International Foundation for Functional Gastrointestinal Disorders
IFFGD
700 W. Virginia St., #201
Milwaukee, WI 53204
Phone: 414-964-1799
Toll-Free (In the U.S.): 888-964-2001
Fax: 414-964-7176
Internet: www.iffgd.org

 © Copyright 2010-2012 by the International Foundation for Functional Gastrointestinal Disorders

Report From IFFGD Research Award Winner:

Functional Abdominal Pain in Children and Adolescents

By: Miguel Saps, M.D., Director of Gastrointestinal Motility and Functional Bowel Disorders Program at Children's Memorial Hospital, Chicago, IL and Assistant Professor of Pediatrics, Northwestern University's Feinberg School of Medicine, Evanston, IL and Gati Dhroove, M.D., Children's Memorial Hospital, Division of Gastroenterology, Hepatology and Nutrition, Chicago, IL

Miguel Saps, M.D. is the recipient of the ***2009 IFFGD Research Award for Junior Investigator, Pediatrics****. Dr. Saps is an innovative researcher who has done much to increase understanding of the prevalence and impact of functional GI disorders among children, as well as how to help children with functional abdominal pain. He is instrumental in establishing clinical care models for children with complex* pain *predominant conditions.*

At a Glance

- Functional abdominal pain may occur alone or along with other gastrointestinal (GI) symptoms.
- It is common in children and adolescents.
- Emotional distress may result from and/or influence the pain.
- There are a number of treatments and management approaches.
- The outlook for kids with functional abdominal pain is generally good.

What is functional abdominal pain?

Functional gastrointestinal (GI) disorders are a group of conditions. They are characterized by a combination of GI symptoms. These arise from the interaction of multiple biological, psychological, and social factors. A common characteristic of all these disorders is the absence of an identifiable anomaly in the usually sought medical workup.

Among, these various disorders there are some in which pain is the predominant symptom. They are frequent in children and are commonly grouped under the generic term *functional abdominal pain*. Functional abdominal pain may be associated with other GI symptoms such as nausea, diarrhea, or constipation. Sometimes the pain occurs alone.

Pain may be frequent or constant and very bothersome, greatly impairing the quality of life. Pain may also be intense and occur at any time of the day or even at night. A number of factors may trigger the pain. For example, it may be brought on by emotional stressors or following a gastrointestinal infection. But, other times there are no clear triggers to the onset of abdominal pain. A relation between food and onset of pain is frequently observed. However, in scientific studies there is no clinical evidence that specific foods are related to the onset of functional abdominal pain symptoms.

How common is functional abdominal pain?

Functional abdominal pain is common in children and adolescents. A study conducted in children attending elementary school has shown that nearly 2 in 5 (38%) of children complain of abdominal pain weekly with 90% of children reporting abdominal pain at least once in a six month period. Abdominal pain in children is associated with higher emotional distress levels (anxiety and depression). Although it is unclear whether depression predisposes to or is the result of chronic abdominal pain, research seems to indicate that both situations are true. Children who have frequent abdominal pain may develop mood and emotional disturbances. But also the presence of those may predispose the child to develop abdominal pain. These can potentially create a vicious cycle that is important to break**.**

Children may miss school, sport or social activities and parents frequently miss work to care for a child with chronic abdominal pain. Almost 1 in 4 children misses an average of 2 days during the school year due to abdominal pain. One in 10 parents miss work to care for their children with abdominal pain. Abdominal pain is not only a common and chronic condition but also an important factor that can potentially disrupt family life.

What are the symptoms?

Usually, this pain is located around the belly button. However, this is not always the case. Pain may be located in other areas or change locations from time to time. The pain may start suddenly, or may gradually increase in severity. The pain may be constant, or may increase and decrease in severity. Children with functional abdominal pain generally do not have fever,

involuntary weight loss, poor appetite, blood in vomitus or stool, pain or blood with urination. All the above are signs that a doctor will ask about to rule out another condition associated with the abdominal pain.

What are the other conditions that can cause chronic abdominal pain?

