Functional abdominal pain in childhood

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15 y.o. girl, developmentally normal

Periumbilical abdominal pain every day with radiation to the epigastric region for the past 6 months

Pain is present all the time but is worse after ingestion of fatty foods and spicy meals, sometimes better with BM, sometimes wakes her up at night

No vomiting

Tried “everything”

Missing school
History

- **PMHX:** Onset of pain at puberty
- **No other medical problem**
- **SHx:** Divorced parents; not able to be involved in sports because of pain
- **FHx:** Mother with IBS
- **Meds:** Spasmolytic, PPIs
Physical exam

- Obese, claims to be in severe pain, says “nobody believes her”; answers most of the questions: “Sometimes”
- Abdomen: Generalized mild tenderness, no masses, no rebound or guarding
- Heme neg soft stools in rectal vault
- Does she need to be referred to Peds GI?
Understand the parental agenda
Why are they coming now?
What do THEY think is going on?
I hope he finds something
I hope it is not cancer
I want some tests!
I do not know why I'm here
No tests please!
It is not in her head!
She loves school and has many friends
I hope he doesn't find anything
She loves school and has many friends
How do we avoid missing “organic” disease?

- Red flags?
- Rule of “one”?
- "Constant" pain is always functional?
- Time as your ally?
- Tests?
Red (pink?) flags!

- Persistent right upper, or right lower quadrant pain
- Arthritis
- Nocturnal Pain
- Perirectal disease
- Dysphagia
- Persistent vomiting
- Involuntary weight loss
- Deceleration of linear growth
- Delayed puberty
- Gastrointestinal blood loss
- Nocturnal diarrhea
- Unexplained fever
- Family history of IBD, celiac disease or PUD
How can you tell it is functional?

Negative screening tests!

- CBC plus differential
  - Hb/MCV/eosinophilia
- ESR/CRP
- Celiac testing
- Chem profile
  - BUN/Cr/TP, A/LFT’s
  - UA
- Stool
  - heme test x 3, O&P, fecal leukocytes, culture, calprotectin
Looking into the esophagus?
Looking into the colon?
Impact of endoscopy on management of chronic abdominal pain in children

Background:
The diagnostic yield of EGD in children with unclear abdominal pain is low; however, existing studies are inadequate.

Aims:
Examine the frequency of changes in immediate medical management resulting from endoscopy with biopsy evaluating CAP in children.

Prospective cross-sectional study
92 endoscopic procedures (EGDs) and 29 EGD/colonoscopy performed in 92 children (mean age 11.6 years) with CAP.

Impact of endoscopy on management of chronic abdominal pain in children

Results

- In 75%, management was changed as a direct result of endoscopic or histological findings.
  - Reassurance 28%
  - dietary changes 11%
  - PPI 18%
  - Antispasmodic/anticholinergic medication 7%
  - Food allergy testing 7%

- No significant association was found between management changes and type of histological findings or presence of alarm symptoms
The prognostic value of obtaining a negative endoscopy in children with FGID’s

A total of 301 patients were diagnosed with abdominal pain-related FGIDs

• Overall, 62.6% reported persistence of AP
• 37.4% were asymptomatic at follow-up at 18 months
• Among patients with endoscopies; 61% reported AP
• Among patients without endoscopies; 64% were symptomatic

Conclusion:
• The study does not suggest that a negative endoscopy improves the outcome of children with FGIDs

Pharmacological interventions for FAP and IBS in childhood

- Weak evidence of benefit on medication in children with functional abdominal pain
- Little reason for their use outside of clinical trials
- FAP is a fluctuating condition and any "response" may reflect the natural history of the condition or a placebo effect rather than drug efficacy

Encourage positive attitude, but realistic expectations

Discuss and reassure

- Prevalence of FGID
- Benign clinical course
- Intermittent symptoms likely
- Often impact on QoL
- Although “cure” unlikely – most patients improve with management
Doctor’s Incorrect Agenda

- Not another one, please
- These people are crazy!
- How can I get rid of them?
- Could it be porphyria?
- It does not look like she is in pain
- This is going to take too long
- Should I treat her for H pylori?
Doctor’s Correct Agenda

Another challenging case

It is tough for the family

How can I help them?

