
INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN BIOLOGY AND MEDICINE

ISSN: 2455-944X

www.darshanpublishers.com

DOI:10.22192/ijcrbm

Volume 3, Issue 1 - 2018

Review ArticleDOI: <http://dx.doi.org/10.22192/ijcrbm.2018.03.01.013>

A Review on Intussusception

Mehran HesarakiDepartment of Pediatrics, Zabol University of Medical Sciences, Zabol, Iran

Abstract

Intussusception occurs for two reasons, the first one of which is automatically, the pathogenesis of which is not well known; is believed that the secondary cause is an imbalance in the longitudinal forces entering the intestinal wall. An imbalance in intra-intestinal intussusception can be due to a mass that acts as a lesion or causes abnormal peristalsis patterns. As a result of the imbalance in the forces entering the intestine, part of the intestine is interspersed into the adjacent lumen. The tangential interstitial part enters the intestine in the form of a telescope. This continues, and the proximal sections continue to enter the tube. If the tentorium is progressing and the bowel movement is progressive, intussusception can progress to the colon or sigmoid, or even out of the anus. The tentorium is also interspersed with the intestine, causing the classical patho-physiological process of other intestinal obstructions. Patients with intussusception sometimes have no signs and symptoms of a disease, thus delaying the diagnosis and providing the possibility of dangerous consequences. Considering the possibility of intussusception is very important in evaluating a child less than 5 years of age who has abdominal pain, or suffering from Henoch-Schleimhaut purpura and hematologic dislocations.

Keywords: Intussusception, review

Introduction

Intussusception occurs for two reasons, the first one of which is automatically, the pathogenesis of which is not well known; is believed that the secondary cause is an imbalance in the longitudinal forces entering the intestinal wall (1).

An imbalance in intra-intestinal intussusception can be due to a mass that acts as a lesion or causes abnormal peristalsis patterns (2). As a result of the imbalance in the forces entering the intestine, part of the intestine is interspersed into the adjacent lumen. The tangential interstitial part enters the intestine in the form of a telescope. This continues, and the proximal sections continue to enter the tube.

If the tentorium is progressing and the bowel movement is progressive, intussusception can progress to the colon or sigmoid, or even out of the anus. The tentorium is also interspersed with the intestine,

causing the classical patho-physiological process of other intestinal obstructions (3, 4).

At the beginning of this process, lymphatic rejection is impaired. Then, with increasing intestinal pressure in the tangled area, the return of the venous is disrupted. If the blockage continues, the pressure reaches a point where the arterial flow is interrupted and thereafter, non-obliteration occurs. The intestinal mucus is highly susceptible to fever, because it is the furthest point in the arterial blood supply. Ischemic mucus that falls and causes a positive stool in the blood and as a result of the classic sign of stool gelatinization. If the treatment is not done, full thickness and perforation of the gangrene occurs (5 and 6).

Lateral lesions

Approximately 2-12% of children with intussusception are found underlying surgical lesions. The occurrence of underlying lesion increases with age and suggests that non-surgical reduction is extremely unlikely. Examples of the underlying lesion are as follows;

- Ductal Meclot
- enlarged mesenteric lymph nodes
- Benign or malignant mesenteric or intestinal tumors including lymphoma, polyps, ganglionoma, and hamartomas associated with Putsz_Jerrn syndrome
- Mesenteric cysts
- mucosal hematomas that can occur in patients with Henoch-Schoenlein purpura or coagulant discharges.
- Reverse appendix root
- Sutures during an Anatomy
- Secondary intestinal hematomas to hit the abdomen
- Foreign objects
- Hemangioma
- Kaposi's syndrome
- Post-transplant disorder in lymphoproliferative diseases

Hemophilia and other coagulation disorders

Patients with hemophilia and other coagulation disorders may develop gastrointestinal mucosal hematomas leading to intussusception. Peritoneal hemorrhage should also be included in other diagnoses of the abdominal pain. If bowel obturation occurs, abdominal radiographs should show the obstructive pattern of the small intestine; otherwise, supportive treatment with correction of coagulation disorder is performed (7).

Post-operative intussusceptions

Post-operative intussusception is one of the rare complications that occurs in 0.08-0.5% cases of laparotomy. Intussusception can occur in an area independent of the site of the operation. Intussusception usually occurs after 2 weeks of surgery with the sudden onset of secondary intestinal obstruction. Treatment, reduction through action, is immediate (8).

