Examination

- Abdominal Examination
  - Tenderness at McBurney's point
    - **1/3 the distance between the anterior iliac spine and the umbilicus**
  - Guarding
    - **Contraction of the abdominal walls**
    - **Frequently present**
    - **Can be faked or induced**

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## Physical Examination

- Rigidity
  - Important predictor of appendicitis
  - Involuntary spasm of the abdominal musculature
  - Caused by peritoneal inflammation
- Markle's sign
  - Heel-drop jarring test

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## Physical Examination

- Rebound tenderness
  - Press on area above the pain
  - Suddenly withdraw fingers
- Rovsing's Sign
  - Pain felt in RLQ when examiner presses firmly in the LLQ and suddenly withdraws
- Psoas Sign
  - Patient is placed in a supine position
  - Ask patient to lift thigh against your hand that you have placed above the knee

## Physical Examination

- Obturator Sign
  - May be or may not be positive
  - Patient is positioned in supine position with the right hip and knee flexed
  - Internally rotate the right leg
- Internal Examination
- Rectal Examination
  - This is essential to assist with the diagnosis

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## Laboratory/Radiologic Testing

- CBC with differential
  - Normal wbc count doesn't rule-out the diagnosis
  - White blood cell count may actually decrease
  - Look for wbc left shift
    - Elevated wbc
    - Elevated neutrophils
    - Elevated bands

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## Laboratory/Radiologic Testing

- Urinalysis
- CT Scan
  - Within past 2 years, new focused appendiceal CT technique has been developed
  - Will decrease the laparoscopy rate
  - Ultrasound can still be performed; seems to be best for children and women of childbearing age

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## Shaun...

- Shaun is a 16 year old male who presents with a one week history of worsening abdominal pain located predominantly in the upper abdomen radiating through to the back. Worse with movement. Constant. Becoming progressively worse. Now associated with vomiting and diaphoresis. PE-BP 90/52; 80/50 sitting; Temp-100.8; Pulse 120; Abdomen-tender in LUQ and RUQ. No rebound.
  - What else do we need to know?

## Pancreatitis

- Etiology
  - Often a history of alcohol abuse
  - Biliary tract disease
  - May have a history of hypertriglyceridemia (10%)
- Symptoms
  - Pain is severe and constant; lasting hours-days
  - Develops suddenly and becomes intense in minutes
  - Often radiates to the back (50%)
  - Vomiting is present
    - **If not present, consider another diagnosis**

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## Pancreatitis

- Symptoms
  - Pain is worsened by coughing and movement
  - Sweating
- Physical Examination
  - Tachycardia
  - Postural Hypotension
  - Temperature of 100-101 degrees
  - Abdominal distension and tenderness
  - Tenderness predominantly in upper quadrants
  - Hypoactive bowel sounds

## Pancreatitis

- Laboratory Findings and Diagnosis
  - Amylase: elevated mainly in pancreatic disease
  - Lipase: good confirmatory test
  - Leukocytosis
    - Typically 12,000 - 20,000
  - Ultrasound
    - Detect a biliary obstruction caused by gallstones or edema of the pancreas
  - CT scan
    - Best visualization of the pancreas

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## Treatment

- Mild Pancreatitis
  - Fasting state until decrease of signs and symptoms (usually within a few days)
  - Cessation of alcohol or correct problem
  - May need IV fluids
- Moderate -Severe Pancreatitis
  - Hospitalization

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## Shelley

Shelley is a 17 yowf who presents with a 3 day history of vaginal bleeding. Positive pregnancy test in the office 4 days ago. Based upon dates, she is now 5 weeks pregnant. Complaining of LLQ ache and mild cramping. Bleeding has not changed since onset. Serum quant 2 days ago: 100; Today-110.

What should we do now?