Other disorders that are related to abnormalities in an organ system, such as the gastrointestinal, urinary, or gynecologic system can also cause chronic abdominal pain. These disorders include conditions caused by an identifiable structural, infectious, or biochemical abnormality within the body. Therefore, unlike functional abdominal pain, in these conditions the laboratory or imaging testing may show some abnormalities. Thus, if the doctor suspects another condition you should expect a more extensive workup.

Is functional abdominal pain a serious condition?

It is reassuring to parents and children to know that functional abdominal pain is not a life threatening condition. However, functional abdominal pain may have adverse effects on the child's physical and emotional state. The pain may interfere with school attendance, participation in sports, and other extra-curricular activities. Occasionally, it may affect appetite and sleep. The inability to carry out daily activities may affect the child's mood and emotions.

Conversely, in some cases, abdominal pain may be triggered by anxiety or stress. This may be seen during periods of change or stress in a family, such as the birth of a new sibling or illness of a family member. These are periods when the parent(s) has limited time to spend with their child. Starting school may trigger abdominal pain. Other times stressors may not be part of the problem. Or they may be present but not easily identifiable. Stressors may even include positive experiences such as vacations, birthdays, or trips. Other times, the high frequency or intensity of the pain itself may stress the child and parents.

Although it is natural as a parent to be worried about your child's health you should be aware that your comments and reaction may affect the child's behavior and pain. Parents expressing worrisome comments about the causes of the pain or doubting the benign nature of the pain may make the child more anxious. That may increase the pain. Parents should show understanding and support without encouraging behavior that emphasizes sickness. Although it may be difficult for the parents to do, studies have shown that distracting the child from his or her pain could be helpful.

How is functional abdominal pain diagnosed?

The doctor will gather information to help make the diagnosis. This will include:

- a detailed history regarding the location of abdominal pain,
- the frequency and the duration of a typical episode, and
- association of pain with physical activity or emotional stress.

Many children with functional abdominal pain have a family history of gastrointestinal problems. You should expect the physician to ask about a family history of abdominal pain or other medical conditions. The doctor may ask about your child's activities, social life, and school functioning.

The physical examination is also an important tool in evaluating abdominal pain. The child's weight, height, and percentile on the growth chart help a physician to determine if the child's growth and development are within the normal range. Children who are underweight or short or have fallen below their usual growth curve are more likely to have another disorder as a cause for their abdominal pain. The physician will examine the child's abdomen with light and deep pressure. A visual examination of the anus and a digital (finger) exam of the rectum are important to determine if there is constipation or blood in the stool.

The diagnosis of functional abdominal pain is often based on the report of symptoms and a normal physical examination. Testing should be limited if the history is typical for functional abdominal pain and the physical examination is normal. Laboratory tests are sometimes recommended if the doctor suspects another condition as the cause of abdominal pain.

The initial screening tests may include some blood and stool tests. In specific cases further testing may be required. This further testing may include x-ray, ultrasound, or CT scan of the abdomen, or endoscopies.

Normal laboratory workup in a patient with symptoms consistent with the diagnosis of functional abdominal pain should be considered as a reaffirmation of the diagnosis of functional abdominal pain. Normal test results do not indicate the need to pursue further testing as those will likely continue to be normal. Parents are encouraged to discuss the indication of testing and results with the physician.

How can parents prepare for the doctor appointment?

A pain dairy is useful in helping identify patterns and other significant factors of child's pain. If possible, obtain a pain diary before the first consultation and bring it to the appointment. This could help your doctor's assessment.

At the end of each day, talk to your child or family members and record information about the day's pain, including:

- Severity of pain (1 to 10 with 10 being the worst pain)
- Time of pain
- Location of pain (around belly button, above or below belly button, left or right)
- Duration of pain (minutes, hours, all day)
- Whether the pain restricted the daily activities
- Possible triggers (food, activities, stressors, other)

- Remedies tried, and if the pain improved with that

A pain diary should not result in too much focusing on the pain or other body functions. If documentation of these events increases your child's worries, obtain as much information as possible without excessive involvement of the child. Although this information could be useful, documenting every event should not be the focus of the child's life or attention.

