

Sudden abdominal events in children

'Sudden abdominal events (NPB)' *are a disease of the abdomen that emerge unexpectedly and sharply*, affect the patient mostly in full health, and the minority deteriorates the steady state of the abdomen before. *definition according to Arnold Jirásk*

In contrast to NPB of adults, NPB often occurs in children, especially in newborn and infant age, on the basis of congenital defects.^[1]

Distribution of NPB in children

- **congenital** (arising on the basis of congenital defects)
- **gained**
 - accidental
 - non-injurious
 - inflammatory
 - ileous
 - perforation
 - bleeding

The most common NPB in children

- **history of trauma:** contusion, bleeding into the GIT and abdominal cavity, organ rupture, pancreatic injury
- **no previous injury':**
 - 0-2 years: intussusception, inguinal hernia, megacolon congenitum, GIT stenoses and atresia
 - 2-5 years: uropathy, intussusception, purpura, tumor
 - over 5 years: acute appendicitis, scrotal syndrome, uropathy, gynecological problems, Meckel's diverticulum, tumor^[2]

NPB based on birth defects

- usually have the character of ileous NPB
- particularly affect newborn and infant
- **subjective symptoms':** abdominal pain (restlessness, refusal of food), vomiting, bowel obstruction (gas retention and stools/mumps)
- **objective symptoms':**
 - general – pulse, breathing, temperature, icterus
 - local – look (bloated belly), palpate, listen, tap, per rectum (obstruction of the rectum)
- **other symptoms:** polyhydramnios
- **examination:** laboratory, USG, X-ray^[3]

File:Ladd's syndrome.png

Ladd's syndrome - unrotated cecum and duodenal compression by peritoneal bands

Examples of VVV causing NPB

- congenital hypertrophic pyloric stenosis, compression of the pylorus by an aberrant vessel, gastric torsion and volvulus, congenital microgastria, annular pancreas
- **congenital atresias of the alimentary canal**
- congenital biliary atresia, choledochal cyst (Caroli syndrome)
- intestinal malrotation, omphalocele, Beckwith-Wiedemann syndrome, umbilical cord hernia, laparoschisis (gastroschisis), vesicointestinal fissure, foreskin (Zachary-Morgan syndrome), nonrotation, compression duodenal hyperfixation, congenital volvulus of the midgut, Ladd's syndrome, internal hernias, reverse rotation, positional anomalies of the intestine, arteriomesenteric occlusion
- hepatodiaphragmatic interposition of the colon (Chilaiditi syndrome)
- **intussusception (intussusception)**
- **Meckel's diverticulum**, cystic formations of the abdominal cavity
- torsion of the spleen
- Hirschsprung's disease
- congenital diaphragmatic hernias
- anorectal malformation
- meconium ileus, meconium peritonitis

Obtained NPB non-injury

Inflammatory NPB

- **acute appendicitis** and associated complications (peritonitis, periappendicular infiltrate, abscess) – the most common non-traumatic NPB in children!
- chronic appendicitis
- primary peritonitis

- acute mesenteric lymphadenitis
- Crohn's disease
- necrotizing enterocolitis
- acute cholecystitis and cholelithiasis – exceptional in children
- biliary peritonitis in an infant
- acute pancreatitis
- serous peritonitis
- neonatal peritonitis

Ileotic NPB

- **ileus** (sudden intestinal obstruction) - division into mechanical, neurogenic and vascular (vascular is rare in children)
 - in children, the mechanical one prevails
 - paralytic (neurogenic) can be partially or completely expressed in all NPB, severe trauma and after operations
- foreign bodies in the alimentary canal – they can obstruct or perforate!
- intestinal parasites - roundworms

Anamnesis

- serious symptoms – pain wakes the child up from sleep, the child does not want to eat, the abdomen hurts when shaking, forces to take a relief position, is accompanied by fever, nausea, vomiting
- repeated episodes of colic - beware! to volvulus, intussusception
- in teenage girls – also gynecological issues (menses, sexual activity)
- it is necessary to look for problems with urination (dysuria, polakisuria), oxyuriasis (= enterobiosis)
- in older children and adult problems – ulcers, cholelithiasis, urolithiasis
- we find out the mode of defecation
- psychological and social problems

Clinical picture

- acceleration of the heart rate not corresponding to the temperature
- significant pain during palpation at a certain point, signs of obstruction (silence when listening)
- changes in the child's behavior - noticeable calmness, apathy alternating with pain, signs of peritoneal irritation
- tactile resistance
- pain during per rectal examination
- abnormal admixture in the stool (raspberry jelly on the glove - watch out for intussusception)
- inguinal hernia, scrotal syndrome in men (orchitis vs. torsion)
- for girls, examination by a gynecologist
- for school children, think about dissimulation
- look for inflammation in the airways (abdominal pain during pleuropneumonia - be careful, even with pneumonia the child can have appendicitis)
- abdominal pain with rashes – Henoch-Schönlein purpura, varicella^[2]

Accidental NPB received

- with children, it is always necessary to rule out injury with targeted questions!
- contusion of the abdominal wall, injury to the spleen, liver, pancreas, perforation of the GIT, bleeding into the abdominal cavity, detachment of the pedicle of the mesentery,...^[3]

Anamnesis

- mechanism of injury – fall from a height, what did the child fall on, where did it hit, what object caused the blunt injury...
- post-injury condition – consciousness, behavior, complaints, pain, vomiting, abnormal admixture in urine or stool, relief position

Clinical picture

- look for external signs - hematomas on the wall, bruising in the groin or on the scrotum (possible hemoperitoneum), sensitivity in the pelvic area - cave! – pelvic fracture
- signs of peritoneal irritation - usually with hemoperitoneum, free air or intestinal contents in the cavity
- palpable resistance – subcapsular hematoma of the liver, bleeding into the retroperitoneum
- silence when listening – paralytic post-traumatic ileus
- sometimes in case of injury to the liver, pancreas or spleen, the findings are minimal, so we send a child suspected of having an abdominal injury to surgery for observation (x-ray, ultrasonography, blood count, ALT, AST, ...)^[2]

Links

Related Articles

- Examination of the child's gastrointestinal system
- Types of pain in NPB ■ Subjective symptoms of sudden abdominal events ■ Objective symptoms of sudden abdominal events

References

1. TOŠOVSKÝ, V. V. *Náhlé příhody břišní u dětí : včasná diagnostika*. 9. edition. Grada, 1996. 304 pp. ISBN 80-7169-094-5.
2. HRODEK, Otto – VAVŘINEC, Jan. *Pediatric*. 1. edition. Galén, 2002. pp. 64-65. ISBN 80-7262-178-5.
3. **Cite error: Invalid <ref> tag; no text was provided for refs named tošovský**