This is clearly a FGID

I know the pain is real

I cannot rush this

Is this patient a candidate for a TCA CBT or HT?
Abdominal pain

~ 20%

Organic

~ 80%

Functional

Blood
Urine
Feces
Radiology

Functional dyspepsia
Irritable bowel syndrome
Functional abdominal pain

Treatment

Explain and make a drawing!!!!
Cognitive behavior therapy vs Standard Medical Therapy for children with Functional Abdominal Pain

Preliminary results of a Randomized Controlled Trial
Patient inclusion

197 screened

104 included
- 20 no consent
- 34 no more AP after one consult
- 14 organic cause
- 12 psychiatric problem more important
- 13 other

93 excluded

30%!!!
Parents Can Help Maximize Wellness Behaviors in Their Children

• Model appropriate responses to physical symptoms
• Reward healthy adaptive behaviors
• Avoid providing children with rewards for inappropriate symptom complaints
• Use distraction, avoid negativity
Parent Attention vs. Distraction

Examine the influence of parent behavior on FAP and Well children's symptoms under experimental conditions

Attention Statements:
- How do you feel?
- I can imagine it must feel pretty bad.
- You’ll be OK soon.

Distraction Statements:
- Tell me what you did at school today.
- What do you want to do this weekend?
- Let’s think about something else…that was a pretty funny show we saw on TV last night.

No Instructions
- Miscellaneous conversation
Parent Attention vs. Distraction

**Questionnaire-Reported GI Symptom Ratings (range 0-20)**

- Pain induced by water load test
- Parents randomized to using distraction or attention in their interaction with children in pain
- All mothers felt distraction was inappropriate response to pain

Walker LS et al. Pain 2006
Prognostic Indicators in Children with Severe Functional Abdominal Pain (FAP)

Poor outcome (continued pain and failure to return to normal functioning 12 months after onset) was associated with:

- Lack of insight into psychosocial influences on symptoms (RR 7.49)
- Refusal to engage with psychological services (RR 4.55)
- Involvement of > 3 consultants (RR 7.00)
- Lodging of a manipulative complaint (RR 3.25)

Lindley KJ et al. Arch Dis Child 2005
Placebo
The Therapeutic Relationship & placebo

- Irritable Bowel Syndrome study
- Wait list
- Placebo
  - 10 minute 1st session
  - Neutral clinician
- Augmented Placebo
  - 45 minute 1st session
  - Warmth and Empathy
  - Positive expectation

Kaptchuk TJ et al, BMJ 2008
Components of placebo effect: RCT in patients with IBS

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Waiting list (n=87)</th>
<th>Limited (n=88)</th>
<th>Augmented (n=87)</th>
<th>P value for trend</th>
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</thead>
<tbody>
<tr>
<td><strong>At 3 weeks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global improvement scale</td>
<td>3.8 (1.0)</td>
<td>4.3 (1.4)</td>
<td>5.0 (1.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% with adequate relief of symptoms</td>
<td>28</td>
<td>44</td>
<td>62</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Change in symptom severity score</td>
<td>30 (63)</td>
<td>42 (67)</td>
<td>82 (89)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Change in quality of life</td>
<td>3.6 (8.1)</td>
<td>4.1 (9.4)</td>
<td>9.3 (14.0)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Kaptchuk TJ et al, BMJ 2008
Components of placebo effect:
RCT in patients with IBS

• A therapeutic ritual (placebo treatment) has a modest benefit beyond no treatment

• Placebo effects produce statistically and clinically significant improvement and the patient-physician relationship is the most robust component of the placebo effect

Kaptchuk TJ et al, BMJ 2008
Placebos Without Deception

• Advertisement: ‘A novel mind-body management study of IBS’

• Telephone screening: ‘placebo (inert) pills, which are like sugar pills and which had been shown to have self-healing properties’

• Meeting with physician:
  - the placebo is powerful
  - the body can automatically respond to taking placebo pills
  - a positive attitude helps but is not necessary
  - taking the pills faithfully is critical

• ‘placebo pills: take 2 pills twice daily’

• No treatment control
Outcomes at the 21-Day Endpoint by Treatment Group

Global improvement (IBS-GIS)

No Treat  |  Open L

P = 0.002

Kaptchuk TJ et al. PLoS ONE 2010
Outcomes at the 21-Day Endpoint by Treatment Group

Percent with adequate relief (IBS-AR)

No Treat  Open L

P = 0.03

Kaptchuk TJ et al. PLoS ONE 2010
Openly described inert interventions when delivered with a plausible rationale can produce placebo responses reflecting symptomatic improvements without deception or concealment.
Cognitive Behavioral Therapy

- Addresses thoughts, behaviors, and responses that result from patients’ experiences
- Helps to recognize relationship between beliefs and symptoms
- Relaxation/stress management
200 children (7-17) with Apley criteria for abdominal pain for at least 3 months

3-session intervention of cognitive-behavioral treatment targeting parents' responses to their children's pain complaints and children's coping responses

- Relaxation training
- Working with parent and child to modify family responses
- Cognitive restructuring
Social learning CBT vs Education support: parents-children

p<0.05 for SLCBT

Levy RL et al. Am J Gastroenterol 2010
What is hypnosis/hypnotherapy?

