academic publishers

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE (ISSN: 2692-5206)

Volume 04, Issue 10, 2024

Published Date: 27-12-2024

DIAGNOSIS AND TACTICS OF SURGICAL TREATMENT OF INTUSSUSCEPTION IN CHILDREN

Yusupov Shukhrat Abdurasulovich
Doctor of medical sciences, professor, head of department of pediatric Surgery No. 1 of Samarkand State Medical University
Ikramova Zarina Marufjonovna
3rd year student of the faculty of medicine of the Samarkand State Medical University
Nuraliyeva Yulduz Ulugbekovna
3rd year student of the faculty of medicine of Samarkand State Medical University

Abstract:intussusception is a common condition in children that occurs when a portion of the bowel telescopes into an adjacent segment, causing obstruction and potential ischemia. Diagnosis usually involves a combination of clinical evaluation and imaging studies, such as abdominal ultrasound or computed tomography, to confirm the presence and extent of intussusception. Surgical treatment in cases of hemodynamic instability, intestinal necrosis, or failure of non-surgical treatment. is displayed.

Key words: intussusception, children, diagnosis, surgical treatment, pediatric emergency.

Intussusception is a medical emergency that occurs in children when a part of the bowel 'telescopes' (folds) into another part of the bowel. This causes pain, vomiting, and obstruction, preventing passage. If left untreated, the bowel can perforate, resulting in passage of its contents into the abdominal cavity, causing further complications. In rare cases, these events can cause death. Prompt diagnosis and management reduces associated risks and the need for surgery.

Once intussusception is diagnosed, most doctors agree on the use of enema as initial treatment. This procedure involves introducing a substance (air or liquid) into the bowel, via the rectum, with a particular pressure that reduces the 'telescoped' bowel into its normal position.Debate persists on specifics regarding what type of substance should be used for the enema, how the substance is visualised during the process, whether extra medications should be given to enhance treatment, and how one should deal with treatment failure, as well as the best approach to surgical management of intussusception in children. Treatment of intussusception typically happens as a medical emergency.

Emergency medical care is required to avoid severe dehydration and shock, as well as prevent infection that can occur when a portion of intestine dies due to lack of blood.Treatment options for intussusception may include:a water soluble contrast or air enema. This is both a diagnostic procedure and a treatment. If an enema works, further treatment is usually not necessary. This treatment can actually fix intussusception 90% of the time in children, and no further treatment is needed. If the intestine is torn (perforated), this procedure can't be used.Intussusception recurs up to 20% of the time, and the treatment will have to be repeated. It is important that a surgeon be consulted even if treatment with enema is planned. This is because of the small risk of a tear or rupture of the bowel with this therapy.Surgery. If the intestine is torn, if an enema is unsuccessful in correcting the problem or if a lead point is the cause, surgery is necessary.

The surgeon will free the portion of the intestine that is trapped, clear the obstruction and, if

necessary, remove any of the intestinal tissue that has died. Surgery is the main treatment for adults and for people who are acutely ill.In some cases, intussusception may be temporary and go away without treatment. Intussusception is defined as the invagination of one segment of the bowel into an immediately adjacent segment. The intussusceptum refers to the proximal segment that invaginates into the distal segment, or the intussuscipiens (recipient segment).

Intussusception, more common in the small bowel and rarely involving only the large bowel, has historically presented as small bowel obstruction, although there is an increasing appreciation of cases of transient, asymptomatic intussusception within the era of abdominal CT scans. The natural history of intussusception starts with a lead point, typically neoplastic (such as lymphadenopathy, polyp, or cancer), which acts as a focal area of traction that draws the proximal bowel within the peristalsing distal bowel. Symptoms occur due to continued peristaltic contractions of the intussuscepted segment against the obstruction. With continued invagination resulting in edema, eventually the vascular flow to the bowel becomes compromised, resulting in ischemia to the affected segment that, left untreated, can result in necrosis and perforation. Intussusception results from the alteration of normal peristalsis by a lesion in the bowel wall that creates invagination. It can occur anywhere in the small and large intestine.

