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REVIEW

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Intussusception

Part 3: Diagnosis and management of those with an identifiable or predisposing cause and those that reduce spontaneously

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Abstract In the previous two parts of this review on intussusception, the diagnosis and management of symptomatic, ''idiopathic'' ileocolic and ileoileocolic intussusceptions, which are considered to result from hyperplasia of lymphoid tissue in the distal ileum, were discussed. In this third part, those intussusceptions with an identifiable cause including pathologic lead point, those due to gastrojejunostomy or other feeding tubes, and those that are seen in the postoperative period as well as those that may be asymptomatic or may reduce spontaneously (usually limited to the small bowel) are discussed.

Keywords Intussusception · Diagnosis · Imaging · Children

Introduction

In the previous two parts of this review series on intussusception, we have discussed the diagnosis and management of symptomatic, ''idiopathic'' ileocolic and ileoileocolic intussusceptions, which are considered to result from hyperplasia of lymphoid tissue in the distal ileum [1]. In this third part we discuss those intussusceptions with an identifiable cause including pathologic lead point, those due to gastrojejunostomy (GJ) or other feeding tubes, and those that are seen in the postoperative period as well as those that may be asymptomatic or may reduce spontaneously (usually limited to the small bowel).

Intussusception due to pathologic lead points (PLP)

In a review of the literature, Blakelock and Beasley [2] found that the incidence of PLP as a cause of intussusception in children ranged from 1.5% to 12%. PLP may be due to focal or diffuse abnormalities of the gastrointestinal tract (Table 1). The most common focal lesions include Meckel diverticulum, intestinal polyp, duplication cyst and lymphoma. Diseases that involve the bowel more diffusely by causing wall thickening and/or affecting the bowel motility include Henoch-Schönlein purpura, cystic fibrosis and celiac disease. A more extensive list of less common PLP is found in the review by Stringer et al. [1]. There are only two recent reviews of large series in which the management of intussusceptions due to PLP is discussed [3, 4], but only Navarro et al. [4] evaluated the impact of the newer imaging modalities in the management of these patients.

Intussusception due to PLP remains a diagnostic challenge because of the varied and often nonspecific presentation and the wide spectrum of types of PLP. The differentiation of intussusception due to a PLP from so-called ''idiopathic'' intussusception is relevant, since the management may be different in each group. The most significant clinical clue is the presence of an underlying disease that may predispose to the development of intussusceptions due to thickening of the bowel wall, abnormal bowel motility, impaction of secretions or the presence of polyps. These diseases include Peutz-Jeghers syndrome, familial polyposis, Henoch-Schönlein purpura, celiac disease, cystic fibrosis and neutropenic colitis. In the series of Navarro et al. [4],

Table 1 Pathologic lead points (PLP) in childhood intussusception

Type of PLP	Reference					HSC[a]
	5	59	24	3	4	
Meckel diverticulum	14	7	7	27	12	6
Benign polyps	8	3	1	11	8	2
Malignant polyp				1		
Lymphoma	1	1	6	5	3	1
Duplication cyst	5	1	2	4	3	4
Massive lymphoid hyperplasia			5		1	
Henoch-Schönlein purpura	1				6	2
Cystic fibrosis					4	2
Celiac disease						1
Appendicitis/periappendicitis	1		2		2	
Appendiceal mucocele		1				
Neutropenic colitis					2	
Ileal carcinoid				2		
Ectopic pancreas			2			
Leiomyoma			1			
Leukemia						1

[a]Unpublished data of our experience 1999–2003 (*HSC* Hospital for Sick Children, Toronto)

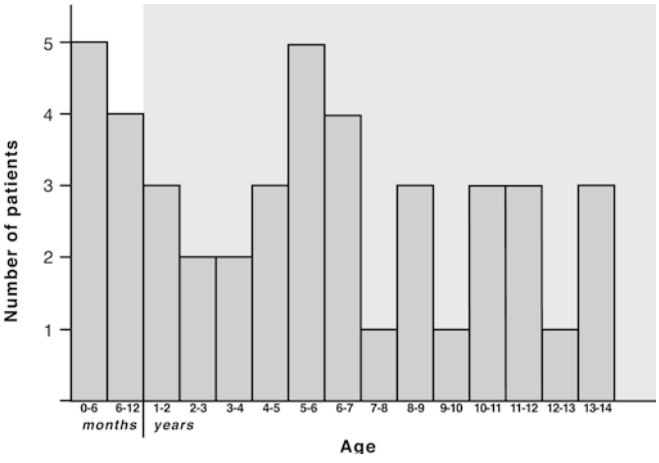

Fig. 1 Age distribution of 43 children with intussusception due to pathologic lead points. Reprinted with permission of Springer from reference 4

35% of the patients had one of these predisposing conditions. Other factors that have been mentioned in the literature that may be associated with the presence of a PLP include the age of the patient, the association of a long duration of symptoms with weight loss, and a history of previous episodes of intussusception [2, 5, 6, 7].

