

Abdominal Pain in Children (Paediatrics)

Abdominal pain (*also known as a stomach ache, or a tummy ache*) is one of the most common symptoms and reasons for parents to take children to their doctor or the hospital emergency department. However, it is a symptom associated with both non-serious and serious medical issues that might require urgent medical attention. About 10-15% of school-aged children (more often girls) suffer from recurrent abdominal pain and 90-95% of them do not have specific organic diseases.

Among the warning signs that might indicate the origin of the pain and may further lead to a better understanding of the disorder and a precise differential diagnosis are: **abdominal pain in children under the age of 4, can be localised everywhere but around the navel, a manifestation of pain, it interferes with sleep - causing insomnia, weight loss, noticeable change in development, vomiting, fever, etc.** ^[1]

Types of Abdominal Pain

- according to the course:
 - **acute** - severe, persistent abdominal pain of sudden onset (usually develops within a couple of hours or days)
 - **acute appendicitis, cholecystitis, intestinal obstruction,...**
 - **chronic** - pain that is present for more than 3 months - may be present all the time or come and go (recurring incidentally or might be linked to a certain activity or irritation by food)
 - **celiac disease, gastroesophageal reflux disease, Crohn's disease,...**
- according to the origin/cause:
 - **organic** - lactose intolerance, gastroduodenal ulcers
 - **functional** - dyspepsia, irritable bowel
- according to characteristics:
 - **visceral** - diffuse, blunt, difficult to localize
 - **parietal** - sharp, localized pain - when the peritoneal lining is irritated, pain makes breathing difficult; also might be of a vertebrogenic or a metabolic aetiopathogenesis - diabetic ketoacidosis (*pseudoperitonitis diabetica*), lead intoxication, etc.
 - **psychogenic** - pain that is caused, increased, or prolonged by mental, emotional, or behavioral factors - this diagnosis can be determined only after excluding other causes and evaluating the child by a psychologist

Health Assessment Questions:

- **intensity** of the pain (on a scale 1→10, we can also evaluate from indirect signs such as the child's position and the intensity of crying),
- **duration**,
- **localization** (younger children cannot usually point to a specific area, older children locate it in the periumbilical area),
- **possible triggers** (food, position of a body, particular part of a day, stress),
- **associated symptoms** (fever, nausea, vomiting, constipation, diarrhea, stool abnormalities, dysuria),
- **time context** (especially in case of psychogenic pain - for example in the morning of a school day, right before a dentist appointment)

Infantile Colic

- hardly defined problems in early stages of infancy, affecting about 1 in 10 infants (it is most common around six weeks of age and gets better by six months of age)
- equally common in both bottle and breast-fed infants

Clinical evidence: episodes of severe irritability and abdominal pain typically alongside with lifting of the legs

- they are associated with food consumption, they appear in the second half of the feeding, and stop after the meal
- gradually worse in the afternoon and the evening
- they are accompanied by borborygmi ("tummy rumble") and flatulence

Examination: exclusion of other causes (hunger, thirst, urinary tract infections, otitis)

- sometimes the cause is solely intolerance to cow's milk or lactose

Therapy: in breast-fed children, mothers might be advised to change their diet - avoid dairy products (need to supplement calcium)

- hospital care - only for prolonged or severe difficulties, physiological development issues - poor weight gain, and in case of very persuasive and anxious parents

Differential Diagnostics: severe pain may suggest intussusception (invagination)

- intussusception linked trias: 1. colic-like pain, 2. intussusception tumor in the abdomen, 3. stool in the form of mucus usually coloured by blood (in only about 20% of diagnosed children)

Recurrent Functional Abdominal Pain

definition: at least 3 cases of abdominal pain in a period of 3 months - it is a functional disease that has a paroxysmal character

- it is a functional disorder with episodes of incidental pain
- pain limits a child's physiological activities
- observed in 10-15% of children, more likely girls
- often affects children aged 4-16 with the usual onset at around the age of 5
- it might develop due to mental and physical stress, genetic predisposition, anxiety (such as social anxiety from meeting new people in a different environment), low self-confidence, etc.

