

Chronic Abdominal Pain

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Disclosures

- ▶ I have no relevant financial disclosures

Learning Objectives

- ▶ After this talk, learners should:
 - ▶ Be familiar with the common causes of chronic abdominal pain
 - ▶ Recognize signs and symptoms that should prompt further work up
 - ▶ Understand treatments that may be helpful in chronic abdominal pain

Overview

- ▶ Chronic abdominal pain is a common pediatric problem
- ▶ Although rarely serious, symptoms can be debilitating and often concerning to parents
- ▶ Certain signs and symptoms should prompt further work up

Case(s) 1

- ▶ 3 (or younger?)-18 (or older) yo person
 - ▶ Presents with frequent abdominal pain (several time a month to “always”)
 - ▶ Pain is not debilitating but annoying/concerning
 - ▶ Patient is growing well/developing normally
 - ▶ Pain seems to be worse with being nervous/anxious
 - ▶ Patient has no other symptoms
 - ▶ Symptoms sometimes seem to bother parent more than patient

- ▶ Have you seen this patient before?

Magnitude of the Problem

- ▶ About 5% of primary care visits are for recurrent abdominal pain
- ▶ Pooled estimates suggest world wide prevalence of functional abdominal pain in children is up to 13.5% of children
 - ▶ US studies using Rome IV criteria show function disorders in 16.9%
- ▶ 5-10% of healthy adolescents in NE USA report dyspepsia symptoms
- ▶ Prevalence of IBS ranges from 1.2-2.9%, higher in other countries
- ▶ >50% of new visits to gastroenterologists meet criteria for at least 1 functional abdominal disorder

Causes of Chronic Abdominal Pain

▶ Gastrointestinal

- ▶ Functional abdominal pain disorders
- ▶ Celiac disease
- ▶ Gastritis
- ▶ Esophagitis
- ▶ Biliary disease
- ▶ Inflammatory bowel disease
- ▶ Pancreatitis
- ▶ Peptic ulcer disease
- ▶ Parasitic infections
- ▶ *H. pylori* infection

▶ GU

- ▶ Endometriosis
- ▶ Ovarian cysts
- ▶ Pelvic Inflammatory disease
- ▶ Urinary tract infections
- ▶ Kidney stones
- ▶ Testicular disease

▶ Metabolic Diseases

- ▶ Diabetic ketoacidosis
- ▶ Adrenal crisis

▶ Other

- ▶ Lymphomas/abdominal masses
- ▶ Vasculitis

Functional Abdominal Pain Disorders (FAPDs)

- ▶ Most common cause of chronic abdominal disorders
- ▶ Caused by disorders of the “brain-gut axis”
 - ▶ Hypersensitivity of enteric nervous system to stimuli
 - ▶ Abnormal processing of pain signaling in central nervous system
- ▶ Defined by Rome IV Criteria
 - ▶ Collection of diagnostic criteria to define functional abdominal disorders
 - ▶ Allows to make a positive diagnosis of a disorder without making “diagnosis of exclusion”
 - ▶ With certain amount of work up

Pathophysiology of Functional Abdominal Disorders

- ▶ Pathophysiology of FAPDs unclear
 - ▶ Disorders of "brain-gut" axis
 - ▶ Hyperalgesia/hypersensitivity of nerves in GI tract
 - ▶ Altered pain processing by CNS
 - ▶ Altered gut motility may contribute
 - ▶ Potentially induced by infection or inflammation
 - ▶ Genetic factors may contribute
 - ▶ Stress/anxiety contribute to symptoms
 - ▶ Traumatic early life events may also play a role

Case 2

- ▶ 12 yo girl
 - ▶ Complains of epigastric pain after eating
 - ▶ Feels like she “can’t eat as much as she used to”
 - ▶ No specific trigger foods
 - ▶ No vomiting, dysphagia, heartburn
 - ▶ No weight loss
 - ▶ Often feels bloated or nauseous after eating
 - ▶ Normal physical examination
- ▶ How do we classify this child?

