Chronic Abdominal Pain in Children

by Thomas Attard

Recurrent abdominal pain in childhood, is classically defined as three or more episodes of pain severe enough to interfere with daily activities over the span of more than three months.[1] It is a common presenting complaint to both general practice and paediatricians with a prevalence of 10–15 % of school age children. However, an organic underlying disorder is rare; most studies suggest in the order of 5–10%. The clinical characteristics that facilitate the recognition of children who are more likely to harbor organic disease are therefore important to the practicing primary care provider and paediatricians in order to avoid unnecessary, costly and invasive investigations.

Functional Gastrointestinal Diseases (FGID) is an allied concept, and a more modern definition that includes recurrent abdominal pain (RAP). This includes paediatric patients with a presentation and course very similar to adult-onset irritable bowel syndrome (IBS).

Biomedical and Biophychosocial Models of Disease
There is an increasingly compelling body of evidence that undermines the classic biomedical model of **illness**. This defines the impact of the disease, or the illness, solely in terms of the organic impact of the underlying pathology. Indeed, a recent, prospective study from general practice reported a very low eventual detection of a specific etiology in patients in general (15%) which was even lower in patients presenting with abdominal pain (10%). This has spawned interest in a biopsychosocial model of disease that attempts to define the illness in terms of the underlying pathology, which may be minimal, undetectable or insignificant but modulated by psychologic, personal and societal factors that ultimately define the experience of **illness** by the patient and the family.[2] It therefore becomes paramount to recognize, treat or refer for management, factors that determine the psychosocial component of the illness.

A history of *longstanding pain*, including constant pain and pain as the sole presenting symptom despite careful history-taking, are more consistent with a diagnosis of FGID. *Normal appetite*, the *absence of nocturnal symptoms*, and pain that diminishes with distraction or redirection are all similarly reassuring. The presence and pattern of abdominal tenderness is usually unhelpful and inconsistent. A past medical history of atopy may signal a child with milk protein or other food allergy. It is similarly important to understand the symptom in the context of the family involved: parents with a history of IBS, migraine-headaches and fibromyalgia are far more likely to report similar symptoms in the offspring. This 'enabling' behavior has long been recognized as a cardinal clinical feature of functional abdominal pain in children and also a negative prognostic factor in the resolution of functional abdominal pain in childhood.

Inflammatory Bowel Disease (IBD) can present acutely or insidiously including as chronic abdominal pain. Typical 'red flags' would include poor longitudinal growth, change in bowel habit, blood in the stool, or evidence of an inflammatory process including fever, and nonspecific abnormalities on screening laboratory testing including increased platelet count, raised ESR or CRP. Inflammatory markers may however be entirely normal in active IBD. Upper and lower endoscopy with ileoscopy and biopsy is indicated if there is sufficient clinical suspicion although, even then, it is important to bear in mind that isolated small intestinal involvement in IBD is more prevalent in childhood and adolescence and may warrant capsule enteroscopy or small intestinal imaging.

Depending on the population being studied, **Celiac Disease** merits consideration as a potential cause of isolated, chronic abdominal pain. This of course is rendered more pertinent in the context of poor growth, chronic diarrhea but also constipation. It appears justified to screen most patients presenting with chronic abdominal pain for celiac disease with the appropriate serologic testing (anti tTG IgA and IgG). Abdominal pain in the context of celiac disease tends to remit rapidly with the implementation of a gluten-free diet.

An additional (stool) laboratory screening tool that is both non-invasive, relatively cheap and that is increasingly being used to distinguish between FGID and inflammatory enteropathies is *stool calprotectin*. This marker tends to correlate with colonic, and to lesser degree small bowel inflammation better than either of the other hematologic markers.

Although a recognized cause of chronic abdominal pain, **chronic pancreatitis** is rare in childhood; a history of significant trauma to the abdomen or evidence of an underlying metabolic disorder or cystic fibrosis should

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be sought. Even here though, abdominal pain as an isolated symptom is rare but care needs to be taken insofar as amylase and lipase levels may be normal in this disease.
Rarely chronic, or rather recurrent severe abdominal pain may be the sole presenting complaint of **Familial Mediterranean Fever** in patients of Mediterranean or Middle-Eastern extraction. Naturally, the presence of periodic fever should heighten the clinical suspicion of this disorder.[3] In some cases severe, peritonitic pain will be accompanied by leucocytosis or raised ESR. The condition is hereditary, with most patients harboring mutation in the pyrin gene (MEFV).

Although ubiquitous in the textbook differential diagnosis for obscure causes of severe chronic or recurrent abdominal pain, porphyria is rarely encountered in this clinical context (although the exasperated clinician might be forgiven for testing in otherwise atypical clinical scenarios for fear of missing yet another King George III). [4]

Given the heterogeneity of the population with FGID it is little wonder there are very few evidence-based effective therapies for childhood IBS. When the pooled experience is formally studied through metanalysis some options appear to have therapeutic advantage over placebo. These include both pharmacologic and non-pharmacologic measures.

There is evidence that **peppermint oil**, probably through its spasmolytic properties is efficacious in childhood FGID, and side effects are rare which include perianal pruritus.[5] The role of other spasmolytics, including hyoscine butylbromide, and ortolinium bromide is, as yet unproven although the latter has poor systemic absorption and therefore less likely to have adverse effects.
Several studies have addressed the impact of **pre- and probiotics** in FGID; although they may be of benefit in some populations there is insufficient data, at this stage to recommend routine use. Both **amitryptiline**, a tricyclic antidepressant (TCA) and **citralopram**, a selective serotonin reuptake inhibitor (SSRI) are useful and have proven efficacy in chronic abdominal pain in children.[6] Given the need for slow dosage escalation and the spectrum of adverse effects, use of these agents is usually reserved to specialist care and with close monitoring in refractory or especially severe cases.

Cognitive-behavioral therapy, guided imagery and deep relaxation as well as **hypnotherapy** have been shown to improve, even beyond the period of therapy, the functional outcome of abdominal pain in children. Liaison with a child psychologist is central to the management of FGID in children and the concept should be discussed early in the management of at-risk cases, well in advance of a barrage of tests that do little but exacerbate the parent's anxiety that 'something is definitely wrong but nobody can pin it down'.
In summary therefore, functional abdominal pain in children is common, the vast majority of patients have an illness best understood in the context of a biopsychosocial model of disease rather than through often fruitless over-investigation. The experienced clinician needs to have a clear appreciation of historic 'red flags' and may opt to pursue limited laboratory investigation. Liaison with a child-psychologist is critical and a therapeutic partnership with the family aimed at minimizing morbidity needs to be emphasized.

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