What are the treatments of functional abdominal pain?
There is no specific medical treatment for functional abdominal pain helpful in all children. The treatment should be individualized on case to case basis. There are several types of treatment options available. You are encouraged to discuss with your child's physician different treatment options and find one that works best with your child's lifestyle and family beliefs.

It is important to build an ongoing relationship with the physician. Families should be prepared to visit or contact the physician on more than one occasion. The practitioner may want to reassess the progress and even change strategies if he or she considers it appropriate.

The goal of the treatment is not necessarily to eliminate the pain but to decrease it to a point where life can be enjoyable and the child can function without interference. Eliminating the pain should be a desirable long term goal, but not necessarily the goal of the initial phase of the treatment. Pain may not improve immediately. Decreases in pain intensity or frequency should be seen as a positive sign.

Children are encouraged to continue with their daily normal activities despite of the pain. It is important to remember that this is a benign condition with good outcome. With the ongoing treatment, the child should be able to resume normal life like any other child of their age without pain interference. Treatment may be prolonged and at times pain may recur. However, overall there should be a progressive improvement in pain control. If not, the management approach should be reassessed.

It is important to validate the child's pain. Do *not* think that it is "all in their head." Despite their pain, children should be encouraged to go back to the school and resume the routine activities.

You should address to the physician yours and your child's concerns and fears. If you have identified any emotional stressors, share your thoughts with the doctor. The physician may provide strategies to help you and your child to deal with the episodes of pain. He or she may even refer the child to a specialist to help him or her deal with the pain.

Remember that the effectiveness of the treatment is based on the combined efforts of the physician, the patient, and the family. It is important for the child to be an active participant in the treatment plan and understand that he or she will be required to help in his or her own improvement.

Treatment may include diet and lifestyle changes, medicines, and complementary or alternative therapies.

Dietary changes – Although there is little scientific evidence to support the effectiveness of the dietary modifications to improve abdominal pain, some children may benefit of dietary changes. These are recommended on a case-by-case basis. For children with lactose intolerance, eliminating lactose (a natural sugar found in milk and other dairy products) from the diet may be of benefit. If lactose intolerance is suspected, some physicians may recommend testing for this condition or recommend a trial elimination of dairy products. If the elimination of dairy products does not result in improvement of the pain or other gastrointestinal symptoms this is not a likely cause of the pain. Trial should be limited to only a few weeks. That is enough time to realize if there is a relation between diet and symptoms.

Limiting the diet excessively may result in malnutrition and failure to grow. If prolonged dietary treatment is recommended it may be a good idea to obtain guidance and advice from a nutrition specialist, such as a registered dietician or physician.

Although there is no evidence that fiber is beneficial in the treatment of functional abdominal pain in children, an appropriate dose of fiber in the daily diet is recommended. A trial of high fiber diet may improve pain symptoms in some children but may also worsen it in others. Fiber is available in fruits and vegetables (unpeeled fruits, raw tomatoes, sweet potatoes, green leafy vegetables, fruit juices) that can be included in the regular diet. Other ways of increasing a child's consumption of fiber is offering bran cereals, shredded wheat, graham crackers, or whole wheat bread. For children, minimum daily fiber intake (in grams) should equal the child's age (in years) plus five grams.

It may be helpful to avoid spicy foods, caffeine, and carbonated drinks. Some children with abdominal pain who also experience "gas" may improve by eating food slowly and by avoiding gas forming food such as beans, cabbage, onions, celery, and raisins. Sugar free candy and sugar free chewing gum sweetened with sorbitol should be avoided if those result in pain. Sorbitol cannot be properly digested and can cause bloating and diarrhea.

Lifestyle changes and family support – Children should be encouraged to return to school. Children in school get distracted and focused on other things than their pain. Not attending school may cause problems with school grades and socialization, which may result in further anxiety to the child. It is important to help your child learn to deal with pain and to minimize the disruption it can cause to his or her life. A supportive and understanding environment at home and school is important to keep the child physically and mentally healthy.