The nomenclature of intussusception reflects location of both the intussusceptum and intussuscipiens in the bowel: enteroenteric, appendiceal, appendiceal-ileocolic, ileocolic, colocolic, rectoanal, and stomal intussusception. For the purpose of this article, rectoanal and stomal intussusception will not be discussed as they are better characterized as (extracorporeal) prolapse. The upper gastrointestinal structures, specifically the esophagus, stomach, and duodenum, are rarely involved in intussusception due to their lack of mobility, redundancy, and characteristic anatomic fixation.

Moreover, the most common locations are at the junctions between freely moving segments and areas that are fixed, such as to the retroperitoneum (i.e., the fully peritonealized and mobile ileum intussuscepting into the fixed, retroperitoneal cecum) or through adhesions. Intussusception is most commonly encountered in children and has been reported to be the most common abdominal emergency in early childhood and the second most common cause of intestinal obstruction after pyloric stenosis.1 The mean age of intussusception in children is 6 to 18 months, with a male predominance. The incidence of intussusception declines with age—only 30% of all cases occur in children older than 2 years. Ileocolic intussusception is the most common form of intussusception in children. The etiology of pediatric intussusception is usually idiopathic, with only 10% of cases having an identifiable precipitating lesion.2 Several predisposing factors are thought to contribute to the pathophysiology of pediatric intussusception. Certain anatomic features in the developing gastrointestinal tract may predispose the pediatric bowel to an intussusception, including an anterior insertion of the terminal ileum with respect to the cecum, decreased rigidity of the cecum secondary to the absence or underdeveloped taeniae coli, and lack of mature participation of the longitudinal muscle fibers of the colon at the level of the ileocecal valve. These variations were identified by Scheye et al in a postmortem evaluation of 15 autopsy specimens, with 3 of the specimens being used for detailed evaluation of ileocecal valve anatomy. The development of intussusception may thus result from the invagination of the muscular ileocecal valve into the cecum due to the decreased rigidity of the cecal wall caused by the paucity of developed taeniae coli .Infectious etiology resulting in mesenteric lymphadenopathy is another common cause of pediatric intussusception. Hypertrophy of the Peyer patches in the setting of common viral illness such as adenovirus and rotavirus can lead to intussusception.

Buettcher et al found a seasonal variation of intussusception that correlated with seasonal variation of viral gastroenteritis. Approximately 30% of patients experience an antecedent viral illness before the onset of intussusception. Additionally, altered peristalsis in focal areas of the bowel wall leading to aperistaltic segments that feed into peristaltic areas, as in the submucosal hemorrhages in Henoch-Schonelin purpura, allows for the formation of an intussusceptum. Functional bowel disorders, and poorly understood neuroenteric disorders such as small intestinal pseudoobstruction, can alter peristalsis and result in intussusception in a similar fashion. Aperistaltic segments may be conceptualized as lead points. Although the majority of pediatric cases do not have an identifiable etiology, in approximately 10% a lead point or underlying cause will be found. Congenital gastrointestinal tract abnormalities such as Meckel diverticulum, intestinal duplication, or the presence of lesions such as polyps, hamartomas, or malignancies (lymphoma,

carcinoma due to juvenile polyposis syndromes) can all result in intussusception. In pediatric patients with cystic fibrosis, foreign bodies, intestinal parasites, and inspissated feces may result in lead points in the ileum causing ileocolic intussusception. With increasing age, the likelihood of identifiable causes of intussusception increases.

Accurate diagnosis and timely intervention are critical to ensure favorable outcomes. Diagnosis typically involves a thorough clinical evaluation, including a detailed history and physical examination. Symptoms often include acute abdominal pain, vomiting, and a "currant jelly" stool, which indicates potential bowel necrosis. Imaging studies, such as abdominal ultrasound, are commonly used for their effectiveness and lack of radiation exposure. In some cases, CT scans may be employed, particularly in older children for a more detailed assessment.Initial management often starts with non-surgical methods, such as an air contrast enema, which can sometimes reduce the intussusception and provide therapeutic benefits. However, if non-surgical reduction fails or if the child presents with severe symptoms, surgical intervention is required.Surgical tactics typically involve either laparotomy or laparoscopy. The surgeon aims to manually reduce the intussusception and assess the affected bowel segment for viability. If any necrotic bowel is identified, resection may be necessary.