Functional Dyspepsia

- ▶ Diagnostic Criteria
 - ▶ Must include 1 or more of the following symptoms at least 4 days/month
 - ▶ Postprandial fullness
 - ▶ Early satiation
 - ▶ Epigastric pain or burning not associated with defecation
 - ▶ After appropriate evaluation, the symptoms cannot be fully explained by another medical condition
 - ▶ Symptoms for 2 months prior to diagnosis

Functional Dyspepsia

- ▶ Postprandial distress syndrome
 - ▶ Bothersome postprandial fullness/early satiety
 - ▶ Prevents finishing a regular meal
 - ▶ Supporting features
 - ▶ Abdominal bloating
 - ▶ Nausea
 - ▶ Belching
- ▶ Epigastric pain syndrome
 - ▶ Bothersome pain/burning in epigastrium
 - ▶ Not localized to other regions of chest/abdomen, not related to defecation
 - ▶ Supportive criteria
 - ▶ Burning sensation w/o retrosternal component
 - ▶ Commonly induced by a meal but may occur during fasting

Case 3

- ▶ 17 yo boy
 - ▶ Complains of episodic pain occurring several times a week
 - ▶ Cramping, usually in the lower abdomen or “all over”
 - ▶ Pain typically associated with loose stool
 - ▶ No blood or mucous in the stool
 - ▶ Defecation often relieves pain, but not always
 - ▶ Normal stools other days of the week
 - ▶ Pain often worse during periods of stress
 - ▶ Normal physical examination

- ▶ How do we classify this patient?

Irritable Bowel Syndrome

- ▶ Diagnostic Criteria:
 - ▶ Abdominal pain at least 4 days per month associated with one of more of the following:
 - ▶ Related to defecation
 - ▶ A change in frequency of the stool
 - ▶ A change in form (appearance) of the stool
 - ▶ In children with constipation, the pain does not resolve with resolution of constipation
 - ▶ After appropriate evaluation, symptoms cannot be fully explained by another medical condition
- ▶ Criteria must be fulfilled for 2 months prior to diagnosis

Case 4

- ▶ 8 yo girl
 - ▶ Complains of episodes of severe, debilitating periumbilical pain
 - ▶ Associated with nausea, occasional vomiting, decreased appetite
 - ▶ Occurs about 2 times a month, always feels the same
 - ▶ Last for about 1 day, self resolves
 - ▶ No symptoms in between episodes
 - ▶ Growing normally
 - ▶ Normal physical examination
- ▶ How do we classify this patient?

Abdominal Migraines

- ▶ All diagnostic criteria must occur at least twice:
 - ▶ Paroxysmal episodes of intense, acute periumbilical, midline or diffuse abdominal pain lasting 1 or more hours (predominant symptom)
 - ▶ Episodes are separated by weeks to months
 - ▶ Pain is incapacitating and interferes with normal activities
 - ▶ Stereotypical pattern and symptoms in the individual patient
 - ▶ Pain is associated with 2 or more of the following:
 - ▶ Anorexia
 - ▶ Nausea
 - ▶ Vomiting
 - ▶ Headache
 - ▶ Photophobia
 - ▶ Pallor
 - ▶ After appropriate evaluation, symptoms cannot be fully explained by another medical condition
- ▶ Criteria fulfilled for at least 6 months before diagnosis

Case 5

- ▶ 5 yo boy
 - ▶ Complains of abdominal pain “a few times a week”
 - ▶ No other associated symptoms
 - ▶ No diarrhea, vomiting, early satiety
 - ▶ Overweight and growing well
 - ▶ More often occurs during the school week, less frequent during summer months
 - ▶ Not associated with eating or activity, occurs “randomly”
 - ▶ Normal physical examination
- ▶ How do we classify this patient?

Functional Abdominal Pain-NOS

- ▶ Diagnostic Criteria
 - ▶ Must be fulfilled at least 4 times per month and include all of the following:
 - ▶ Episodic or continuous abdominal pain that does not occur solely during physiologic events (eg eating, menses)
 - ▶ Insufficient criteria for IBS, functional dyspepsia or abdominal migraine
 - ▶ After appropriate evaluation, the abdominal pain cannot be fully explained by another condition
 - ▶ Criteria fulfilled for at least 2 months before diagnosis

Case 6

- ▶ 14 yo girl
 - ▶ Complains of abdominal pain “most days of the week”
 - ▶ Accompanied with occasional vomiting
 - ▶ Diarrhea 3-4 times a day most days of the week
 - ▶ No weight loss but no weight gain in the last 6 months
 - ▶ Maternal aunt with celiac disease
 - ▶ Paternal uncle with Crohn’s disease

- ▶ What features of this patient should concern you?