## Ectopic Pregnancy

- Ectopic: pregnancy occurring outside of the uterus
- Etiology
  - Variety of locations of implantation
  - Average rupture time: 8-12 weeks
  - Most common cause of maternal mortality in the 1st trimester and 2nd leading cause of maternal mortality in the US
  - 1:100-200 pregnancies is ectopic
  - 4 fold increase in ectopic rates from 1970-89



## Ectopic Pregnancy

- hCG is secreted by the developing trophoblast starting at day 8 of the pregnancy
- Should double every 36-48 hours
- By 6 weeks, the normal hCG is approximately 10,000
- Lack of doubling indicates an abnormal pregnancy

## Ectopic Pregnancy

- The woman with an ectopic pregnancy will not have the normal doubling
- hCG does not go above 6000
- Progesterone levels are low
  - <5ng/ml
  - Normal pregnancy: >10ng/ml

## Clinical Pearl

The absence of an intrauterine sac on transvaginal ultrasound when the hCG is > 2000 is highly suggestive of an ectopic pregnancy

## Ectopic Pregnancy

- Symptoms
  - Asymptomatic
  - Majority have irregular bleeding
  - Abdominal pain occurs 3-5 weeks after the bleeding begins

## Ectopic Pregnancy

- Physical Examination
  - Abdominal tenderness (LLQ or RLQ)
  - Uterine size (2/3 will have a normal uterine size)
  - 50% will have an adnexal mass palpable on physical examination

## Diagnosis of an Ectopic

- Abdominal examination
- Pelvic examination
  - Caution: May cause a tubal rupture
- Urine hCG
  - Serum Quantitative hCG
- Serum progesterone
- Transvaginal ultrasound

## Medical Management of an Ectopic Pregnancy

- 25% of all ectopic pregnancies can be managed medically
- 80-90% success rate
- 80% of individuals treated with MTX will become pregnant again; 11% ectopic
- Methotrexate injection
  - Conceptus < 3.5cm
  - Unruptured fallopian tube
  - hCG levels <1,500
  - No fetal heart activity

## Case Study

- 17 year old woman presents with a 8+ year history of straining, hard/lumpy stools, and a sense of incomplete evacuation. She passes stool approximately 2 times per week.
- Upon further questioning, she also notes frequent bloating, moderate abdominal discomfort, and partial relief with defecation.
  - She denies hematochezia, weight loss, family history of colon cancer, or inflammatory bowel disease.
  - Rectal exam and abdominal exam are normal. CBC is normal.

**What do you think is going on with her?**

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## ? Does This Patient Have A Functional Bowel Disorder?



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## Functional Bowel Disorders

- There are numerous types of functional bowel disorders
  - Irritable Bowel Syndrome
    - IBS-C
    - IBS-D
    - IBS-M
  - Chronic Constipation
  - Functional Diarrhea
  - Functional Bloating

ROME III *Gastroenterology* 2006;130:1377-1390.

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## Definition of IBS

- American Gastroenterologic Association
  - A combination of chronic and recurrent GI symptoms not explained by a structural or biochemical abnormality.
  - Attributed to the intestines and associated with bloating, distension, pain which improves with defecation, and abnormal defecation.

Drossman DA, Corazziari E, et al. ROME II. The Functional Gastrointestinal Disorders Diagnosis, Pathophysiology and Treatment: A Multinational Consensus. 2<sup>nd</sup> ed. McLean, Va: Degon Associates; 2000.

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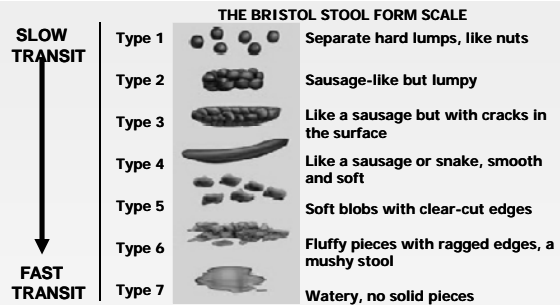
## Irritable Bowel Syndrome

- Symptom Types
  - Diarrhea predominant IBS (33%)
    - IBS-D
  - Constipation predominant IBS (33%)
    - IBS-C
  - Alternators
    - IBS – Mixed (33%)
      - Many individuals are thought to suffer from IBS - C predominantly but have occasional breakthrough diarrhea (It is often the diarrhea which brings them in for evaluation).

ROME III *Gastroenterology* 2006;130:1377-1390.

