An Approach to Abdominal Pain

A Aljebreen, FRCPC, FACP
Professor of medicine, Consultant Gastroenterologist
Department of Medicine
King Saud University

Nahla Azzam FACP, MRCP
Associate Professor of medicine, Consultant Gastroenterologist
Department of Medicine
King Saud University

objectives

- Should know the different types of abd pain
- Is acute or chronic?
- Hx taking skills with knowing the key questions
- Important abdominal pain signs
- A good differential diagnosis of each abdominal area
- Labs interpretation
- To know the most common cause of chronic abdominal pain and how to handle it

Introduction

- Abdominal pain can be a challenging complaint for both primary care and specialist physicians because it is frequently a benign complaint, but it can also herald serious acute pathology.
- Abdominal pain is present on questioning of 75% of otherwise healthy adolescent students and in about half of all adults.

ACUTE VERSUS CHRONIC PAIN

- 12 weeks, can be used to separate acute from chronic abdominal pain.
- Pain of less than a few days duration that has worsened progressively until the time of presentation is clearly **"acute."**
- Pain that has remained unchanged for months can be safely classified as **“chronic”**.
- Pain in a sick or unstable patient should generally be managed as acute.

ACUTE ABDOMINAL PAIN (Surgical abdomen)

- The 'surgical abdomen' can be usefully defined as a condition with a rapidly worsening prognosis in the absence of surgical intervention.
- Two syndromes that constitute urgent surgical referrals are obstruction and peritonitis.
- Pain is typically severe in these conditions, and can be associated with unstable vital signs, fever, and dehydration.

“history taking skills”

- Type of pain?
- Location and radiation
- Character and Severity
- Onset (sudden…) and duration
- Exacerbating or relieving factors
- Associated symptoms (fever, vomiting…)
- Medications (aspirin or NSAIDs)

What kind of pain?
Is it Visceral??

- Involves hollow or solid organs; midline pain due to bilateral innervation
- Vague discomfort to excruciating pain
- Poorly localized
- **Epigastric region:**
  – stomach, duodenum, biliary tract
- **Periumbilical:**
  – small bowel, appendix, cecum
- **Suprapubic:**
  – colon, sigmoid, GU tract

Parietal?

- Involves parietal peritoneum
- Localized pain
- Causes tenderness and guarding which progress to rigidity and rebound as peritonitis develops

Referred pain?

- Produces **symptoms** not signs
- Based on developmental embryology
  - Ureteral obstruction → testicular pain
  - Subdiaphragmatic irritation → ipsilateral shoulder pain
  - Gynecologic pathology → back or proximal lower extremity
  - Biliary disease → right infrascapular pain
  - MI → epigastric, neck, jaw

Course

Visceral

- Non specific

Parietal

- Localised tenderness
- Guarding
- Rigidity
- Rebound

High Yield Questions

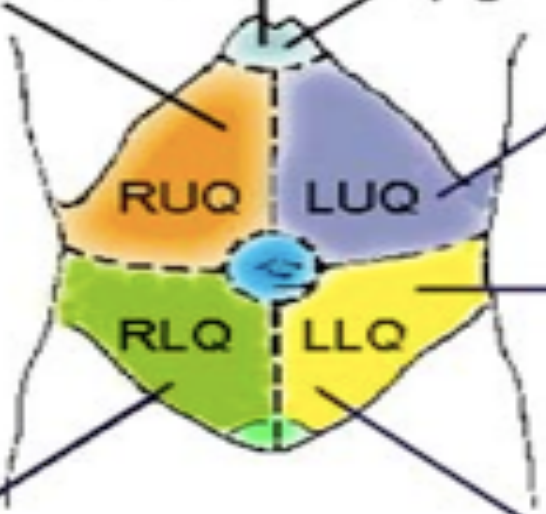
- Which came first – pain or vomiting?
- How long have you had the pain?
- Constant or intermittent?
- History of cancer, diverticulosis, gall stones,Inflammatory Bowel Disease?
- Vascular history, HTN, heart disease or AF?

Physical Exam

- General and Vital Signs
- Guarding
  - Voluntary
    - Diminish by having patient flex knees
  - Involuntary
    - Reflex spasm of abdominal muscles
- Rigidity
- Rebound (can be normal in 25%)
- Suggests peritoneal irritation

Differential Diagnosis

- It’s Huge!