Most "idiopathic" intussusceptions present in children between the ages of 3 and 12 months [2, 4]. In a review of the literature, Blakelock and Beasley [2] have shown that the percentage of intussusceptions due to PLP increases with the patient's age, from 5% in the 0–11 months age group to 60% in the 5–14 years age group. However, Navarro et al. [4] showed that in terms of absolute numbers of intussusceptions due to PLP, 44% present before 5 years of age (Fig. 1). This study also confirmed the findings of Ong and Beasley [3] that the greatest number of episodes of intussusception due to PLP occur in the first year of life. Therefore, although the age of the patient may be considered a predictor of the presence of PLP, particularly when the intussusception occurs in a child older than 5 years or in a full-term neonate, it is essential to be vigilant for PLP even in patients who are in the age range when "idiopathic" intussusceptions are most frequent.

Most intussusceptions due to PLP present with abdominal pain, vomiting and/or gastrointestinal bleeding, which are nonspecific symptoms no different from those seen in idiopathic intussusceptions. The most relevant presentation associated with PLP, reported in patients with lymphoma, is that of a child older than 3 years of age with a longer duration of symptoms (weeks to months) accompanied with weight loss [4, 6]. However, intussusception due to lymphoma may occur in the absence of a long history or weight loss.

There is a wide range of the reported incidence of PLP in children with recurrent intussusception (0–33%) [7, 8, 9, 10, 11], which should be compared with the reported overall incidence for PLP in all children with intussusception, which is between 1.5% and 12% [2]. Although there is an overlap between the two groups, our own experience indicates that there may be a higher incidence of PLP in those children with recurrent intussusceptions. In a 17-year review of recurrent intussusceptions, Daneman et al. [7] found that there was no pattern of recurrence predictive of PLP but did find that PLP were present in 14% of the children who had had more than one recurrent intussusception compared to 4% of those children who had one recurrence. In our most recent experience, the incidence of PLP in patients with more than one episode of intussusception was 19% compared to 4% in those patients who only had a single episode. Although multiple recurrences may be a predictor of the presence of PLP, most patients with PLP will only have a single episode of intussusception because the presence of the PLP will be diagnosed, based on clinical or imaging findings, during evaluation of the first episode of intussusception or at surgery due to irreducibility of the intussusception [4]. Furthermore, the majority of children with recurrences will not have a PLP. In the series of Daneman et al. [7], long-term follow-up of children with as many as seven recurrences revealed no further clinical problems or documentation of PLP after their last intussusception, suggesting that these recurrences were unlikely due to PLP.

In a review of 43 children with intussusception due to PLP, Navarro et al. [4] showed that the aforementioned clinical indicators were in fact absent in 53% of these children. Therefore, imaging plays a major role in the

documentation of the presence or absence of PLP, and sonography proved to be the cornerstone modality in this series as it depicted two-thirds of PLP. The recognition of PLP on sonography in the acute setting of an intussusception depends, not only on the skills and experience of the operator, but also to a large degree on the type of PLP present. Although there are several reports in the literature describing the imaging appearances of various PLP, the paper by Navarro et al. [4] is the only one in which an attempt is made to determine the accuracy of imaging in the depiction of the various types of PLP. Table 2 summarizes the combined data from this paper and our most recent 4-year experience and shows the number of each type of PLP that were depicted with sonography and the number in which a specific diagnosis could be made from the sonographic appearances.

An inverted Meckel diverticulum is the commonest PLP. Characteristic sonographic appearances include a segment of blind-ending thick-walled bowel, with a bulbous, elongated or tear-drop shape projecting for a variable distance from the apex of the intussusceptum [12]. There is loss of normal sonographic gut signature due to edema, hemorrhage, ulceration and ischemia in the wall of the diverticulum. The central serosal surface may surround hyperechoic fat and/or anechoic fluid. Occasionally, it may present as a more nonspecific, heterogeneous, hyperechoic mass or it may simulate a duplication cyst. Inverted Meckel diverticulum may also be depicted with air enema or CT. On air enema it may appear as a bulbous or triangular filling defect in the air column projecting off the distal end of the intussusceptum [13]. On CT it may appear as an intraluminal mass composed of a central fat attenuation surrounded by a thick collar of soft tissue attenuation [12, 14, 15].