Clinical Evidence

- children locate pain in the periumbilical area or the mid-epigastric area
- the pain does not project anywhere, it has a paroxysmal character
- it is not associated with food, defecation, or child's activity
- does not occur at night

Diagnosis

- diagnosis is primarily based on precise **personal and family health history assessment**, clinical evidence, physical examination (including *per rectum* examination), laboratory test results, and additional examinations - need to distinguish whether it is an organic or a functional cause
- lab. tests: **blood** (CBC, FW, urea, creatinine, bilirubin, aminotransferases, amylase, glycemia, IgA - transglutaminase and endomysium antibodies, lipids, ANCA, ASCA), **urine** (chemical properties, sedimentation, quantitative bacteriuria, porphyrins screening), **stool** (occult gastrointestinal bleeding, antigen test for H. pylori, parasitology tests, calprotectin levels)
- **abdominal and renal ultrasound examination**
- further gynecologic examination might be suggested (girls)
- lactose malabsorption in anamnesis, or additional tests (such as the hydrogen breath test)

Differential diagnosis

Differential Diagnosis

- if the following symptoms are present it is more likely a different diagnosis than *functional recurrent abdominal pain* → well-localised pain (not in the periumbilical area), pain radiates, causes insomnia, weight loss, growth retardation, vomiting, diarrhea, constipation, and systematic signs - fever, arthralgia, exanthem, anaemia...

Treatment

- treatment takes a long time and demands intensive cooperation of a doctor and both children and parents
- the key procedure of the treatment is the interview (and communication overall) with parents - it is necessary to emphasize that their child suffers from pain that is absolutely real and present - by virtue of motoric activity of the gastrointestinal system as a result of increased sensitivity to normal or stressful stimuli
- the doctor makes sure that parents fully support their child, not the pain itself
- a child cannot be deprived of daily activities to some extent
- regular sessions with a psychologist or a psychiatrist are convenient
- the positive impact of medication was not fully proven - on the contrary, it may further psychologically worsen the patient's condition

Prognosis: statistically 50-70% of patients report the disappearance of any difficulties in adulthood but in 30-50% pain persists even later in life (headache, menstrual pain, back pains)

Recurrent Functional Abdominal Pain Associated with Functional Dyspepsia

- Functional dyspepsia (*also known as non-ulcer stomach pain*) is a term for recurring signs and symptoms of indigestion that have **no obvious cause**. Functional dyspepsia is common and can be long-lasting — although signs and symptoms are mostly intermittent. These signs and symptoms resemble those of an ulcer, such as pain or discomfort in your **upper abdomen**, often accompanied by bloating, belching, and nausea.

Clinical evidence: nausea, bloating, stomach rumbles, belching, hiccups, regurgitation - a mixture of gastric juices, and sometimes undigested food, rise back up the esophagus and into the mouth, burning pain in the retro-sternal area

Differential Diagnostics: it is crucial to eliminate an organic cause (mainly peptic ulcers, oesophageal reflux, gastritis, and a positive test for *Helicobacter pylori*)

Recurrent Functional Abdominal Pain Associated with Clinical Signs of Irritable Bowel

- also known as *lower abdomen dyspepsia*
- more frequent in adolescents

Clinical Evidence: repetitive changes in bowel habits - diarrhea, constipation, abdominal pain subside after defecation, mucus in stool, bloating, subjective sensation of incomplete evacuation

Differential Diagnostics: commonly idiopathic bowel inflammation, positive occult gastrointestinal bleeding test leads to further procedures - colonoscopy, contrast CT scan

Pancreatitis

 For more information see *Acute Pancreatitis*.

Links

Related Articles

- Nonspecific inflammatory bowel diseases
- Ulcerative colitis
- Celiac disease
- Baby colic
- Lower abdominal pain syndrome, Painful right lower abdomen syndrome

Reference

1. LEBL, Jan – JANDA, Jan – POHUNEK, Petr, et al. *Klinická pediatrie*. 1. edition. Prague : Galén, 2012. 338-339 pp. pp. 698. ISBN 978-80-7262-772-1.

Source

External Links

- BENEŠ, Jiří. *Studijní materiály* [online]. [cit. 2009]. <<http://jirben.wz.cz>>.

Bibliography

- HRODEK, Otto – VAVŘINEC, Jan. *Pediatric*. 1. edition. 2002. ISBN 80-7262-178-5.
- ŠAŠINKA, Miroslav – ŠAGÁT, Tibor – KOVÁCS, Lázsló. *Pediatric*. 2. edition. Bratislava : Herba, 2007. ISBN 978-80-89171-49-1.