Myocardial infarct
Peptic ulcer
Acute cholecystitis
Perforated oesophagus

Epigastrium

Acute cholecystitis
Duodenal ulcer
Hepatitis
Congestive hepatomegaly
Pyelonephritis
Appendicitis
(R) Pneumonia

Ruptured spleen
Gastric ulcer
Aortic aneurysm
Perforated colon
Pyelonephritis
(L) Pneumonia

Intestinal obstruction
Acute pancreatitis
Early appendicitis
Mesenteric thrombosis
Aortic aneurysm
Diverticulitis

Appendicitis
Salpingitis
Tubo-ovarian abscess
Ruptured ectopic pregnancy
Renal/ureteric stone
Incarcerated hernia
Mesenteric adenitis
Meckel's diverticulitis
Crohn's disease
Perforated caecum
Psoas abscess

Sigmoid diverticulitis
Salpingitis
Tubo-ovarian abscess
Ruptured ectopic pregnancy
Incarcerated hernia
Perforated colon
Crohn's disease
Ulcerative colitis
Renal/ureteral stone

Case #1

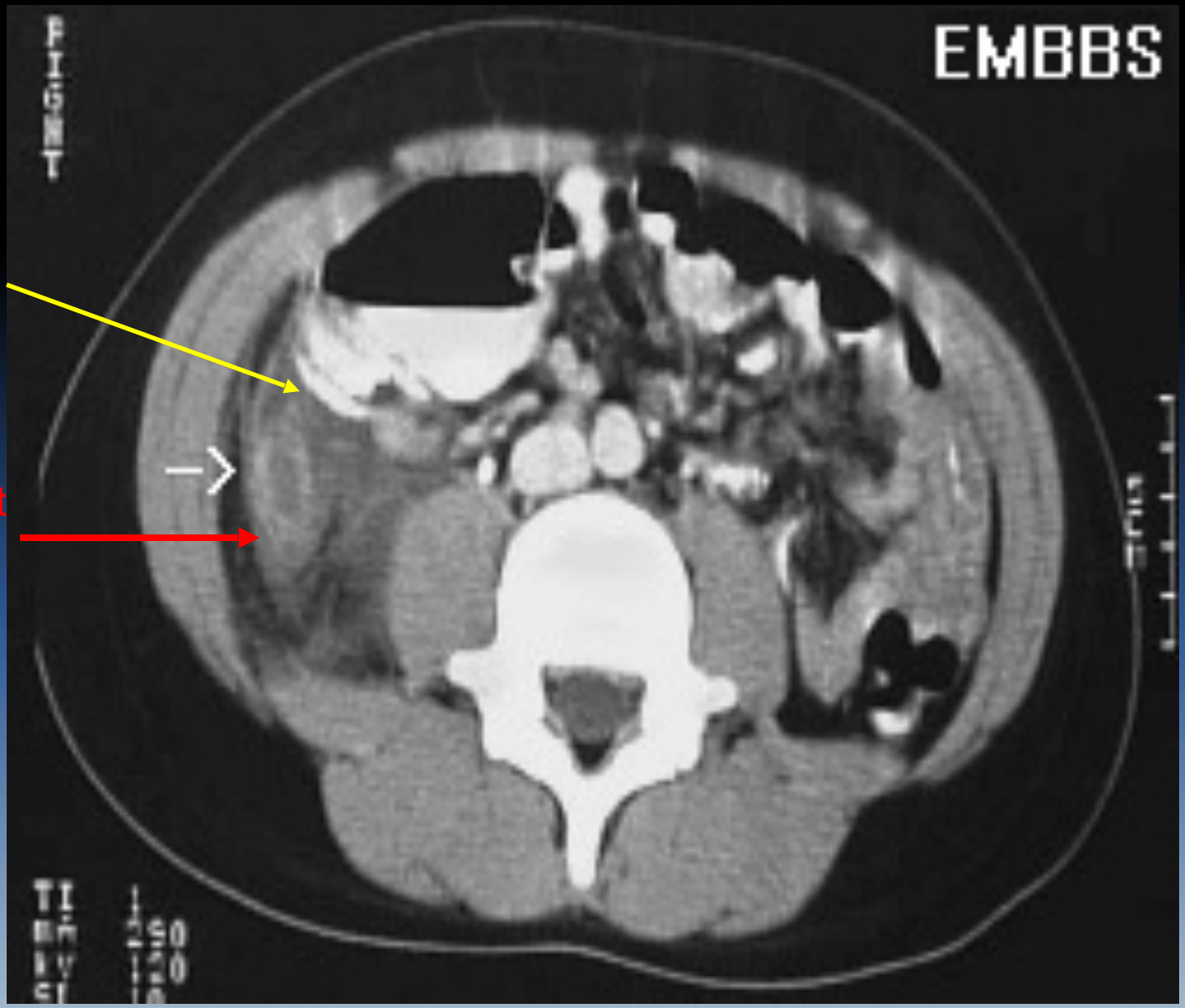
- 24 yo healthy M with one day hx of abdominal pain.
- Pain was generalized at first, now worse in right lower abd & radiates to his right groin.
- He has vomited twice today.
- Denies any diarrhea, fever, dysuria or other complaints.