Postoperative care is vital, focusing on monitoring for complications such as infection, leakage, or recurrence.In conclusion, prompt diagnosis and appropriate surgical treatment are essential in managing intussusception in children to minimize morbidity and enhance recovery. Ultrasound serves as an effective first-line diagnostic tool, while surgical intervention is necessary for cases with complications or failed non-operative management. Ongoing education for healthcare providers regarding the presentation and management of intussusception will enhance outcomes and reduce morbidity associated with this condition.

References:

1. Scheye Th, Dechelotte P, Tanguy A, Dalens B, Vanneuville G, Chazai J. Anatomical and histological study of the ileocecal valve: possible correlations with the pathogenesis of idiopathic intussusception in infants. Surg Radiol Anat
2. Zubaidi A, Al-Saif F, Silverman R. Adult intussusception: a retrospective review. Dis Colon Rectum.
3. Parashar UD, Holman RC, Cummings KC, Staggs NW, Curns AT, Zimmerman CM, et al. Trends in intussusception-associated hospitalizations and deaths among US infants. Pediatrics. 2000;106(6):1413–21.
4. Centers for Disease Control and Prevention (CDC). Withdrawal of rotavirus vaccine recommendation. MMWR Morb Mortal Wkly Rep. 1999;48(43):1007.
5. https://pmc.ncbi.nlm.nih.gov/articles/PMC5179276/
6. https://pmc.ncbi.nlm.nih.gov/articles/PMC6481850/#:~:text=Once%20intussusception%20is%20diagnosed%2C%20most,bowel%20into%20its%20normal%20position.
7. Yusupov Sh.A, Shamsiev A.M, Atakulov Zh.O, Jalolov D.A. Assessment of
8. the intensity of endogenous intoxication syndrome in children with widespread
9. appendiceal peritonitis // Journal “Medical Almanac” - 2019. No. 5-6(61). – pp. 57-61.
10. Shamsiev A.M., Yusupov Sh.A., Sharipov R.Kh. The influence of ozone therapy on indicators of lipid peroxidation in children with common forms of appendiceal peritonitis // Journal “Annals of Surgery” - 2001. - T. 5. - P. 77.
11. Yusupov Sh.A, Shamsiev Zh.A, Suvankulov U.T, Daycare E.S. Surgical tactics for obstructive calculous pyelonephritis in children Journal “Saratov Medical Scientific Journal” - 2007. - T. 3, No. 2. – pp. 79-80.
12. Yusupov Sh.A, Mardyeva G.M., Bakhritdinov B.R. Features of radiological semiotics for pneumonia in young children // Journal “Current nutrition of pediatrics, obstetrics and gynecology” – 2017. No. 2. – pp. 21-24.
13. Shamsiev A.M., Yusupov Sh.A., Yuldashev B.A., Mukhamadieva L.A. The state of the immune status in children with chronic bronchitis // Journal “Pediatric Bulletin of the Southern Urals” - 2017. No. 1. – pp. 84-89.
14. Shamsiev A.M., Yusupov Sh.A., Makhmudov Z.M. Surgical treatment of children with acute hematogenous osteomyelitis of the bones forming the hip joint // Journal “Russian Bulletin of