Cystic fibrosis

Intussusception occurs in approximately 1% of patients with cystic fibrosis. It is assumed that intussusception accelerates with rigidity and thickening of fecal matter that binds to mucus and acts as a lesion. Differential diagnoses include intestinal obstruction and appendicitis syndrome. Most of these patients require surgical reduction (9 and 10).

Idiopathic

The main cause of intussusception is not clear in the majority of cases; this group are referred to as automatic intussusception. A theory that explains the possible etiology of spontaneous intussusception is the presence of large platelets. This hypothesis comes from 3 observations:

1. The disease often affects the upper respiratory tract infection.
- 2- The Ileocolic region has the highest mesenteric lymph nodes.
3. Enlarged lymph nodes are often seen in patients requiring surgery. It is unclear whether the enlargement of the old plaque is a response to the intussusception or the cause of it (11).

Epidemiology

A large geographical difference in the incidence of intussusception disease among countries and cities in one country has made it difficult to determine the prevalence correctly. There is no study in the United States about the definitive outbreak of intussusception. It is estimated that the incidence is 1 case per 2000 live births. In the UK, the incidence ranges from 4-6 / 1 to 1,000 births. In general, the male to female ratio is approximately 3 to 1. As the age increases, the gender difference increases so that in men over the age of 4 years the male to female ratio is 8 to 1.

Two-thirds of patients with intussusception are less than 1 year old. Most often, intussusception occurs in children aged 5 to 10 months. Intestinal enuresis is the most common cause of intussusception in patients 5 months to 3 years. Intubation is responsible for about 25% of the cases of emergency abdominal surgery in children younger than 5 years (12 and 13).

Prognosis

If intussusception is duly diagnosed, it will be quite excellent for the prognosis of patients. Otherwise, severe complications and death may occur. The rate of relapse of intussusception after vomiting is usually less than 10%, but 15% has, also, been reported. Most cases of relapses occur within the first 72 hours, however, recurrence is reported 36 months later. If recurrence happens more than once, there is the possibility of lesion (8). The cases of relapse after barium and air enema are 4% and 10%, respectively. The relapse responds to 95% of non-surgical resuscitation (14).

Complications of intussusception, which occur in rare cases, such as delayed diagnosis, include:

- Perforation during non-surgical placement
- Wound infection
- Internal hernia and adhesion that causes bowel obstruction.
- Sepsis due to unidentified peritoneal inflammation (major complication due to non-diagnosis)
- Gastrointestinal bleeding
- Necrosis and perforation of the intestine
- Recurrence

With timely diagnosis, adequate fluid therapy and treatment, the degree of motility is less than 1% due to intussusception; however, if left untreated, this condition is particularly lethal within 2 to 5 days (15).

Clinical symptoms

The sum of the symptoms and signs of intussusception is one of the most classic manifestations of pediatric diseases. However, the classic trilogy of vomiting, abdominal pain and bleeding from the anus is only occurring in one third of the patients. The patient is often a child with vomiting, abdominal pain, blood and mucus exits, drowsiness and palpitations. These symptoms occur after an upper respiratory tract infection. In a few cases, parents report one or more abdominal attacks for 10 days to 6 months earlier than this period. These patients are likely to have a surgical lesion that causes recurrent intussusception and self-sustaining intubation (16 and 17). Pain is severe and intermittent in intussusception. Parents or caregivers describe the child as having trapped the legs into the abdomen and kicking the air. The kid stays clam during the interval of the attacks (18). Non-bile and

reactive vomiting is initially bile vomiting when intussusception occurs. It is assumed that each child with biliary vomiting has conditions that require surgical treatment, unless proven otherwise (19). Parents also mention fecal excrement, which is similar to jelly-raisins. This stool is a combination of mucus, mucous mucus and blood, diarrhea can be the initial marker of intussusception.