- What else do you want to know?
- Acute vs chronic?
- Visceral or parietal?
- Important signs?

- T: 37.8, HR: 95, BP 118/76,
- Uncomfortable appearing, slightly pale
- Abdomen: soft, non-distended, tender to palpation in RLQ with mild guarding; hypoactive bowel sounds
- **What is your differential diagnosis and what do you do next?**

Labs??

- CBC?
- LFT?
- Renal function?
- Urineanalysis?
- X-ray??
- Us abdomen?
- Ct scan??


Cecum
Abscess, fat stranding
EMBBS

Case #2

- 46 yo M with hx of alcohol abuse with 3 days of severe upper abd pain, vomiting, subjective fevers.
- Vital signs: T: 37.4, HR: 115, BP: 98/65, Abdomen: mildly distended, moderately epigastric tenderness, +voluntary guarding
- **What is your differential diagnosis & what next?**

Pancreatitis

- Risk Factors
  - Alcohol
  - Gallstones
  - Drugs
    - diuretics, NSAIDs
  - Severe hyperlipidemia
- Clinical Features
  - Epigastric pain
  - Radiates to back
  - Severe
  - N/V

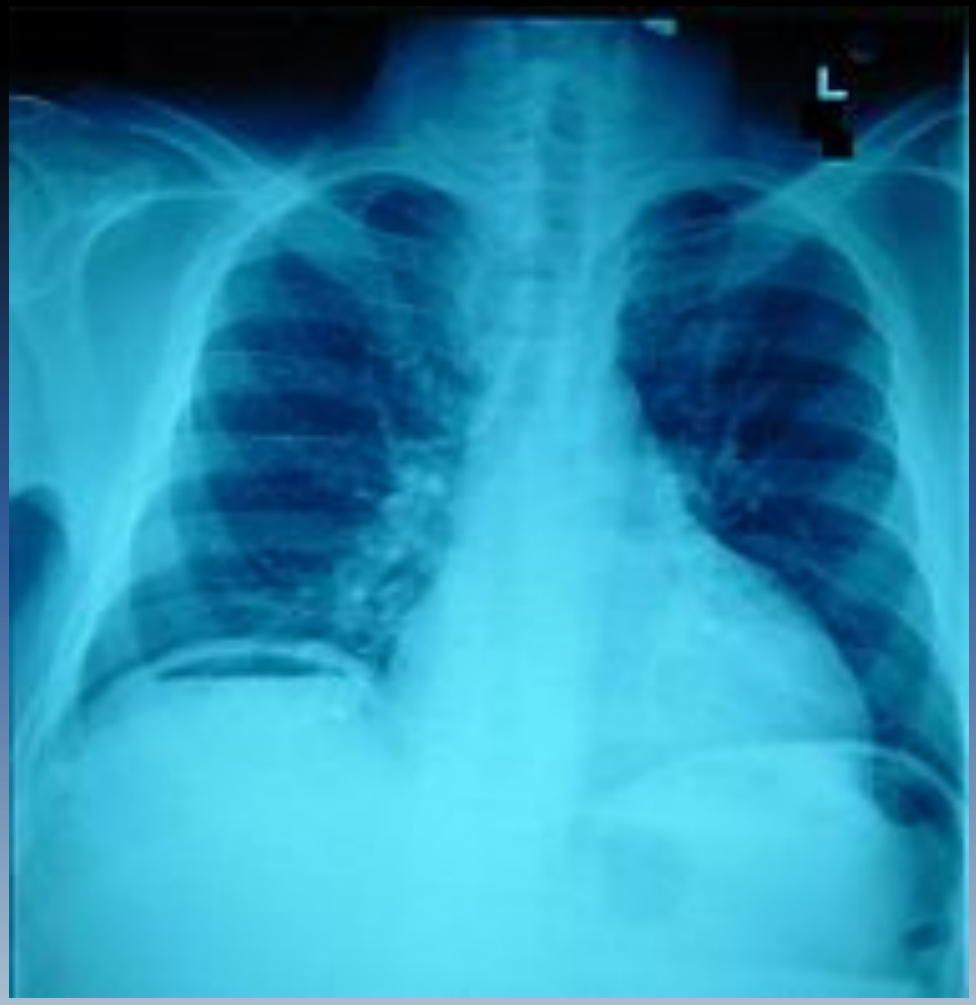
Case #3

- 72 yo M with hx of CAD on aspirin and Plavix with several days of dull upper abd pain and now with worsening pain “in entire abdomen” today. Some relief with food until today, now worse after eating lunch.
- T: 99.1, HR: 70, BP: 90/45, R: 22
- Abd: mildly distended and diffusely tender to palpation, +rebound and guarding
- **What is your differential diagnosis & what next?**

Peptic Ulcer Disease

- Risk Factors
  - H. pylori
  - NSAIDs
- Clinical Features
  - Burning epigastric pain
  - Sharp, dull, achy, or “empty” or “hungry” feeling
  - Relieved by milk, food, or antacids