Polyps, a relatively common focal type of PLP, are in our experience difficult to diagnose with sonography. However, recently Baldisserotto et al. [16] reported two children with colocolic intussusception in whom the polyp was visualized on sonography. The characteristic sonographic appearance of a juvenile colonic polyp is that of a hypoechoic nodule in the colon lumen with a hyperechoic peripheral layer, containing small cysts and a pedicle extending to the wall of the colon [16]. Lam and Firman [17] reported a hamartomatous polyp serving as a PLP in a small-bowel intussusception; this appeared as a hyperechoic polypoid mass arising from the inner layer of the intussusceptum.

Duplication cyst is an uncommon PLP, which is easily diagnosed with sonography (Fig. 2). It appears as a well-defined cystic mass that may have a characteristic hyperechoic inner lining surrounded by a hypoechoic rim, often referred to as gut signature [4, 18, 19, 20]. However, this gut signature may be absent. The differential diagnosis for this entity includes Meckel diverticulum and fluid trapped within the layers of the intussusception [20, 21].

Another PLP that is usually easy to recognize with sonography is lymphoma. Most intussusceptions due to lymphoma are irreducible but rarely they may be successfully reduced [4, 6]. In the latter instance, sonography prior to attempted reduction is invaluable in depicting the presence of this type of PLP. Failing to make the diagnosis of this PLP may delay treatment and affect prognosis [22]. On sonography, lymphoma appears as a lobulated hypoechoic mass in the intussusceptum [4, 22] (Fig. 3). However, there have been cases reported in which benign reactive lymphoid hyperplasia was so prominent that it mimicked the appearance of

Table 2 Depiction of pathologic lead points (PLP) by sonography in 54 patients—a combination of data from Navarro et al. [4] and our most recent experience

Type of PLP	Total	Detection of PLP	Specific diagnosis of PLP
Focal PLP	38	28	12
Meckel diverticulum	16	10	5
Polyps	7	3	0
Duplication cyst	7	7	5
Lymphoma	4	4	1
Periappendicitis	1	1	1
Ileal hemangioma	1	1	0
Massive lymphoid hyperplasia	1	1	0
Leukemia	1	1	0
Diffuse PLP	16	7	0
Henoch-Schönlein purpura	6	4	0
Cystic fibrosis	6	0	0
Celiac disease	1	1	0
Neutropenic colitis	2	2	0
Hirschprung colitis	1	0	0

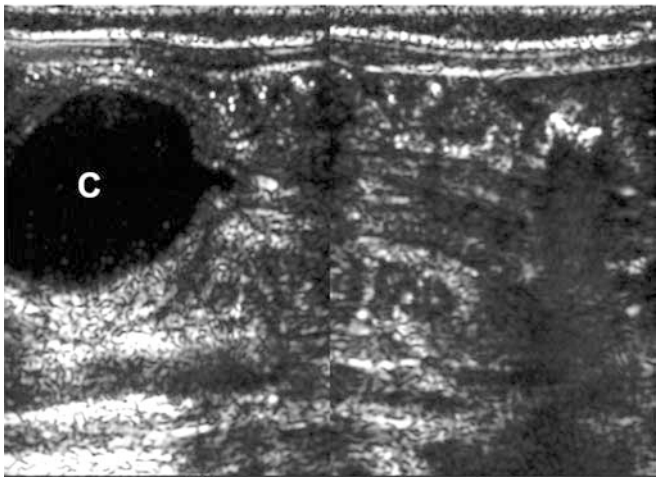

Fig. 2 Longitudinal sonogram of the right lower quadrant in a 13-month-old girl. At the apex of the intussusception there is a well-defined, anechoic, cystic structure, which proved to be an ileal duplication cyst (*C*)