Sleepiness is a relatively common symptom of intussusception. The cause of the occurrence of sleepiness is unknown. Sleepiness does not occur in other types of bowel obstruction. Sleepiness can only be a symptom that challenges the diagnosis (20). In a prospective observational study, Weinhammer conducted several clinical trials for classifying children at risk for probable intussusception. The study concludes that older than 5 months of age, male genital mutilation and drowsiness are the three most important clinical factors that predict intussusception (21). Intussusception is common in children with malnutrition. The child has periods of frequent drowsiness that has periods of attack cry, which is repeated every 15-30 minutes. The child may be pale, sweating and suffering from hypotension (if a shock has occurred) (22). The main symptom of a physical examination of a child with intussusception is the presence of a massive mass in the lower abdomen and the emptying of the lower and right abdomen (23). The touch of the mass is difficult and it is better to touch the site when the infant is calm and tranquil. Abdominal distension occurs when complete obstruction occurs. If there is gangrene and non-peritoneal intestine, the presence of tightness suggests peritoneal inflammation (24). In the early stages of the disease, the presence of secret blood in the stools is impaired by the first symptom of mucosal hemorrhage. Then, clear bloodshed of the anus and the classic sign of jelly-raspberry stool appear. Fever and leukocytosis are late symptoms, suggesting gangrene and non-population (25 and 26). Patients with intussusception sometimes have no signs and symptoms of a disease, thus delaying the diagnosis and providing the possibility of dangerous consequences (27). Considering the possibility of intussusception is very important in evaluating a child less than 5 years of age who has abdominal pain, or suffering from Henoch-Schweinfurt purpura and hematologic dislocations (28).

References

1. Kitagawa SE, Miqdady M. Intussusception in children. 2003. 21;4(2):19.
2. Lui KW, Wong HF, Cheung YC, See LC, Ng KK, Kong MS. Air enema for diagnosis and reduction of intussusception in children: Clinical experience and fluoroscopy time correlation. *J Pediatr Surg* 2001; 36(3):479-481.
3. Hsu HY, Chang MH, Ni YH, Wang SM. Familial occurrence of intussusception in two sibling pairs. *J Pediatr Gastroenterol Nutr* 1998;27(1):94-96.
4. Hwang CS, Chu CC, Chen KC, Chen A. Duodenal intussusception secondary to hamartomatous polyps of duodenum surrounding the ampulla of Vater. *J Pediatr Surg* 2001;36(7):1073-1075.
5. Morgan DR, Mylankal K, Barghouti N, Dixon MF. Small bowel haemangioma with local lymph node involvement presenting as intussusception. *J Clin Pathol* 2000; 53(7):552-553.
6. Chen SC, Wang JD, Hsu HY, Leong MM, Tok TS, Chin YY. Epidemiology of childhood intussusception and determinants of recurrence and operation: analysis of national health insurance data between 1998 and 2007 in Taiwan. *Pediatr Neonatol* 2010;51(5):285-91.
7. Tan. N, Yee-Leong. T, Kong-Boo. P, Seng-Hock. Q, Bee-Wah. L, Harvey James. E. An Update of Paediatric Intussusception Incidence in Singapore: 1997-2007, 11 Years of Intussusception Surveillance. *Ann Acad Med Singapore* 2009; 38:690.
8. Report of meeting on future directions for rotavirus vaccine research in developing countries Geneva, 2000.
9. Farshidmehr P, Nazem M, Hoseinpoor M. Predicting Factors of Reducibility of Invagination with Barium Enema in Children. *Iran J Pediatr* 2011; 29: 869-874.
10. Nemati M, Aslanabadi S, Shakeri Babil A, Alizade Milan A, Elmdoost N. Predictive Value Of Color Doppler Sonography in Assessment of Successfulness of Nonsurgical Reduction of Intestinal Intussusception. *Urmia M J.* 2011; 22 (3):255-261.
11. Swischuk LE, John SD, Swischuk PN. Spontaneous reduction of intussusception: Verification with US. *Radiology* 1994; 192(5):269-71.
12. Peh WG, Khong PL, Lam C, Chan KL, Saing S, Cheng W. Ileocolic intussusception: Diagnosis and Significance. *Br J Radiol* 1997; 70(5):891-6.
13. Carlin JB, Macartney KK, Lee KJ, Quinn HE, Buttery J, Lopert R, et al. Centers of disease control and prevention Intussusception among recipients of rotavirus vaccine United States. *Jama* 1998;48:577-581.
14. Chang H.G, Smith PF, Ackelesberg J, Morse DL. Intussusception and rotavirus vaccine use among children in New York State. *Pediatrics* 2001;1:54-60.
15. Wyllie R, Hyams J. *Pediatrics Gastrointestinal disease* 1999;2(14):169-188.
16. Adejuyigbe D, Jeje EA, Owa J. Childhood Intussusception. In *Ife-Ife*, 1991; 11:123-127.
17. Goedhals D, Kriel J, Hertzog ML, van Rensburg MJ. Human cytomegalovirus infection in infants with prolonged neonatal jaundice. *Journal of Clinical Virology.* 2008 Oct 31;43(2):216-8.
18. Said RN, Zaki MM, Abdelrazik MB. Congenital toxoplasmosis: evaluation of molecular and serological methods for achieving economic and early diagnosis among Egyptian preterm infants. *Journal of tropical pediatrics.* 2010 Oct 20;57(5):333-9.
19. Bellomo-Brandao MA, Andrade PD, Costa SC, Escanhoela CA, Vassallo J, Porta G, De Tommaso AM, Hessel G. Cytomegalovirus frequency in neonatal intrahepatic cholestasis determined by serology, histology, immunohistochemistry and PCR. *World journal of gastroenterology: WJG.* 2009 Jul 21;15(27):3411.
20. Bhutani VK, Zipursky A, Blencowe H, Khanna R, Sgro M, Ebbesen F, Bell J, Mori R, Slusher TM, Fahmy N, Paul VK. Neonatal hyperbilirubinemia and Rhesus disease of the newborn: incidence and impairment estimates for 2010 at regional and global levels. *Pediatric research.* 2013 Dec;74(Suppl 1):86.
21. Albanna EA, El-latif RS, Sharaf HA, Gohar MK, Ibrahim BM. Diagnosis of congenital cytomegalovirus infection in high risk neonates. *Mediterranean journal of hematology and infectious diseases.* 2013;5(1).
22. Keren R, Luan X, Friedman S, Saddlemyre S, Cnaan A, Bhutani VK. A comparison of alternative risk-assessment strategies for predicting significant neonatal hyperbilirubinemia in term and near-term infants. *Pediatrics.* 2008 Jan 1;121(1):e170-9.
23. Watchko JF. Identification of neonates at risk for hazardous hyperbilirubinemia: emerging clinical insights. *Pediatric clinics of North America.* 2009 Jun 30;56(3):671-87.

