Chronic abdominal pain of childhood

Sandra I. Escalera, M.D.
ProHealth Physicians
Associate Clinical Professor
Department of Pediatrics
Yale University School of Medicine

Objectives

- Brief overview of approach of pediatric patient with gastrointestinal disease
- Define chronic abdominal pain, epidemiology and natural progression
- Discuss diagnostic tools in the evaluation of children with chronic abdominal pain
- Therapeutic options for chronic abdominal pain
- Discussion of the role of the school nurse in the evaluation, care and management of patients with chronic abdominal pain
- Clinical case studies review

Children are not small adults!
The pediatric patient with GI disease

- Developmental anatomy and physiology
  - Physiologic vs. pathologic
  - Growth and development
- Feasibility and impact of diagnostic testing
- Effects, side effects and dosing of pharmacological agents
- Growth and development

Developmental considerations

- Anatomy
- Physiology
- Motility
  - Digestion/absorption
- Nutrition

Developmental considerations

**Anatomy**
- Anatomy
  - Is not just about different size is also different location
- Congenital defects
  - Esophageal atresia
  - Tracheoesophageal fistulae
  - Pyloric stenosis
  - Malrotation intestinalis
  - Duodenal atresia
  - Choledochal cysts
  - Diaphragmatic hernias
Developmental considerations

**Physiology**

- **Motility**
  - Delayed gastric emptying
  - Rapid colonic transit

- **Digestion**
  - Immature acid production
  - Immature pancreatic enzyme production

- **Absorption**
  - Delayed bile acid absorption
  - Inefficient colonic water absorption

**Growth & Nutrition**

- Nutritional needs change with age
- Impact on cognitive and physical development
- Growth and nutritional needs can be affected by underlying illness
- Growth and nutritional needs can be affected by the therapy use to treat the illness
- Growth patterns provide important clues to the underlying condition

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**The Growth chart**

- Used since 1977 and developed from data collected through the third National health and Nutrition Examination Survey
- Revised and distributed by the Center for disease Control and Prevention
- Available for female and male infant/toddler 0 to 36 months and children 3 to 18 years
- Specialty or alternative growth charts also available like Down Syndrome, Turner, meningomyelocele, very low birth weight and achondroplasia growth charts
Clues from the growth chart

Where is your Boo Boo? Point with one finger

Chronic Abdominal pain of Childhood

Chronic abdominal pain of childhood is defined as 3 episodes of abdominal pain over a period of at least 3 or more months
Chronic abdominal pain  
**Epidemiology**

- Prevalence of 10% to 15% of school age children are affected  
- Slightly higher prevalence in girls compare to boys  
- In 90% to 95% of children no organic cause can be identified  

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**Functional Gastrointestinal Disorders**  
**Evolution through the children’s life**  

- Infancy-colic  
- Toddler’s- toddler’s diarrhea  
- School age children- functional abdominal pain  
- Adolescent- irritable bowel syndrome  

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Chronic abdominal pain  
**Characteristics**  

- Most commonly seen between 4 and 14 years old  
- Chronic- 3 months or more without progression of any other systemic symptoms or manifestations  
- Episodes of pain alternate with episodes of no pain  
- There is not a consistent relationship of the episodes of abdominal pain with meals, bowel movements or general activities  
- There is usually a disturbance of child’s daily or expected activity
Chronic abdominal pain

Characteristics

- Pain is usually located in the periumbilical region
- Pain is worst in the morning with resolution by midday
- Pain interferes with daily activities specially school attendance
- Pain does not awaken child in the middle of the night
- Often secondary gains or social stressors are identified

Chronic abdominal pain

Psychological profile

- School age children are either overachievers or struggling with school
- They usually come from “painful families”
- School absenteeism is rewarded
- “there is something really wrong and with my child and very smart doctors can not figure it out”, making the child feel special

Chronic abdominal pain

Screening tests

- Complete blood count
- Sedimentation rate
- Urinalysis
- Comprehensive metabolic profile
- Amylase and Lipase
- Celiac disease antibody profile
- Breath tests
  - Urea breath test
  - Lactose tolerance test
- Radiology
  - abdominal ultrasound
  - Abdominal X Ray
Chronic abdominal pain
**Signs of organic disease**

- Recurrent fevers
- Weight loss
- Growth failure
- Pain away from umbilical region
- Perianal disease
- Blood in the stool
- Vomiting
- Anemia

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Differential diagnosis of Chronic abdominal pain

- Peptic ulcer disease
- GERD
- Inflammatory bowel disease
- Constipation
- Pancreatitis
- Biliary colic/disease
- Lactose intolerance
- Urinary tract infection
- Pneumonia
- Musculoskeletal pain

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Peptic Ulcer disease

- Pain is usually located in the epigastric region
- Pain is usually associated with meals
- Pain is worst with acidic food, caffeine, carbonated drinks or fatty foods
- Pain responds to small meals and to antacids
Inflammatory bowel disease

- Pain is usually postprandial and cramp in nature mainly associated with meals and defecation
- Right lower quadrant tenderness or mass is usually appreciated
- Weight loss
- Blood in the stool
- Anemia
- Fatigue