Many misconceptions

Hypnosis =
1. Dissociation
2. Concentration
3. Suggestibility

- Daydreaming, driving a car
- No loss of control
Altered brain processing: cerebral activation during rectal distension

Mertz et al. Gastroenterology 2000
Effect of hypnotic suggestions on pain perception in ACC

Rainville et al. Science 1997
<table>
<thead>
<tr>
<th></th>
<th>HT  (n=27)</th>
<th>SMT (n=25)</th>
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<tbody>
<tr>
<td><strong>Demography</strong></td>
<td></td>
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<tr>
<td>Age (years)</td>
<td>13.2 (2.5)</td>
<td>13.4 (2.9)</td>
</tr>
<tr>
<td>Girls (%)</td>
<td>67</td>
<td>84</td>
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<tr>
<td><strong>Clinical features</strong></td>
<td></td>
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<tr>
<td>IBS’ (%)</td>
<td>41</td>
<td>44</td>
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<tr>
<td><strong>Duration of symptoms (years)</strong></td>
<td>3.7 (2.5)</td>
<td>3.1 (2.4)</td>
</tr>
<tr>
<td>School absenteeism (%)</td>
<td>78</td>
<td>68</td>
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<tr>
<td>Hospitalisation (%) for IBS/ FAP</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td>Stress at school/home (%)</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Previous psychological treatment (%)</td>
<td>33</td>
<td>24</td>
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<tr>
<td><strong>Abdominal pain scores</strong></td>
<td></td>
<td></td>
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<tr>
<td>MPIS</td>
<td>13.5 (3.9)</td>
<td>13.9 (4.1)</td>
</tr>
<tr>
<td>MPFS</td>
<td>13.7 (5.9)</td>
<td>14.1 (4.7)</td>
</tr>
<tr>
<td>ASS</td>
<td>3.1 (1.4)</td>
<td>3.8 (1.5)</td>
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</tbody>
</table>
Effect of therapy on pain intensity scores

P < 0.002

Vlieger et al Gastroenterology 2006
Effect of therapy on pain frequency scores

- P< 0.001

Vlieger et al Gastroenterology 2006
Improvement after treatment

- No effect
- 30-80% improved
- > 80% improved

<table>
<thead>
<tr>
<th>Time</th>
<th>Improvement</th>
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<tbody>
<tr>
<td>ST 3 mo</td>
<td>100%</td>
</tr>
<tr>
<td>HT 3 mo</td>
<td>80%</td>
</tr>
<tr>
<td>ST 1 yr</td>
<td>60%</td>
</tr>
<tr>
<td>HT 1 yr</td>
<td>60%</td>
</tr>
<tr>
<td>ST 5 yr</td>
<td>70%</td>
</tr>
<tr>
<td>HT 5 yr</td>
<td>70%</td>
</tr>
</tbody>
</table>

Vlieger et al Am J Gastroenterol 2012
Audio-recorded Guided Imagery
Audio-recorded Guided Imagery Treatment

Randomized N=34

Standard Medical Care
N=15

Guided Imagery
N=19

Guided Imagery
N=11

Sample
Age 7-15; M=10.41
Gender 66.7% Female
Race 18.5% AA
81.5% Caucasian

Van Tilburg et al. Pediatrics 2009
Success

P = 0.03

Guided Imagery

Medical Care

Van Tilburg et al. Pediatrics 2009
Summary and conclusions

- Choose diagnostic plan with clear objective
- Use red flags to guide investigation
- Thoroughly review results with family
- Address any concerns and questions
- Explain that a negative test is good news (lack of training on how to deliver GOOD news!)
- Make A Confident Diagnosis by using the Rome criteria
Conclusions

• There is no evidence supporting the benefit of dietary or medical intervention in children with FAP

• There is evidence that cognitive behavioral and hypnotherapy lead to an improved outcome