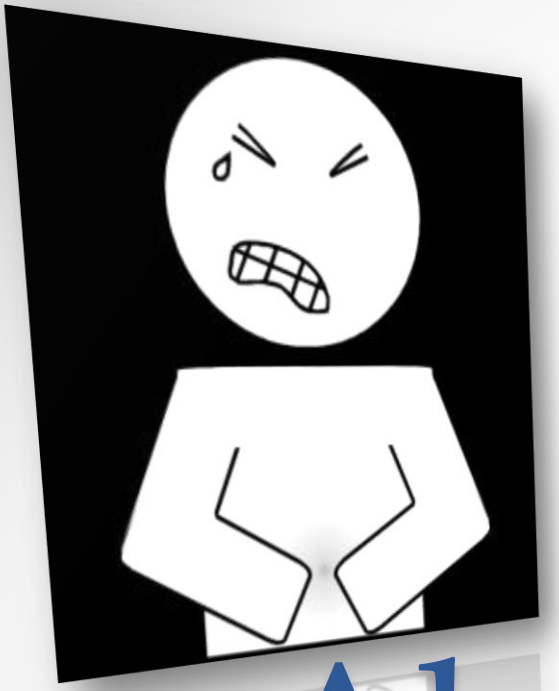


GI UPDATE 2013

Recurrent Abdominal Pain in Children

May 11 2013

Assistant Professor Matthew Carroll MD MHSc FRACP

Faculty/Presenter Disclosure

- **Faculty:**
  - **Matthew Carroll, MD MHSc FRACP**

- **Relationships with commercial interests:**
  - **Speaker honorarium – Janssen Inc.**
  - **Educational grant to support attendance at "Great Debates & Updates in Inflammatory Bowel Disease", San Francisco, March 2013.**

Disclosure of Commercial Support

- Commercial disclosures
  - **None**
- Potential for conflict(s) of interest:
  - **Not applicable**

Mitigating Potential Bias

- **Not applicable**

Objectives

- **By the end of this session the audience should:**
  - Be familiar with the common conditions related to recurrent and/or chronic abdominal pain in children
  - Be aware of 'red flags' that may help distinguish organic from functional disorders
  - Be familiar with the Rome III diagnostic criteria for Functional Gastrointestinal Disorders in children
  - Have a framework for the investigation of chronic abdominal pain in children
  - Have a framework to assist with deciding who to refer and when

Organic Disorders

- GI Disorders
  - Constipation
  - Celiac dx
  - Food intolerances/malabsorption syndromes
  - GERD/EE
  - Inflammatory Bowel Disease
  - PUD
  - Pancreatitis
  - Infectious – Giardia, Yersinia
  - Hepatobiliary diseases – choledocholithiasis, AIH, EBV
  - Anatomical/congenital issues
- Non-GI Disorders
  - Urogenital disorders – UTI/obstructive uropathy/PID/nephrolithiasis
  - Diabetes
  - Respiratory infections
  - Hematological disease
  - Henloch-Schönlein Purpura

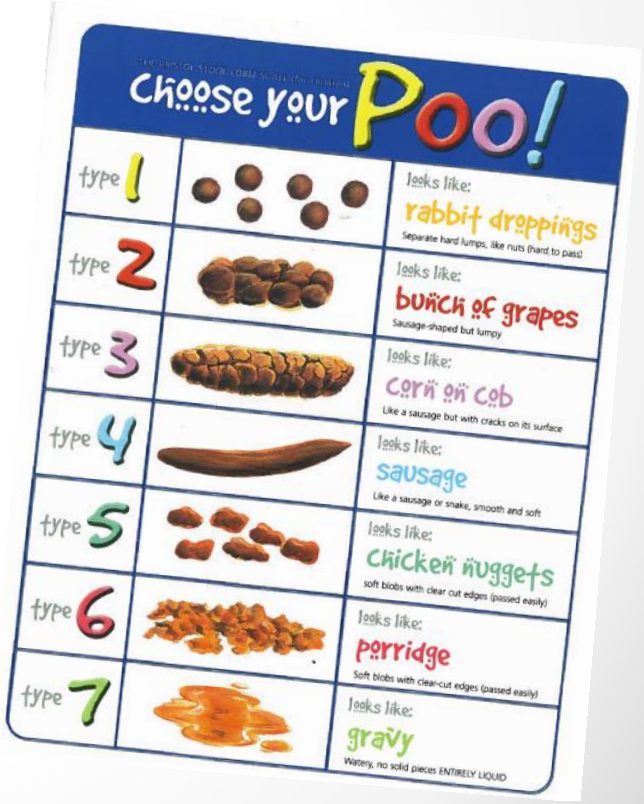
Red Flags

- Fever
- Weight loss
- Vomiting
- Growth delay
- Delayed puberty
- Amenorrhea (1 or 2)
- Elevated inflammatory markers (ESR, CRP, platelets)
- Anemia
- Chronic diarrhea – esp nocturnal
- Hematemesis/malena/hematochezia
- Arthritis, skin dx, eye dx
- Abdo mass
- Perianal disease
- Dysphagia
- Emesis (not nausea)