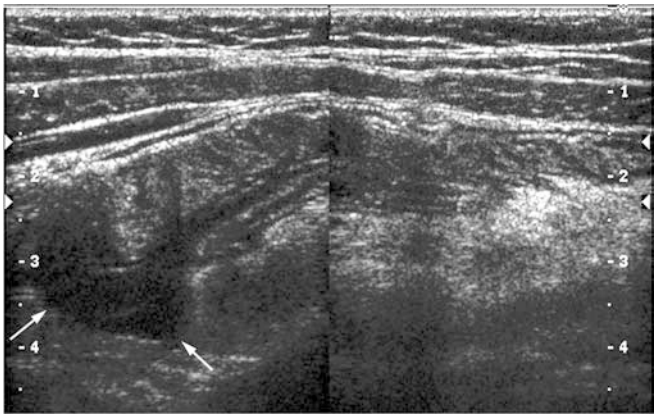

Fig. 3 Transverse sonogram of the right lower quadrant in a 7-year-old boy. At the apex of the intussusception there is a lobulated, hypoechoic, solid lesion, which proved to be lymphoma (*arrows*)

lymphoma and required histologic examination for differentiation [4, 23, 24].

In summary, Table 2 shows that sonography detected 64% of all PLP (74% of focal PLP and 40% of diffuse PLP) and provided a specific diagnosis in 32% of the focal PLP. With regard to focal PLP, this modality is extremely useful in the diagnosis of duplication cyst and lymphoma, allowing their detection in virtually all such cases. Although Meckel diverticulum is often depicted with sonography, a specific diagnosis is only made in a small number of cases. The sonographic diagnosis of polyp is more difficult and, because of this, a negative sonogram is not reliable in ruling out its presence. With regard to PLP that affect the bowel more diffusely, sonography is not expected to be specific. These PLP are recognized on sonography only occasionally by the identification of areas of bowel wall thickening, which are not involved in the intussusception. The role of sonography in diagnosing these PLP is less relevant because these conditions have usually already been diagnosed clinically at the time of the presentation of intussusception.

Routine use of sonography for the diagnosis of intussusception affords the opportunity of evaluating for the presence of PLP in all children in every episode of intussusception. However, there is no scientific data available on how to continue the investigation of those patients in whom sonography does not depict a PLP but in whom there is a high index of suspicion for its presence. This remains a clinical and diagnostic challenge, and therefore, other imaging studies have to be requested according to each particular case. Unanswered questions remain regarding such patients: Should all children outside the age range of "idiopathic" intussusceptions be investigated for a PLP with other modalities? How many recurrent intussusceptions should a child have before one resorts to the use of other imaging modalities? What imaging studies should be requested after the intussusceptions have been reduced? How to proceed in these clinical situations will require specific decisions to be made for each individual case due to the lack of scientific data.

There is little in the literature regarding the use of imaging modalities other than sonography in the depiction of PLP. Although a few cases of PLP depicted by air enema have been reported [4, 13, 25, 26], the series of Navarro et al. [4] showed that air enema depicted the presence of PLP in only 11% of the patients who had this procedure. Furthermore, although CT may be helpful in characterizing PLP depicted by sonography (e.g. Meckel diverticulum, lymphoma), in the series of Navarro et al. [4], CT failed to depict a PLP in the same patients in whom sonography had failed. However, CT is important for tumor staging in those patients with PLP due to lymphoma. Contrast studies of the small and large bowel, and colonoscopy may be indicated electively after intussusception reduction in patients who are suspected of having a polyp, which sonography and air enema have failed to depict.

When there is a high index of suspicion for PLP or once a PLP has been documented on imaging, the next question that arises is whether or not to attempt nonoperative reduction of the intussusception. It has been reported that a large number of ileocolic intussusceptions due to PLP can be successfully reduced either by barium enema (50%) or by air enema (60%) [4]. Image-guided reduction of intussusception with proven PLP can be attempted, particularly in those cases in which the PLP is related to diffuse bowel disease and that in the absence of the intussusception would be managed nonoperatively (e.g., cystic fibrosis, Henoch-Schönlein purpura, etc). In consultation with the referring surgeon, image-guided reduction can also be attempted in those patients with focal PLP in whom surgery will eventually be required to remove the PLP. The nonoperative reduction may facilitate surgery by diminishing the length of an intussusception and thus the amount of bowel manipulation required at surgery. If the reduction attempt is successful it may transform an urgent surgery into a nonurgent surgery. The modality used for reduction will vary depending on the expertise and experience of each radiologist (see Part 2 of this series). However, nonoperative reduction is not expected to be successful in intussusceptions limited to the small bowel.