  - Awakens the patient at night
- Physical Findings
  - Epigastric tenderness
  - Severe, generalized pain may indicate perforation with peritonitis

Here is your patient's x-ray….



Symptoms that suggest complications related to a **peptic ulcer** include:

- The sudden development of severe, diffuse abdominal pain may indicate perforation.
- Vomiting is the cardinal feature present in most cases of pyloric outlet obstruction.
- Hemorrhage may be heralded by nausea, hematemesis, melena, or dizziness.

Medical causes of abdominal pain

CHRONIC ABDOMINAL PAIN

- Chronic abdominal pain is a common complaint, and the vast majority of patients will have a **functional** disorder, most commonly the irritable bowel syndrome.
- Initial workup is therefore focused on differentiating benign functional illness from organic pathology.

- **Features that suggest organic illness include**
  - unstable vital signs,
  - weight loss,
  - fever,
  - dehydration,
  - electrolyte abnormalities,
  - symptoms or signs of gastrointestinal blood loss,
  - anemia, or
  - signs of malnutrition.

Chronic pain DDX

- IBS
- IBD
- PUD
- Gastric/ small or large bowel cancer
- Pancreatic cancer
- Celiac disease
- Reflux disease
- Functional dyspepsia

Case # 4

- 23 year old female medical students
- Presented with 2 years h/o intermittent left lower quadrant abdominal pain which is usaully relieved by defecation and associated with constipation and abdominal bloating

- What else you need?
- Acute vs chronic?
- Visceral vs parietal?
- Physical exam?
- DDX?