Children should be allowed to use school restrooms as needed. It is helpful to communicate the child's condition to the school nurse and teachers. In this way, they will be aware and will be prepared to react when the child has abdominal pain and will not resort to send the child home every time there is a complain of abdominal pain.

Medicines and complementary or alternative therapies – Treatment of functional abdominal pain in children is mostly based on experience and adult studies. But, there are studies which support that some medications may help improve pain in children. Commonly used medications include antispasmodics, acid-suppressants, laxatives, anti-diarrheals, or medications that help adjust the pain sensation. Some children may be prescribed a combination of those medications.

Antidepressants – If your doctor prescribes an antidepressant it may not indicate that your child is depressed. These medications may be used to treat pain, *not* to treat depression. In some children low doses of tricyclic antidepressants can be used to adjust the pain perception. To treat pain they are used in a much lower dose than is used to treat depression. Parents should expect a discussion on the benefits and side effects of these medications.

Herbal therapies – Studies have shown that enteric coated peppermint oil is sometimes beneficial in the treatment of functional abdominal pain in children.

Probiotics – There is not enough evidence on the effectiveness of probiotics in the treatment of functional abdominal pain in children. Probiotics seem to be helpful in children complaining of bloating or abdominal distention.

Behavioral therapies – Cognitive behavioral therapy, guided imagery, hypnosis, and biofeedback help to reduce anxiety and stress. Functional abdominal pain is *not* a psychological problem but may benefit from psychological intervention in some cases. Cognitive behavioral therapy increases the child's understanding of pain and helps the child to deal with the pain in novel ways. There is evidence that cognitive behavioral therapy is beneficial in adults and children if applied by a psychologist with experience and deep understanding of the mechanisms involved in functional abdominal pain.

Relaxation techniques – Brief muscle relaxation techniques may be beneficial in some patients. These techniques may provide the child with new ways of dealing with the pain. Anxiety and stress may also be reduced by using these techniques. Relaxation techniques may be used alone or in combination with other techniques.

Guided imagery – This treatment uses the suggestion and the power of the child's mind to improve pain and wellbeing. There is evidence that it may be beneficial even in children that failed drug therapy.

Hypnotherapy – This is a valuable technique that has been proven to be highly beneficial in children with functional abdominal pain. Studies have shown that up to 85% of children accomplished total remission of symptoms in one year. The results are seen much earlier but it is significant that almost all patients in a study on hypnotherapy were pain free even 9 months after the treatment was suspended. This implies that the results are durable. Hypnotherapy sessions are generally done 2–4 times a month. Frequency and time of treatment may vary for individual patient. In general, patients accomplish good results in only a few sessions. Although it is not necessary, it could be useful to undergo hypnotherapy conducted by a psychologist who can evaluate if any psychological treatments should be recommended. It is recommended to undergo therapy with a licensed hypnotist with experience in the management of functional conditions.

What are the effects of the functional abdominal pain in the long term?

While the prognosis is generally good, in some persons functional abdominal pain will be a long-lasting condition. Some will have pain conditions, such as irritable bowel syndrome, as adults. However, one-third to one-half of children will get better with no intervention within 2–6 weeks after they are diagnosed. Other children may obtain a complete resolution of the pain with treatment.

Opinions expressed are an author's own and not necessarily those of the International Foundation for Functional Gastrointestinal Disorders (IFFGD). IFFGD does not guarantee or endorse any product in this publication nor any claim made by an author and disclaims all liability relating thereto.

This article is in no way intended to replace the knowledge or diagnosis of your doctor. We advise seeing a physician whenever a health problem arises requiring an expert's care.

IFFGD is a nonprofit education and research organization. Our mission is to inform, assist, and support people affected by gastrointestinal disorders. For more information, or permission to reprint this article, write to IFFGD, 700 W. Virginia St., #201, Milwaukee, WI 53204. Call toll-free (in the U.S.): 888-964-2001 or 414-964-1799. Visit our websites at: www.iffgd.org or www.aboutkidsgi.org.