Red Flag Signs

- ▶ Signs that should raise your concern level:
 - ▶ Weight loss
 - ▶ Growth deceleration/short stature
 - ▶ Persistent or severe diarrhea
 - ▶ Nocturnal diarrhea
 - ▶ Hematochezia/hematemesis
 - ▶ Vomiting
 - ▶ Persistent localized pain (RUQ/RLQ)
 - ▶ Dysphagia/odynophagia
 - ▶ Fevers
 - ▶ Delayed puberty
 - ▶ Family history of IBD, celiac disease, or peptic ulcer disease

Case 6

- ▶ This patient has multiple red flag symptoms
 - ▶ Further work up is reasonable
- ▶ What is the appropriate initial work up?

Potential Screening Labs

- ▶ CBC: infection, inflammation, malabsorption
- ▶ Metabolic Panel: malabsorption, hepatitis, inflammation
- ▶ Celiac Screen: (tissue transglutaminase IgA and total IgA)
- ▶ Erythrocyte sedimentation rate: inflammation
- ▶ C- reactive protein: inflammation, infection
- ▶ Thyroid stimulating hormone
- ▶ Fecal calprotectin: inflammation, infection

Is It Worth the Work Up?

- ▶ Patients meeting criteria for FAPD often undergo testing
 - ▶ 122 patients referred over 3 year period in single center study
 - ▶ All underwent at least one study
 - ▶ Few significant findings
 - ▶ Cost/patients: \$6104
- ▶ Endoscopy generally not recommended in lack of alarm signs

Case 6

- ▶ This patient's initial work up is normal
 - ▶ No signs of celiac, inflammation, anemia
 - ▶ After discussion of risks and benefits, parents decline further testing
- ▶ What can we do for these patients?

Treatment

- ▶ Reassurance
 - ▶ FAPDs are benign without any association with long term illness or physical harm
 - ▶ Explaining relationship between brain and gut can be helpful
- ▶ Cognitive behavioral therapy (CBT)
 - ▶ Guided imagery, breathing exercises, relaxation techniques
 - ▶ Taught by trained therapists, also online resources
 - ▶ Several RCTs have shown CBT to be effective for FAPDs
- ▶ Hypnotherapy
 - ▶ RCTs have shown to be effective for CBT

Treatments

- ▶ Probiotics
 - ▶ Live cultures of beneficial bacteria
 - ▶ Limited evidence for use in FAPDs
 - ▶ *Lactobacillus rhamnosus* has been shown to be effective in FAPDS, particularly IBS

Treatments

- ▶ Diet
 - ▶ Low FODMAP (Fermentable oligo-, di- and mono- saccharides and polyols)
 - ▶ May have benefits, particularly in IBS
 - ▶ Can be very difficult to adhere to
 - ▶ Must be done with dietician
 - ▶ Lactose free
 - ▶ Only with clear signs of lactose intolerance
 - ▶ In general, recommend avoiding processed foods and foods that make you not feel well

Treatments

- ▶ Mint oil
 - ▶ Interacts with Ca channel receptors
 - ▶ Decreases muscle spasms
 - ▶ Shown to be effective in several trials to help with pain and diarrhea in IBS-D
 - ▶ Side effects can include reflux symptoms

Treatments

- ▶ SWT5

- ▶ Tincture of herbs used in Germany: bitter candytuft, angelica root, milk thistle fruit, celandine herb, caraway fruit, liquorice root, peppermint, balm leaf, chamomile flower
- ▶ Mechanism of action unclear
- ▶ No RCTs in children, but retrospective trial has shown to be safe and effective
- ▶ RCTs in adult have also shown benefit over placebo in pain reduction

Treatments

- ▶ Cyproheptadine
 - ▶ H1 receptor antagonist, 5-HT2 antagonist, weak anticholinergic properties
 - ▶ Effective in treatment of FAPDs, particularly functional dyspepsia
 - ▶ Increases gastric accommodation, appetite, decreases nausea
 - ▶ Sedation is an important side effects
 - ▶ Also stimulates appetite
 - ▶ Can be effect or side effect depending on clinical scenario

Treatments

- ▶ SSRI
 - ▶ Retrospective data indicates potential benefit in FAPDs
 - ▶ RTC and prospective studies limited
 - ▶ Particularly effective in patients with underlying mental health issues
 - ▶ Side effect includes diarrhea, may limit use in IBS-D
- ▶ Tricyclic Antidepressants
 - ▶ Retrospective data also supports use
 - ▶ Limited prospective data/ RTC
 - ▶ Can cause constipation
 - ▶ Can prolong QT interval, need EKG before starting

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