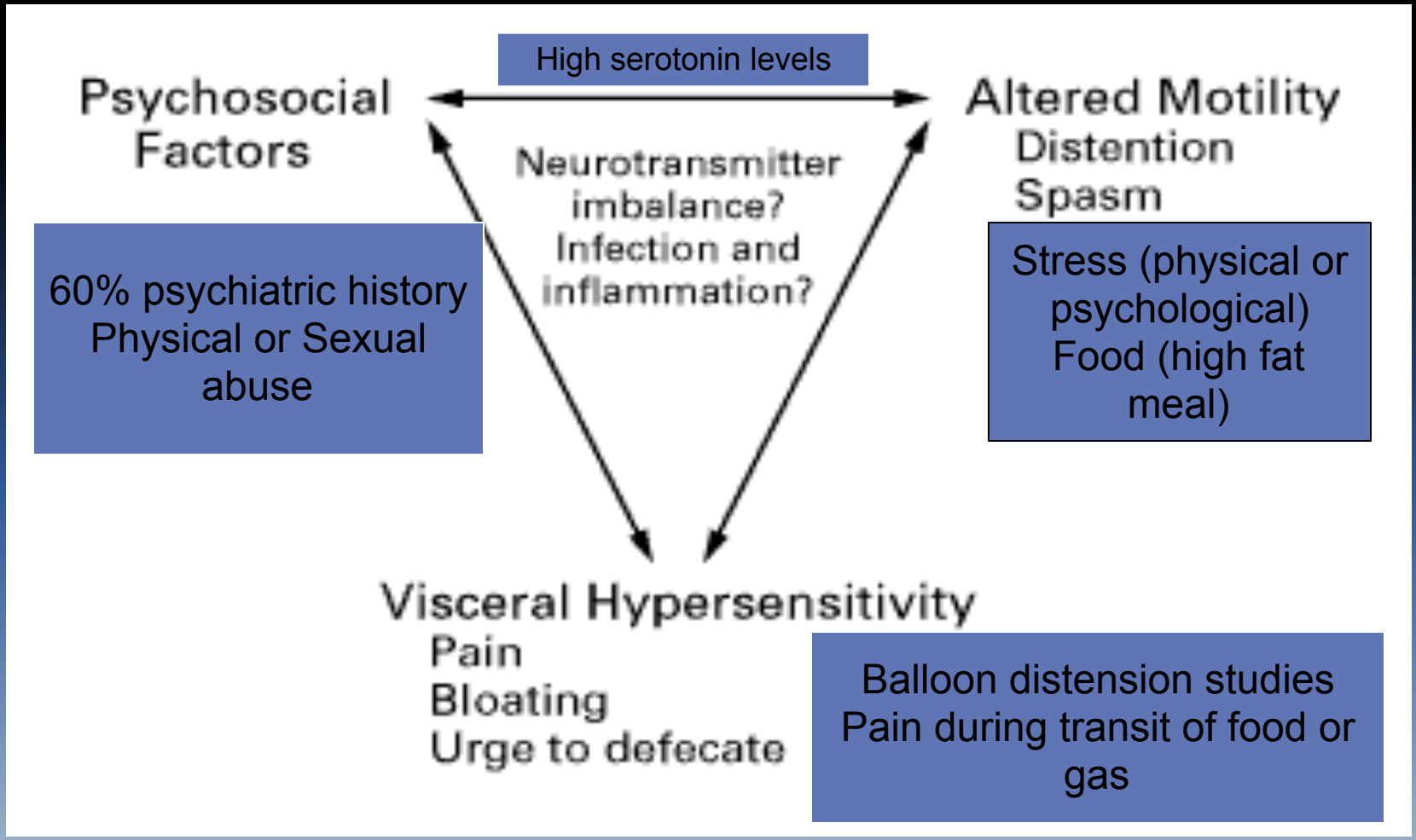
Irritable bowel syndrome (IBS)

- IBS is a chronic continuous or remittent functional GI illness
- It has no recognized organic disease and has no specific cause.
- 50% of referrals to gastroenterologist.

Epidemiology

- Gender differences:
  - Affects up to 20% of adults (70% of them are women).
- Age:
  - Young
  - High prevalence of psychiatric disorders (anxiety and depression were the most common).
- Only 25% of persons with this condition seek medical care.

Pathophysiology



Rome III diagnostic criteria* for irritable bowel syndrome

Recurrent abdominal pain or discomfort• at least 3 days per month in the last 3 months associated with 2 or more of the following:
(1) Improvement with defecation
(2) Onset associated with a change in frequency of stool
(3) Onset associated with a change in form (appearance) of stool

* Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis.

• Discomfort means an uncomfortable sensation not described as pain. In pathophysiology research and clinical trials, a pain/discomfort frequency of at least 2 days a week during screening evaluation for subject eligibility.

Reproduced with permission from: Longstreth GF, Thompson WG, Chey WD, et al. Functional bowel disorders. Gastroenterology 2006; 130:1480.

Symptoms that cumulatively support the IBS Dx:

- Abnormal stool frequency (>3 BM/day or <3BM/ week.
- Abnormal stool form (lumpy/hard or loose/watery)
- Abnormal stool passage (straining, urgency or feeling of incomplete evacuation)
- Passage of mucus
- Bloating or feeling of abd distension.