Intussusception around feeding tubes

Intussusception is a common complication of the use of indwelling GJ tubes [27]. In the series of Hughes et al. [27], 16% of the GJ tube insertions had this complication. These intussusceptions can occur with different types of catheters, although catheters with a distal

pigtail are more frequently associated with intussusception. These are antegrade intussusceptions occurring usually in the jejunum, either along or at the end of the GJ tube. These patients usually present with vomiting, most frequently bilious, whereas abdominal pain is an uncommon presenting symptom [27]. The incidental detection of this type of intussusception in an asymptomatic child is not rare [27].

The diagnosis is often established on sonography, which reveals the target appearance of an intussusception with a central shadowing hyperechoic focus, representing the GJ tube [28] (Fig. 4). However, occasionally the tube itself is difficult to recognize and its presence is only suggested by the central shadowing (Fig. 4). Many of these intussusceptions are transient and undergo spontaneous reduction, which suggests that their prevalence is probably underestimated [27].

Patients presenting with this complication are usually clinically stable and do not appear to require reduction as urgently as those with classic ileocolic intussusceptions [27]. However, the risk of bowel ischemia may still exist. Most are successfully managed with replacement of the tube with a standard or shortened GJ tube or with a gastrostomy tube [27]. Surgery is rarely required for reduction. Further experience is required to determine if only conservative management, limited to clinical monitoring, is indicated for those intussusceptions found incidentally in asymptomatic patients.

Rarely, intussusception can also occur around the tip of nasojejunal tubes [29]. Children with this complication present with bilious vomiting and feeding intolerance. The sonographic appearance is similar to those complicating GJ tubes. The management of these intussusceptions requires removal of the nasojejunal tube [29].

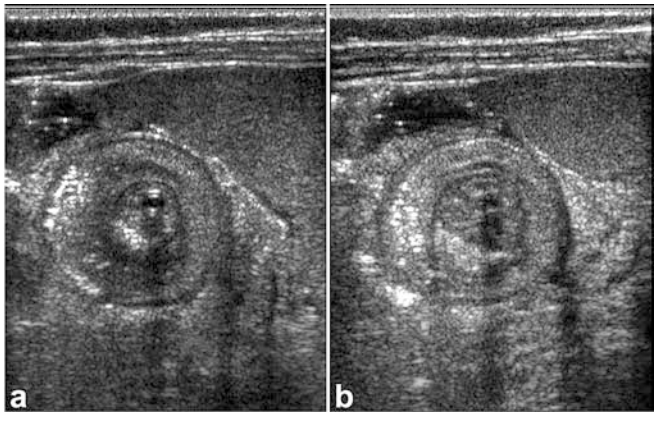

Fig. 4a, b Intussusception due to the presence of a gastrojejunostomy tube in a 15-month-old girl. **a** The hyperechoic walls of the tube are identified in the collapsed lumen of the intussuscepted bowel. **b** The walls of the tube are not seen; the presence of the tube is only inferred by recognizing the posterior shadowing

Retrograde jejunoduodenogastric intussusception can also occur as a complication of gastrostomy tube migration. This is a rare event with only seven cases reported in the literature [30, 31]. In these cases the tube migrates distally and the balloon causes obstruction of the duodenum [32]. Attempts at withdrawal of the tube with the balloon inflated results in retrograde invagination of the jejunum back through the duodenum into the lumen of the stomach [32]. The clinical presentation is not specific. Plain radiographs may show an enlarged stomach due to gastric outlet obstruction. Sonography will show an antral mass with characteristic appearance of an intussusception [30]. Progression to ischemia and necrosis of the bowel has been reported [30, 32]. Surgical reduction has been the treatment of choice in these patients.

Postoperative intussusception

Intussusception has been reported to complicate the postoperative course of 0.08% to 0.5% of all laparotomies [33, 34] and accounts for 5% to 10% of postoperative bowel obstructions in children [35]. It may follow a wide range of abdominal surgical procedures [33, 34, 35, 36. 37, 38, 39, 40], but the majority of cases occur after interventions with some form of retroperitoneal dissection or extensive bowel manipulation. The most frequently cited procedures include abdominoperineal pull through, Wilms tumor resection and neuroblastoma resection. More recently the Ladd procedure has also been associated with a higher incidence of postoperative intussusception [40]. There are also cases of intussusceptions occurring after surgery that does not directly disturb the abdominal contents [1, 36, 40]. This is explained on the basis that postoperative intussusceptions are thought to be caused by altered peristalsis, which can be the result not only of prolonged and excessive bowel manipulation, but also of abnormal serum electrolyte levels, chemotherapy, radiotherapy, anesthetic agents, postoperatively administered drugs, or neurogenic factors [33]. Some series have reported that in few cases of postoperative intussusception a PLP can be found, such as an inverted appendiceal stump or an anastomotic suture line [35, 36].