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## Stool Form Correlates With Intestinal Transit Time



Lewis SJ, Heaton KW. *Scand J Gastroenterol.* 1997;32:920-924.  
Heaton KW, O'Donnell LJ. *J Clin Gastroenterol.* 1994;19:28-30. Wright, 2012

## Irritable Bowel Syndrome: A Complex Condition

- 3 million visits to healthcare providers, yet only 20 - 25% of people with this disease consult a provider.
- Approximately 25 - 50% of visits to gastroenterology practices are related to this diagnosis.

ROME III *Gastroenterology* 2006;130:1377-1390.

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# Chronic Constipation

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## Statistics on Chronic Constipation

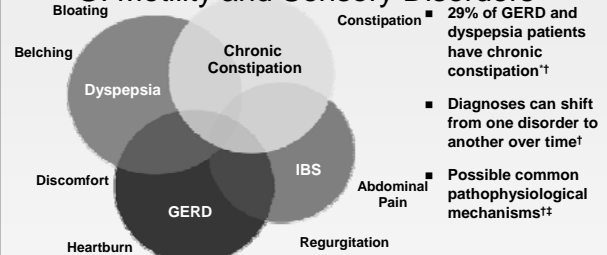
- Estimated that chronic constipation affects 2% - 27% of all adults in North America
- Overall prevalence: 15% of population
- More common in women: 2-3:1 ratio
- Higher prevalence associated with lower socioeconomic status, age older than 65 years, and non-white race

An Evidence Based Approach to the Management of Chronic Constipation In North America. *American J of Gastroenterology* 2005;100:S1.

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# Pathophysiology of Functional Bowel Disorders

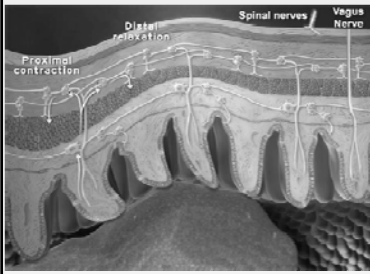
## There Is Significant Overlap Among GI Motility and Sensory Disorders



\*Locke GR et al. *Neurogastroenterol Motil.* 2004;16:1-6.  
†Corazzini E. *Best Prac Res Clin Gastroenterol.* 2004;18:613-631.  
†Talley NJ et al. *Am J Gastroenterol.* 2003;98:2454-2459.

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## Normal Bowel Activity Is Initiated by a Bolus Moving Through the Intestine

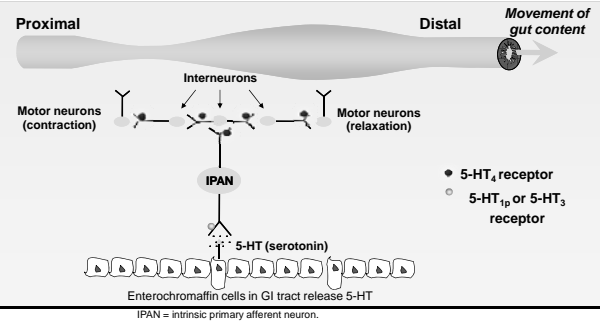


- The presence of a **bolus** in the intestine causes distortion of villi and distention of the intestine, resulting in signals being transmitted to afferent nerves within the intestinal wall via **serotonin** release
- These signals result in proximal contraction and distal relaxation of muscles or **peristalsis**, and in transmission of **sensory signals to the CNS**

Gershon MD. *Rev Gastroenterol Dis.* 2003;3:S25-S34.

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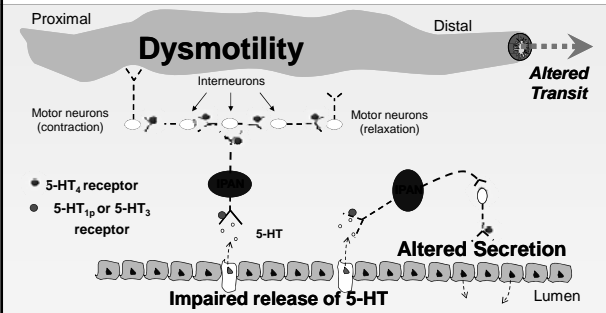
## Serotonin and Motor Activity in the Lower GI Tract



Adapted from Grider JR et al. *Gastroenterology.* 1998;115:370-380.  
Adapted from Gershon MD. *Rev Gastroenterol Dis.* 2003;3:S25-S34.