Constipation

- One of the most common causes of chronic abdominal pain in childhood
- Pain is usually periumbilical
- Pain improves with the passage of stool
- Stools can be either large and infrequent or daily and small both resulting in colonic fecal retention
- May be associated with fecal soiling in the case of Encopresis or blood around the stool if hemorrhoids or fissures are present

Pancreatitis

- Pain is usually postprandial, worst with fatty foods and located in the epigastric region
- Pain usually radiates to the back and improves if the patient leans forward
- In children is usually idiopathic but it also occurs after trauma, certain childhood infections or associated with chronic medications specially antiepileptic
Biliary colic

- Pain is usually postprandial
- Pain is usually located in the right upper quadrant with a sudden onset but pain may linger for hours
- Pain radiates to the back and shoulder
- Nausea and vomiting may accompany attacks of pain
- Most commonly seen in females

Usual Risk factors
- Family history of gallbladder disease
- Rapid weight gain or weight loss
- Obesity
- Hypercholesterolemia

Lactose intolerance

- Common cause of abdominal pain in children
- Classically present as abdominal pain, gassiness, and diarrhea after ingestion of lactose-containing items
- In younger children can be present as abdominal pain without clear association with lactose intake
- Symptoms and intolerance usually worsen with age

Chronic Abdominal Pain Treatment
Treatment of non organic chronic abdominal pain

- After complete medical evaluation is completed extensive reassurance and education should be provided
- Acknowledge and respect that the pain is real
- Reassure the child that although the pain is real he/she is safe and unlikely to have a dangerous medical condition
- Child should be encouraged the return to daily regular activities including regular school attendance

- Well balance diet specially rich in fiber and plenty of water
- Daily physical activity should be encouraged
- Design “rescue plan” for abdominal pain; i.e. relaxation and breathing techniques, antispasmodics, antacids, heating pads, warm bath, warm drinks
- In severe cases psychological/psychiatric evaluation intervention might be necessary

Prognosis

- If family is accepting of the diagnosis within 6 weeks of diagnosis up to 50% of patients have resolution of symptoms
- Often patient continue with symptoms into adulthood
- Factors associated with bad prognosis
  - Male gender
  - Onset of pain prior to 6 year of age
  - Duration of pain for more than 6 months prior to treatment
Chronic Abdominal Pain
Clinical Cases

Chronic abdominal pain
Case 1
- 9 years old male
- Periumbilical abdominal pain not associated with meals
- No other symptoms
- Stool pattern reportedly normal
- Pain does not awaken child
- No history of weight loss
- Missing school
- No family history of IBD or PUD
- Appropriate Height and Weight
- Normal physical examination

Functional abdominal pain of childhood
- Common in school age children
- Often family history of chronic abdominal pain
- Personality traits: Anxious, perfectionists, nonflexible
- Vicious cycle of child's complaints and parental anxiety resulting in secondary gains
- May have underlying organic trigger to the pain
  - Constipation
  - Lactose intolerance
Chronic abdominal pain

**Case 2**

- 9 year old female
- Epigastric pain worst with meals
- Pain awakens the child
- Normal stool pattern
- Not missing school
- No family history of Inflammatory Bowel disease or Peptic Ulcer disease
- Appropriate Height and Weight
- Normal physical examination except for mild epigastric tenderness

**Differential diagnosis**

- Functional
- Peptic acid disease
- Pulmonary disease (pneumoniae, reactive airway disease)

**Diagnostic studies**

- CBC, ESR, UA, stool hem occult
- UGI series

**Treatment**

Chronic abdominal pain

**Case 3**

- 15 years old male with 3 month history of RLQ pain
- Intermittent bright red blood noted in stools for the past 6 months
- 1-3 soft stools /day with occasional discomfort
- Family history negative for polyposis syndromes but positive for IBD
- Appropriate height but weight loss is noted
- Normal physical examination except for stool positive for occult blood
Chronic abdominal pain

Case 3

- Differential diagnosis
  - IBD
  - Infection
  - Hemorrhoid/fissure
  - polyp
- Diagnostic studies
  - Stool cultures
  - CBC and sedimentation rate
  - Sigmoidoscopy/colonoscopy if stool studies are negative
- Treatment
  - Antibiotics for infection
  - Topical therapy for proctitis

Chronic Abdominal pain

The role of the School Nurse

- School Nurses help to create a safe and healthy environment at each school site
- School nurses provide and maintain continuity of care
- School Nurses assess the health status of students with the goal of early detection of health problems, referral for diagnosis and treatment
- School Nurse help implement appropriate modifications to the educational and physical environment to accommodate the student’s medical need
- “Healthy children learn better and school nurses make it happen”
The role of the School Nurse
How do you do it?

- Communication
  - Communicator in chief: parents, teachers, school administrators, students and health care providers
- Discipline
  - Enforcer in chief of the health care plan
- Care
  - Care provider in chief at the school site

Chronic Abdominal pain
The role of the School Nurse

- Understand the nature of the chronicity of this type of abdominal pain
- Acknowledge that the pain is real but the child is not at significant risk of having a serious medical condition
- Regular school attendance should be expected and is an important part of the treatment for these patients
- Participate in the creation of a “pain plan” with parents, teachers and the student’s health care providers
- Implement health care plan, provide supportive care and on site assessment
- Liaison between parents, health care providers and the teachers/ school administrators

Before I became a Medical Student somebody very nice and very smart took good care of me .........
My school Nurse!