Clinical features supporting IBS Dx

- Long history with exacerbation triggered by life events
- Association with symptoms in other organ systems.
- Coexistence of anxiety and depression
- Symptoms that are exacerbated by eating.
- Conviction of the patient that the disease is caused by “popular” concerns (e.g. allergy, H Pylori)

Diagnosis

- IBS is not necessarily diagnosis of exclusion.
- Need a very good history (Rome 3 criteria + other clinical features suggestive of IBS)
- Ask about Alarm symptoms that suggest other serious diseases

Alarm symptoms

- PR bleeding
- Weight loss
- Family history of cancer.
- Fever
- Anemia
- Onset >45 years of age
- Progressive deterioration
- Steatorrhea
- dehydration

Diagnosis

- A firm diagnosis of IBS based on validated HX, and a normal physical examination, coupled with limited relevant diagnostic testing is reassuring to patients.
- ?endoscopy.

Management

- There is no cure, **but** effective management may lessen the symptoms.
- The therapeutic attitude of the physician during the first interview is of paramount importance.

Physician attitude

- He should acknowledge the distress caused by the illness.
- Build an atmosphere of confidence and trust.
- Allow sufficient time.
- Explain to patient that he does not have a serious disease, however he has a chronic illness characterized by “sensitive gut” which can reacts excessively to food and mood.

Treatment of IBS (Then)

Abdominal pain / discomfort

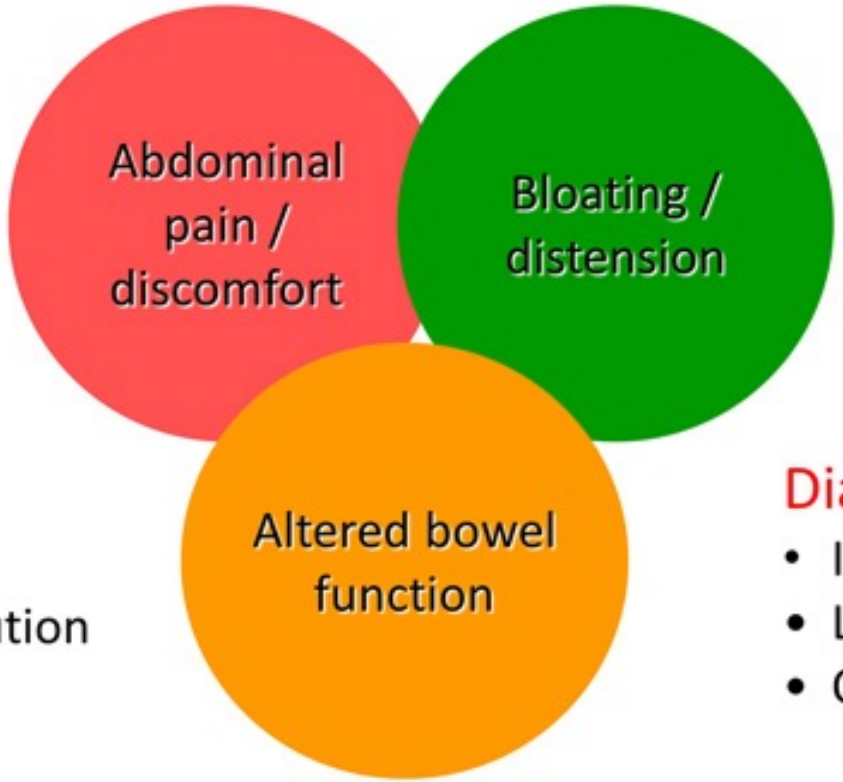
Antispasmodics

Antidepressants

Bloating

5-HT_4 agonist

Dietary changes



Constipation

- Fiber
- MOM /PEG solution

Diarrhea

- Imodium
- Loperamide
- Other opioids

Evidence-Based Summary of Medical Therapies for IBS-D Symptoms

	Improvements in Symptoms					Grade*
	Global Symptoms	Pain	Bloating	Stool Frequency	Stool Consistency	
Antibiotics (rifaximin)	+		+			1B
Antidepressants	+	+				1B
Alosetron	+	+	+	+		2A-W 2B-M
Loperamide				+	+	2C
Antispasmodics	±	+				2C
Probiotics (Bifidobacteria/some combos)	+					2C

Note: Antidepressants and antibiotics are not FDA approved for IBS.