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## Impaired 5-HT Release Leads to Impaired Enteric Reflexes, Dysmotility, and Altered Secretion

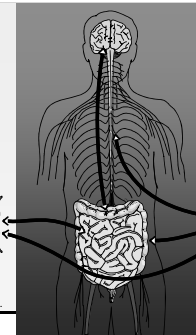


IPAN = intrinsic primary afferent neuron.  
Adapted from Grider JR et al. *Gastroenterology.* 1998;115:370-380.  
Adapted from Gershon MD. *Rev Gastroenterol Dis.* 2003;3:S25-S34.

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## CC, IBS-C, and IBS-D Are Associated With Symptoms of GI Dysmotility and Altered Sensation

**Symptoms of dysmotility** are a result of impaired coordination of the muscles and nerves in the GI tract



**Symptoms of hypersensitivity or altered perception** may be the result of alteration of ENS and/or CNS function

Mayer EA, Raybould HE. *Gastroenterology.* 1990;99:1688.

ENS = Enteric nervous system.  
CNS = Central nervous system.

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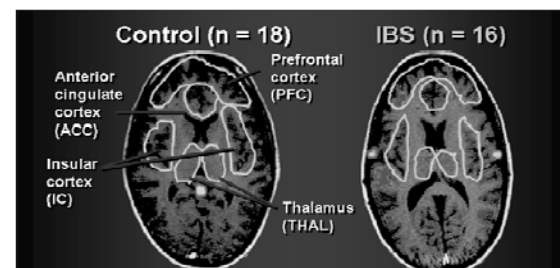
## Pathophysiology

- Diarrhea and constipation are explained by the alteration in motor function.
- Abnormal pain experienced by patients with IBS is believed to be caused by excessive sensitivity to colonic distension.
  - Smaller amounts of distension causes more abdominal distress

Mertz H, Morgan V, Tanner G, et al. Regional cerebral activation in irritable bowel syndrome and control subjects with painful and nonpainful rectal distention. *Gastroenterology.* 2000;118:842-848.

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## fMRI Imaging with Rectal Distension in IBS



- Patients with IBS showed greater thalamic and ACC activation with painful stimuli than controls

Adapted from Mertz, *GUT* 2002;51, Suppl 129

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## The Role of Stress in IBS

- Stress is widely believed to play a significant role in the pathophysiology and clinical presentation of IBS.
- Genetically predisposed individual.
- Sustained stress can result in a permanent increased stress response in the central stress circuits/pathways.

Drossman DA. Do psychosocial factors define symptom severity and patient status in irritable bowel syndrome? *Am J Med* 1999;107:41S-50S.  
Drossman DA. Irritable bowel syndrome and sexual/physical abuse history. *Eur J Gastroenterol Hepatol* 1997;9:327-30.

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## Role of Infection in IBS

- 7-30% of patients with newly diagnosed IBS have recently had a bacterial or viral gastroenteritis.
- Does infection cause an alteration in the number of enterochromaffin cells in the bowel - which causes an alteration in the amount of circulating 5-HT or is there bacterial overgrowth of the bowel?

Dunlop, SP, Jenkins, D, Neal, KR, Spiller, RC. Relative importance of enterochromaffin cell hyperplasia, anxiety, and depression in postinfectious IBS. *Gastroenterology*. 2003 Dec;125(6):1651-9.  
Pimentel M, Chow EJ, Lin HC. Eradication of small intestinal bacterial overgrowth reduces symptoms of irritable bowel syndrome. *Am J Gastroenterol* 2000; 95: 3503-6.

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# Diagnosis of Functional Bowel Disorders

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## Rome III Diagnostic Criteria for Irritable Bowel Syndrome (all subtypes)

- At least 3 months, with onset at least 6 months previously of recurrent abdominal pain or discomfort (uncomfortable sensation not described as pain) associated with 2 or more of the following:
  - Improvement with defecation; and/or
  - Onset associated with a change in frequency or stool; and/or
  - Onset associated with a change in form (appearance) of stool

ROME III *Gastroenterology* 2006;130:1377-1390.