BJGP 2012; 62:386-7

Constipation

- Usually a chronic problem
- Abdominal XR rarely helpful
- Management
  - "Cleanout"
  - Maintenance therapy
    - PEG 3350
    - Re-training/biofeedback
    - Biomechanics
  - Consistency & perseverance
- Further investigations
  - TSH, Ca, Celiac screening, imaging



Correct position for opening your bowels

Step one

Knees higher than hips

Step two

Lean forwards and put elbows on your knees

Step three

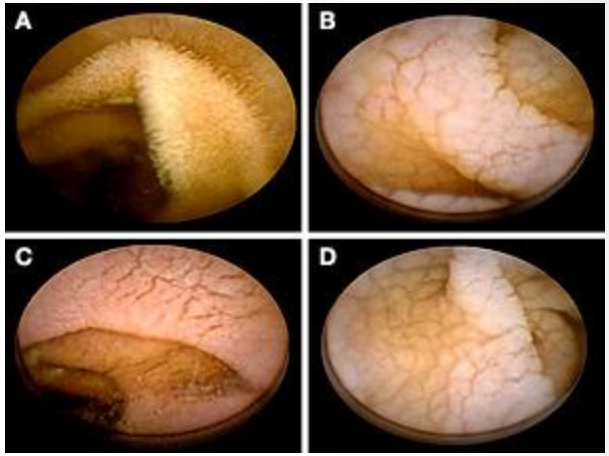
Bulge out your abdomen
Straighten your spine

Correct position

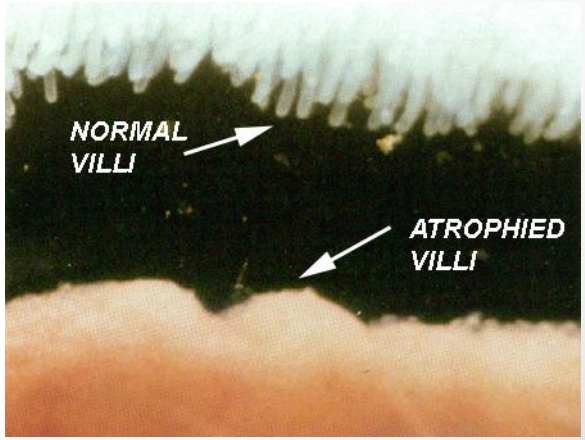
Knees higher than hips
Lean forwards and put elbows on your knees
Bulge out your abdomen
Straighten your spine

Celiac Disease

- **The great mimicker**
- Family history
- Screening
  - Anti-tissue transglutaminase antibody
  - Anti-endomysial antibody
  - Total IgA
- HLA markers DQ2/DQ8



- Endoscopy – <u>unrestricted diet</u>



Helicobacter pylori

- Indications for investigation & treatment very different in children compared with adults.

- Acquisition of infection occurs during childhood
  - BUT → usually asymptomatic
  - AND→ complications rarely seen
- When to investigate
  - Peptic ulcer disease; refractory anemia
  - Family history of gastric Ca

- How to investigate → ENDOSCOPY + BIOPSIES/RUT

H. Pylori Investigations

- HP Antibody Testing
  - Never indicated in children
- Fecal antigen test
  - Issues with validation in children; good for monitoring eradication

- **Urea Breath Test**
  - Good for monitoring eradication

JPGN 2011; 53(2):230-243
Can J Gastro 2005; 19(7):399-408

Chronic Abdominal Pain

- Prevalence not known
- 2-4% of primary care visits
- 13-17% of 13-18 yr olds experience AP weekly
  - 8% had seen a a physician for AP in the previous year
- ~50% of specialist pediatric GI visits

- Limited pediatric data but adult data shows:
  - Reduced QoL
  - Significant economic costs
  - School & academic performance
  - Peer interactions

JPGN 2005; 40(3): 249-261
JPGN 2008; 47(5): 679-680

Terminology

Recurrent Abdominal pain (RAP)

Chronic Abdominal Pain (CAP)

Recurrent Chronic Abdominal Pain (CRAP)

versus

Pain-predominant functional gastrointestinal disorders (PP-FGIDs)