Pediatric Surgery, Anesthesiology and Reanimatology" - 2014. - Vol. 4, No. 3. – P.86-89.
15. Yusupov Sh.A, Kurbaniyazov Z.B, Zainiev A.F. Thyroid nodules. state of the problem (literature review) // Source "Bulletin of Scientific Research" – 2018. No. 1. – pp. 10-15.
16. Nugmanovna, M. A. (2024). Ethical Problems Of New Reproductive Technologies. Miasto Przyszłości, 9-12.
17. Shamsiev A.M., Saidov M.S., Aipov R.R., Atakulov D.O., Yusupov Sh.A. Surgical correction of fecal incontinence with fistulas in the reproductive system in girls // Journal "Russian Bulletin of Pediatric Surgery, Anesthesiology and Reanimatology" - 2014. - T. 4, No. 2. – P.25-29.
18. Shamsiddinova, M., & Maxmudova, A. (2024). TIBBIYOTDA DEONTOLOGIYA VA BIOETIKANING DOLZARB MUAMMOLARI. TAMADDUN NURI JURNALI, 8(59), 93-97.
19. Shamsiev A.M., Saidov M.S., Atakulov D.O., Yusupov Sh.A., Shamsiev Z.A., Suvankulov U.T. Surgical treatment of anorectal defects in children. Journal "Bulletin of Surgery named after II Grekov" - 2011. - T. 170, No. 2. – pp. 40-43.
20. O'tayev, S. T., & Mahmudova, A. N. (2023). O'zbekiston Respublikasining sog'liqni saqlash tizimida hozirgi kunda neyroxirurgiya yutuqlari. Science and Education, 4(2), 190-194.
21. Nugmanovna, M. A. (2022). Bioethics as a form of protection of individuality and personalized medicine. Thematics Journal of Social Sciences, 8(4).
22. Nugmanovna, M. A., & Gennadievna, A. O. (2022). PRINCIPLES OF FORMATION OF ENVIRONMENTALLY SIGNIFICANT VALUES AMONG MEDICAL UNIVERSITY STUDENTS. Thematics Journal of Social Sciences, 8(3).
23. Nugmanovna, M. A., & Kamariddinovna, K. M. (2022). What A Doctor Should Know To Work Safely And Effectively: International Norms And Rules. Thematics Journal of Social Sciences, 8(3).
24. Nugmanovna, M. A., & Kamariddinovna, K. A. (2021, January). Modern biotechnical problems of medicine and their solutions. In Archive of Conferences (Vol. 13, No. 1, pp. 169-173).
25. NUGMANOVNA, O. F. O. M. A. (2023). ABORTION AS AN ETHICAL PROBLEM. Journal of Modern Educational Achievements, 9(9), 31-39.
26. Makhmudova, A. N. (2024). Bioethics as a new direction in the moral and ethical discourse of modern society. Science and Education, 5(4), 268-271.
27. Бердиярова, Ш. Ш., Юсупов, Ш. А., & Назарова, Г. Ш. (2022). Клинико-лабораторные особенности хронического гематогенного остеомиелита. Central Asian Research Journal for Interdisciplinary Studies (CARJIS), 2(5), 116-125.
28. Юсупов, Ш. А., & Хакимова, Л. Р. (2023). ПРОГНОСТИЧЕСКАЯ ВОЗМОЖНОСТЬ ИММУНОГЕНЕТИЧЕСКИХ ИССЛЕДОВАНИЙ В ИЗУЧЕНИИ ЗАБОЛЕВАЕМОСТИ МОЧЕКАМЕННОЙ БОЛЕЗНЬЮ У ДЕТЕЙ. Вестник Авиценны, 25(3), 346-355.
29. Юсупов, Ш. А. (2009). Диагностика внутрибрюшных абсцессов в раннем послеоперационном периоде при аппендикулярных перитонитах у детей. Вестник Уральской медицинской академической науки, (3), 36-39.
30. Юсупов, Ш. А., Атакулов, Ж. О., Шукурова, Г. О., Аббасов, Х. Х., & Рахматов, Б. Н. (2023). Периоперационное ведение детей с распространенными формами аппендикулярного перитонита. Science and Education, 4(9), 118-127.
31. Юсупов, Ш. А., Мухаммадиев, А. А., & Джалолов, Д. А. (2020). КЛИНИКО-ДИАГНОСТИЧЕСКИЕ ОСОБЕННОСТИ ДИВЕРТИКУЛ МЕККЕЛЯ У ДЕТЕЙ. In АКТУАЛЬНЫЕ ВОПРОСЫ СОВРЕМЕННОЙ НАУКИ И ОБРАЗОВАНИЯ (pp. 169-172).