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## Diagnostic Criteria: Chronic Constipation

- Characterized by unsatisfactory defecation that results from:
  - Infrequent stools or
  - Difficult stool passage
    - Characterized by: straining, sense of difficulty passing stool, incomplete evacuation, hard/lumpy stools, prolonged time to stool, or need for manual maneuvers to pass stool
  - Or, a combination of both

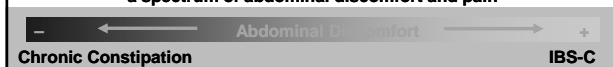
An Evidence Based Approach to the Management of Chronic Constipation In North America. *American J of Gastroenterology* 2005;100:S1.

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## Chronic Constipation and IBS-C Share GI Dysmotility Symptoms

Symptoms >3 months	Chronic Constipation	IBS-C
Straining	+++	+++
Hard/lumpy stools	+++	+++
<3 BM/wk	+++	+++
Feeling of incomplete evacuation	+++	+++
Bloating/abdominal distension	++	+++
Abdominal pain/discomfort	+	+++

**CC and IBS-C lie along a spectrum of abdominal discomfort and pain**



IBS-C = irritable bowel syndrome with constipation.

Thompson WG et al. *Gut*. 1999;45(suppl 2):II43-II47.  
Drossman DA et al. *Gastroenterology* 1997;112:2120-2137.

## Diagnosis

- Because there are no biochemical or structural markers available to make an accurate diagnosis, history is the most important component.
  - Symptom analysis
  - Diagnostic tests in past
  - PMH and FH of GI diseases or autoimmune conditions
  - Dietary review
  - Meds, including OTC
  - What has been tried?

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## Red Flags



- Evaluate for alarm features
  - Reported weight loss
  - Nocturnal symptoms
  - Recent travel history
  - Family history of colon cancer or inflammatory bowel disease
  - Family history of Celiac disease
  - Onset in older patients (> 50)
  - Fevers
  - Oral ulcers
  - **Bloody stools**

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## Red Flags



- Evaluate for alarm features
  - Abnormal exam (weight loss, arthritis, rashes)
  - Fever, oral ulcers
  - Anemia
  - Leukocytosis
  - Abnormal chemistry – abnormal LFT's, Creatinine
  - Elevated sed rate
  - Abnormal TSH
  - Positive fecal occult blood test

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## ACG Evidence-Based Guideline: Diagnostic Testing

### Chronic Constipation

- Among CC patient without alarm features, there are inadequate data to make a recommendation about the *routine* use of diagnostic tests

### Irritable Bowel Syndrome

- Among IBS patients without alarm features, the *routine* use of colonoscopy (<50 years old), flexible sigmoidoscopy, thyroid function tests, etc is not recommended.
- Routine testing for celiac disease may be considered.
- Individuals  $\geq 50$  years should undergo colorectal cancer screening

ACG Functional GI Disorder Task Force. *Am J Gastroenterol.* 2005;100:S1-S21  
ACG Functional GI Disorder Task Force. *Am J Gastroenterol.* 2002;97:S1-S5

## If You Decide On Further Evaluation, The Possible Tests Are...

- CBC with differential
  - Anemia (Crohn's, colitis, celiac disease), Eosinophilia (parasites), leukocytosis (infection, IBD), Toxic granulation (inflammation)
- ESR and hs-CRP (high sensitivity-C Reactive Protein)
  - Inflammation
- Comprehensive Metabolic Panel
  - Abnormal chemistries (liver, kidney disease, K+ loss)
- Stool for occult blood
  - Inflammatory bowel disorders, Colon cancer

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## Laboratory Evaluation

- TSH
  - Hypothyroidism and hyperthyroidism
- Stools for O & P / C&S
  - Parasites, Giardia, Infectious etiology
  - Consider with an acute onset
- Stool for Clostridium Difficile
  - Recent antibiotics
- Lactose Breath Test
  - Present in up to 25% of the population
  - Often co-existent with IBS
  - Or...a low lactose diet trial x 2 weeks

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## Possible Additional Tests