Abdominal Pain

- Apley & Naish – 1950's →RAP
  - Abdominal pain without an organic etiology
  - ≥ 3 bouts of AP over at least 3 months affecting activities
  - Became a general term for all non-organic AP
- CAP → Chronic Abdominal Pain
  - "Long lasting intermittent or chronic abdominal pain that is functional or non-organic" with a minimum duration of 3 months (AAP)
- FAP → Functional Abdominal Pain
  - Non-organic AP; psychogenic AP

Arch Dis Child 1958; 33: 165-70
JPGN 2005; 40(3): 245-248

FGID

- Functional Gastrointestinal Disorders

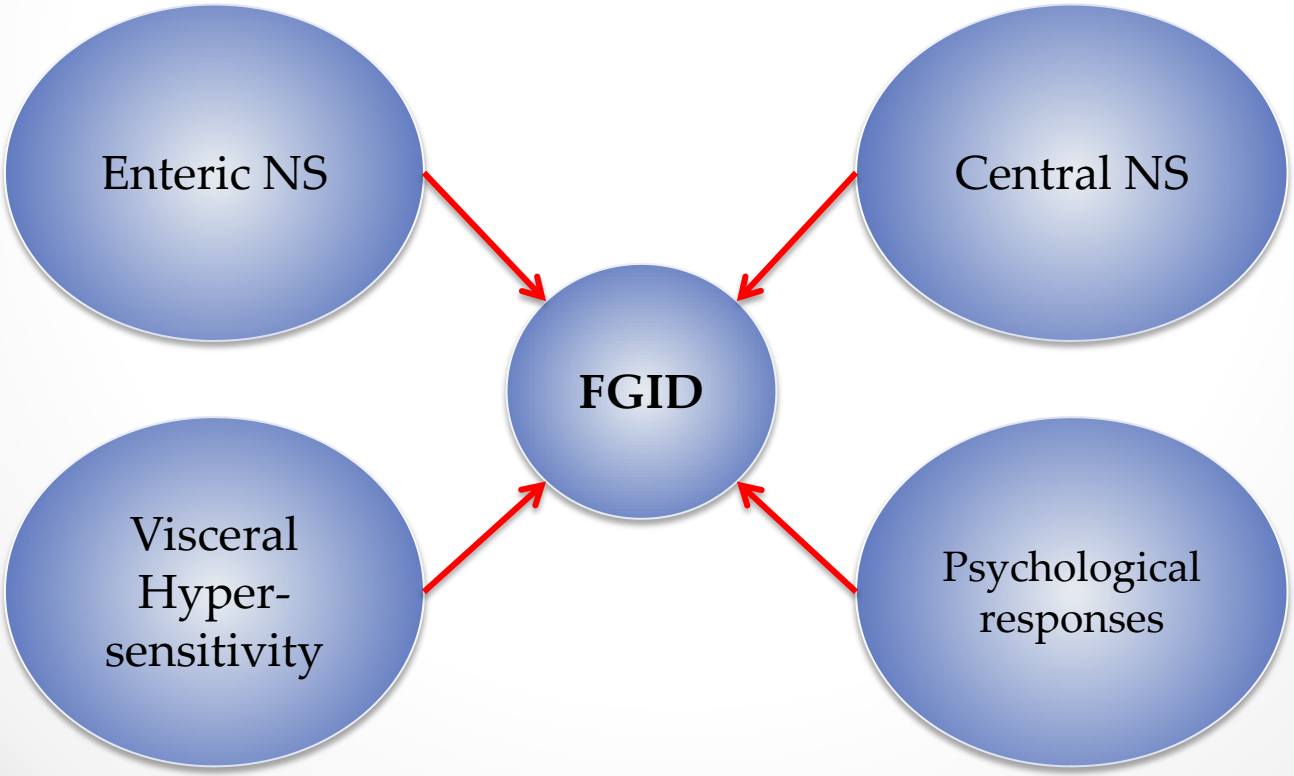
- Term used to encompass many disorders, many of which have abdominal pain as a focal symptom
- Issues exist regarding established diagnostic criteria and paucity of good treatment options
- Arguments regarding the "diagnosis of exclusion" approach in children

Functional GI Disorders

- VERY challenging to manage
- The Rome Group
  - www.romecriteria.org
- ROME III Criteria & differentials
  - IBS
  - Functional dyspepsia
  - Abdominal Migraine
  - Chronic functional abdominal pain

FGID Pathogenesis

- Poorly understood
- Multifactorial



Visceral Hypersensitivity

- 4 putative mechanisms:

1. Sensitization of central (spinal) neurons
2. Sensitization of primary sensory neurons
3. Impaired stress response (HPAA)
4. Altered descending inhibitory control

- ? Role of 5-HT
  - GI motility, sensation, secretion
- Early life events
  - Pyloric stenosis; CMPI; HSP; ?gastroenteritis

Ped Rev 2012, 33(11):

The Gut-Brain Axis

- The Public Speaking Effect:

Amplification

VS

Mechanisms in FGID

- Motility
  - Delayed gastric emptying
  - Strength & rate of peristaltic contractions
- Visceral hyperalgesia
  - Distension = pain
  - Contractions = pain
- Psychological & Sociological Factors
  - Cause or effect
  - Depression, anxiety, Type 1 personality
  - Caregiver anxiety !!!
- Other
  - Intestinal microbiota, enteric serotonergic pathways

Diagnosis of FGID

- Challenging
- Clinical diagnosis versus diagnosis of exclusion
- Comprehensive history & physical examination most important aspect
- Extensive workup usually not required
  - Low yield
  - Does not reassure parents

What's happening for the child

- School
- Friends
- Sibling
- Bullying
- Worries/anxieties/depression
- Abuse
- Family discord – divorce, bereavement, financial issues, major change (relocation, new baby) etc
- Coping mechanisms (child & family)

Ix

- THOSE WITH RED FLAG SYMPTOMS

- Baseline
  - CBC & diff, CRP, ESR, Albumin, ALT, AST, Lipase, Amylase
  - Celiac screen – TTG Ig, Total IgA, EMA
  - Stool cultures, FOB
  - UA

- 2nd line
  - USS
  - Urine culture

Treatment

- Often complex & challenging
- Refractory cases require multi-disciplinary team
  - Ped GI, Psychiatry/psychology, dietician (SW)

- Education, education, education!!!

- Trigger identification & minimization

Treatment 2

- Pharmaceutical
  - Anti-spasmodics:
    - anti-histamines (cyproheptadine),
    - anti-cholinergics (dicyclomine, hyoscyamine)
    - TCAs
    - SSRIs
  - Acid-Suppression
  - Anti-flatulence therapies:
    - Simethicone
  - Anti-diarrheals:
    - Loperamide, cholestyramine in
  - Peppermint Oil
  - Probiotics
    - *Lactobacillus GG, Lactobacillus reuteri, Bifidobacterium spp*

Treatment 3

- Dietary modification
  - Water intake
  - Specific carbohydrate restriction
    - Lactose, fructose, sorbitol
  - FODMAP restriction
    - Fermentable oligo-, di-, monosaccharides and polyols
  - Amine & salicylate restriction
  - Fibre
    - Psyllium, inulin
- Behavioural
  - Cognitive behavioral therapy
  - Stress management, relaxation
  - EXERCISE

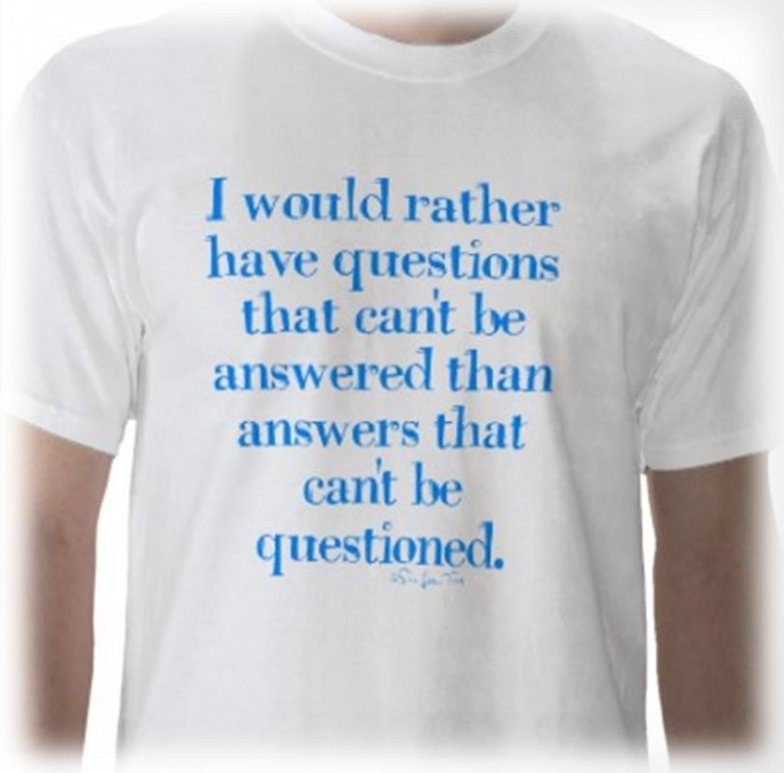
When to refer??

- Red flag symptoms/signs
- Failure to improve following initial treatment
  - 2 months of PPI
  - Refractory constipation
  - Significant behavioral/psychological comorbidities
  - Don't meet Rome III criteria
- Significant morbidity with symptoms

Advice

- Discuss it with us….


Questions?


I would rather
have questions
that can't be
answered than
answers that
can't be
questioned.