*Recommendations—based on the balance of benefits, risks, burdens, and sometimes cost: Grade 1=strong, Grade 2=weak. Assessment of quality of evidence—according to the quality of study design, consistency of results among studies, directness and applicability of study end points: Grade A=high, Grade B=moderate, Grade C=low.

ACG Task Force on IBS. *Am J Gastroenterol*. 2009;104(suppl 1):S1-S35.

Evidence-Based Summary of Medical Therapies for IBS-C Symptoms

	Improvements in Symptoms					Grade*
	Global Symptoms	Pain	Bloating	Stool Frequency	Stool Consistency	
Lubiprostone	+	+			+	1B
Antidepressants	+	+				1B
Tegaserod†	+	±	+	+	+	1A-W IBS-C
Fiber (psyllium)				+	+	2C
Laxatives (PEG)				+		2C

Note: Antidepressants, fiber, and laxatives are not FDA approved for IBS.

*Recommendations—based on the balance of benefits, risks, burdens, and sometimes cost: Grade 1=strong, Grade 2=weak; Assessment of quality of evidence—according to the quality of study design, consistency of results among studies, directness and applicability of study end points: Grade A=high, Grade B=moderate, Grade C=low.

†Available only under Emergency IND program; PEG=polyethylene glycol.

Adapted from ACG Task Force on IBS. *Am J Gastroenterol*. 2009;104(suppl 1):S1-S35.

AGAI Technical Review of IBS Pharmaceuticals

Therapeutic	Recommendation (Compared to No Drug Treatment)	Level of Evidence
Linaclotide	Strong IBS-C	High Quality
Lubiprostone	Conditional IBS-C	Moderate Quality
PEG Laxatives	Conditional IBS-C	Low Quality
Rifaximin	Conditional IBS-D	Moderate Quality
Alosetron	Conditional IBS-D	Moderate Quality
Loperamide	Conditional IBS-D	Low Quality
Tricyclics	Conditional IBS	Low Quality
SSRIs	Conditional AGAINST USE	Low Quality
Antispasmodics	Conditional IBS	Low Quality

Chang L et al. Gastroenterology 2014;247:1149-72.

Eliminate foods containing fodmaps

excess fructose

fruit
apple, mango, nashi, pear, tinned fruit in natural juice, watermelon

sweeteners
fructose, high fructose corn syrup

large total fructose dose
concentrated fruit sources, large serves of fruit, dried fruit, fruit juice

honey
corn syrup, fruisana

lactose

milk
milk from cows, goats or sheep, custard, ice cream, yoghurt

cheeses
soft unripened cheeses eg. cottage, cream, mascarpone, ricotta

fructans

vegetables
artichoke, asparagus, beetroot, broccoli, brussels sprouts, cabbage, fennel, garlic, leek, okra, onion (all), shallots, spring onion

cereals
wheat and rye, in large amounts eg. bread, crackers, cookies, couscous, pasta

fruit
custard apple, persimmon, watermelon

miscellaneous
chicory, dandelion, inulin, pistachio

galactans

legumes
baked beans, chickpeas, kidney beans, lentils, soy beans

polyols

fruit
apple, apricot, avocado, blackberry, cherry, longon, lychee, nashi, nectarine, peach, pear, plum, prune, watermelon

vegetables
cauliflower, green capsicum (bell pepper), mushroom, sweet corn

sweeteners
sorbitol (420)
mannitol (421)
isomalt (953)
maltitol (965)
xylitol (967)

Abdominal Pain Clinical Pearls

- Pain awakening the patient from sleep should always be considered significant.
- Pain almost always precedes vomiting in surgical causes; converse is true for most gastroenteritis and NSAP
- Exclude life threatening pathology
- BHCG in female of child bearing age

- Initial workup of chronic abdominal pain should be focused on differentiating benign functional illness from organic pathology.
- Features that suggest organic illness include unstable vital signs, weight loss, fever, dehydration, electrolyte abnormalities, symptoms or signs of gastrointestinal blood loss, anemia, or signs of malnutrition.