- Celiac Disease Testing
  - 4.6% of individuals with IBS are likely to have this present; Compared with 0.25-0.5% of general population
  - Celiac Panel: Immunoglobulin A (IgA), anti-tissue transglutaminase (tTGA), and IgA anti-endomysial antibodies (AEA)
- Sigmoidoscopy vs. Colonoscopy
  - Positive occult blood test
  - Nocturnal awakenings
  - Colon cancer

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## Case Study

- 17 year old woman presents with a 8+ year history of straining, hard/lumpy stools, and a sense of incomplete evacuation. She passes stool approximately 2 times per week.
- Upon further questioning, she also notes frequent bloating, moderate abdominal discomfort, and partial relief with defecation.

**What is her diagnosis?**

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## Treatment Options for Functional Bowel Disorders

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## Non-pharmacologic Treatments

- Dietary modification
  - Given high incidence of concomitant lactose intolerance, dairy avoidance may be helpful
  - 2 week trial of a lactose free diet can be helpful
  - Lactaid or similar as an adjunct to dairy products

ROME III *Gastroenterology* 2006;130:1377-1390.

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## Non-pharmacologic Treatments

- Dietary modification
  - Avoid potential triggers: caffeine, alcohol, sorbitol, citrus fruits, high fiber foods, high fructose corn syrup
    - Gas producing foods (beer, cauliflower, grapes, onions, beans, brussel sprouts, plums, raisins, red wine)
  - High fiber foods may occasionally help some individuals but need to tailor to individual patient

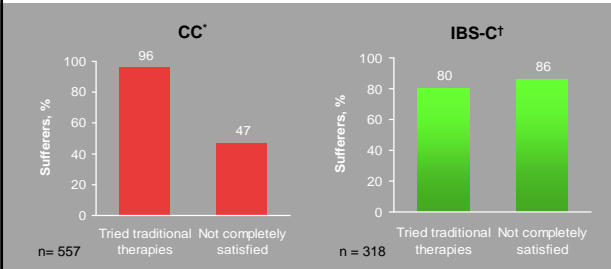
ROME III *Gastroenterology* 2006;130:1377-1390.

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## Pharmacologic Options

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### Most Sufferers Have Tried Traditional Therapies and Report Dissatisfaction



\*Schiller LR et al. *Am J Gastroenterol.* 2004;99:S234-S235.  
 †Hungin AP et al. *Am J Gastroenterol.* 2002;97(suppl):S281.

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### ACG Evidence-Based Position Statement on the Management of IBS-C: Treatment Recommendations

Agent	Efficacy
<b>Bulking agents</b>	<b>Not more effective than placebo at relieving global IBS symptoms</b>
<b>Antispasmodics*</b> Dicyclomine, hyoscyamine (available in the US)	<b>Insufficient data to make a recommendation about the efficacy of these agents in patients with IBS</b>
<b>Tricyclic antidepressants†</b>	<b>Not more effective than placebo at relieving global IBS symptoms. Improve abdominal pain in IBS patients. May worsen constipation</b>
<b>Tegaserod</b>	<b>Statistically significant improvements in symptoms of IBS-C</b>

Adapted from: ACG Functional GI Disorder Task Force. *Am J Gastroenterol.* 2002;97:S1-S5.

### Chronic Constipation: Treatment Recommendations

Agent	Efficacy
<b>Psyllium</b>	<b>Increases stool frequency in patients with CC</b>
<b>Calcium polycarbophil</b>	<b>Insufficient data</b>
<b>Tegaserod</b> <b>Lubiprostone</b>	<b>Statistically significant reduction in CC symptoms</b> <b>Statistically significant reduction in CC symptoms</b>
<b>Stool softeners</b>	<b>Insufficient data; may be inferior to psyllium for improvement in stool frequency</b>
<b>Milk of magnesia†</b>	<b>Insufficient data</b>
<b>Stimulant laxatives</b>	<b>Insufficient data</b>
<b>Polyethylene glycol</b>	<b>Effective at improving stool frequency and stool consistency in patients with CC</b>

Adapted from: ACG Functional GI Disorder Task Force. *Am J Gastroenterol.* 2002;97:S1-S5.

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Thank You

I Would Be Happy To Entertain Any Questions

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