Postoperative intussusception often presents within the first 2 weeks following surgery, in contrast to obstruction secondary to adhesions [33, 35, 39]. Because of its rarity and the nonspecific symptoms that imitate postoperative ileus, the diagnosis of intussusception is often forgotten and therefore overlooked. Abdominal pain is generally not obvious because the child is receiving postoperative pain medication. Vomiting may not be evident because of the common use of a nasogastric tube after laparotomy. The abdominal mass is almost impossible to find because of the laparotomy

incision and the difficulty in examining the still tender abdomen. Rectal bleeding rarely occurs in these patients. The main clinical clue is that of a prolonged and unremitting ileus after a major abdominal operation [33].

The diagnosis of postoperative intussusception is a challenge to both the surgeon and the radiologist. Most of these intussusceptions affect exclusively the small bowel [33, 35, 36, 39], on occasions at multiple sites [39]. Plain abdominal radiographs may show nonspecific signs of small bowel obstruction [33, 36]. Contrast radiographic studies of the small bowel may identify the level of obstruction [40, 41] and sometimes may diagnose the intussusception [34]. Contrast enema is only diagnostic in the few cases where the colon or distal ileum is involved [33, 34, 36]. In the past, most of these cases were diagnosed at laparotomy but more recently several reports have highlighted the usefulness of sonography at diagnosing postoperative intussusception [38, 42, 43, 44]. However, its sonographic diagnosis is more difficult than for the usual ileocolic intussusception as they are frequently limited to the small bowel and are therefore much smaller than ileocolic intussusceptions and are usually found deep in the abdomen surrounded by large amounts of dilated bowel, because of the obstruction that they cause (Fig. 5). CT has also been reported to be useful in the diagnosis of postoperative intussusception [45, 46]. However, in younger children the diagnosis of intussusception on CT is more difficult and can be missed because of the small size of the intussusception and due to the paucity of mesenteric fat, which, when identified within the layers of the intussusception is virtually diagnostic [46].

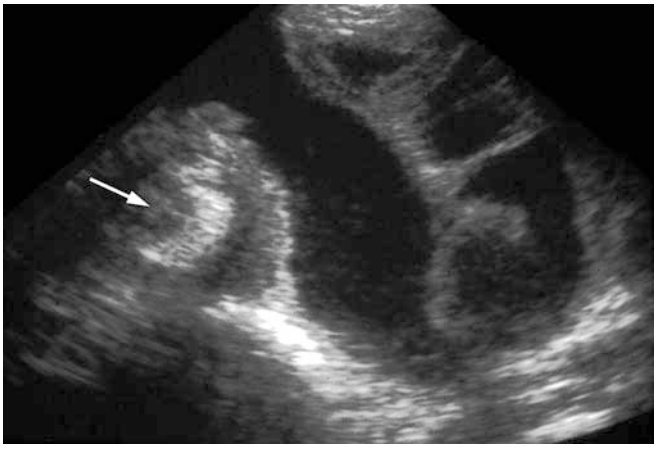

Fig. 5 Jejunojejunal intussusception in a 3-year-old boy after removal of Wilms tumor. Although the characteristic crescentic shape of the intussuscepted mesentery is noted (*arrow*), the visualization of the intussusception is difficult due to its small size and its position deep in the abdomen, obscured by adjacent fluid-filled loops of bowel

Because of the proximal small bowel location of most of these intussusceptions, surgical reduction is usually required. In those intussusceptions involving the colon, an attempt at enema reduction may be considered as a first-line treatment.

Spontaneous reduction of intussusception

The spontaneous reduction of an intussusception (SROI) is not an uncommon event, as it has been reported to occur in about 17% of the total cases of intussusception [47]. Nowadays, these are most frequently appreciated on sonography but may also be documented while performing small bowel barium studies [48, 49, 50, 51] and even on CT [47, 52, 53]. The larger number of patients with SROI reported recently may relate to the wider use of abdominal sonography, improvements in resolution and quality of sonographic images and the better appreciation of the imaging appearances of intussusception on sonography and CT [47, 54].