24. Gamaleldin R, Iskander I, Seoud I, Aboraya H, Aravkin A, Sampson PD, Wennberg RP. Risk factors for neurotoxicity in newborns with severe neonatal hyperbilirubinemia. *Pediatrics*. 2011 Oct 1;128(4):e925-31.
25. Bhutani VK, Zipursky A, Blencowe H, Khanna R, Sgro M, Ebbesen F, Bell J, Mori R, Slusher TM, Fahmy N, Paul VK. Neonatal hyperbilirubinemia and Rhesus disease of the newborn: incidence and impairment estimates for 2010 at regional and global levels. *Pediatric research*. 2013 Dec;74(Suppl 1):86.
26. Gamaleldin R, Iskander I, Seoud I, Aboraya H, Aravkin A, Sampson PD, Wennberg RP. Risk factors for neurotoxicity in newborns with severe neonatal hyperbilirubinemia. *Pediatrics*. 2011 Oct 1;128(4):e925-31.
27. Kaplan M, Merlob P, Regev R. Israel guidelines for the management of neonatal hyperbilirubinemia and prevention of kernicterus. *Journal of Perinatology*. 2008 Jun 1;28(6):389-97.
28. amada K, Yamamoto Y, Uchiyama A, Ito R, Aoki Y, Uchida Y, Nagasawa H, Kimura H, Ichiyama T, Fukao T, Kohno Y. Successful treatment of neonatal herpes simplex-type 1 infection complicated by hemophagocytic lymphohistiocytosis and acute liver failure. *The Tohoku journal of experimental medicine*. 2008;214(1):1-5.

| Access this Article in Online | |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  | Website: www.darshanpublishers.com |
| | Subject: Medical Sciences |
| Quick Response Code | |

How to cite this article:

Mehran Hesaraki. (2018). A Review on Intussusception – Review Article. *Int. J. Curr. Res. Biol. Med.* 3(1): 95-99.

DOI: <http://dx.doi.org/10.22192/ijcrbm.2018.03.01.013>