More than half of these patients with SROI are asymptomatic and the intussusception is an incidental finding on studies performed for other diseases or abnormalities, some of which may predispose to the formation of these transient intussusceptions because they may have effects on bowel wall thickness and motility [47, 54]. SROI may also be seen in children with clinical symptoms of acute gastroenteritis [55, 56]. These transient small-bowel intussusceptions may on occasions involve multiple segments of bowel or may recur at different sites. In these patients the presence of the small-bowel intussusception does not necessarily correlate with the presence of colicky pain. In the series of Kornecki et al. [47], only 6% of those patients with SROI who were symptomatic due to the presence of the intussusception had gastrointestinal pathology that may have served as a lead-point, including Henoch-Schönlein purpura, Peutz-Jeghers syndrome or celiac disease [47]. In the series of Siaplaouras et al. [56], only 5% of the children with symptomatic small-bowel intussusception had a PLP (Meckel diverticulum). This contrasts with other reports that claim that most small-bowel intussusceptions in symptomatic children are related to the presence of a PLP [57]. This may reflect the fact that these other investigators do not routinely evaluate the bowel on abdominal sonography in all cases and therefore do not have the opportunity to diagnose incidental small-bowel intussusceptions in asymptomatic children.

Most of the intussusceptions that reduce spontaneously are considered to be limited to the small bowel as they are usually small (< 2 cm in transverse diameter), involve a short segment of bowel (< 2.3 cm in length), and are placed in the centroabdominal region or in the left hemiabdomen, in contrast to

ileocolic intussusceptions [47, 54, 56]. SROI usually occurs within minutes of making the initial diagnosis and not rarely the reduction is documented during real-time examination. SROI is less likely to occur with ileocolic intussusceptions but it has been reported that 10–14% of the radiologically nonreducible ileocolic intussusceptions have undergone SROI by the time the child reaches the operating room [58, 59].

The fact that some intussusceptions will undergo SROI means that not all intussusceptions diagnosed on sonography or CT require therapeutic reduction. Before attempting reduction it should be established if the intussusception is ileocolic or limited to the small bowel, if the patient is symptomatic or not, and if there is an identifiable PLP. In asymptomatic patients with small-bowel intussusceptions and no recognizable PLP, conservative observation is warranted. In our early experience, we used to perform intermittent sonographic examination or delayed CT scans at appropriate levels in order to show spontaneous reduction. However, in our current practice we assume that in the asymptomatic patient or in a patient with clinical findings of acute gastroenteritis the small-bowel intussusception will reduce spontaneously and, therefore, we do not recommend further imaging. On the other hand, the diagnosis of a small-bowel intussusception in a symptomatic child will require closer clinical and sonographic follow-up. Although confirmation with CT has been recommended by Ko et al. [60], we believe that due to the characteristic sonographic appearance of most intussusceptions, sonography alone is sufficient to confirm the diagnosis in the vast majority of the cases. The persistence of the small-bowel intussusception in the symptomatic patient warrants closer monitoring and surgical intervention may be required [60].

Summary

Intussusception due to PLP remains a diagnostic challenge because of the varied and often nonspecific presentation and the wide spectrum of PLP. Clinical clues to their presence are frequently absent. The routine use of sonography for investigation of all possible intussusceptions makes this the modality of choice for diagnosis of PLP. However, not all PLP will be documented with sonography. The use of other imaging modalities should be tailored to each particular case. Image-guided reduction enema of intussusceptions due to PLP can be achieved in more than half of the cases and can be helpful even if the management of the PLP will eventually require surgery.

Patients with intussusceptions around feeding tubes usually present with vomiting but may be asymptomatic. The diagnosis is easily confirmed with sonography. Successful management is achieved by removing or replacing the tube.

Postoperative intussusception is rare and usually occurs within the first 2 weeks after surgery. The clinical diagnosis is difficult because of nonspecific symptoms that can be confused with postoperative ileus. They are frequently limited to the small bowel, which makes the sonographic diagnosis difficult. Surgical reduction is usually required.

SROI is not uncommon, usually occurring in asymptomatic patients. These intussusceptions are usually limited to the small bowel but can also occur in ileocolic intussusceptions. Recognition of a small-bowel intussusception in an asymptomatic patient warrants conservative observation. Its persistence in a symptomatic patient warrants closer monitoring and surgery may be required.

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