

## **Painless Intussusception in Children: Is it a Recognized Clinical Entity?**

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### **Abstract**

**Background:** Abdominal pain has been described as the first and pivotal symptom of childhood intussusception. However, some infants can present with intussusception without abdominal pain at presentation. The purpose of this study was to analyze our practice with children who were managed for intussusception but had no features of abdominal pain at presentation.

**Materials and Methods:** This was a retrospective analysis of children aged 1 year and younger who were managed for intussusception over a 5-year period at the pediatric surgery unit of a teaching hospital in Enugu, Nigeria. The information analyzed included the age of the patients, sex, clinical features, symptoms duration prior to presentation, intra-operative finding, definitive operative procedure performed, complications following surgery, duration of hospital stay and treatment outcome.

**Results:** A sum of 378 cases of pediatric intussusception was evaluated during the study period. Out of this number, 8 (2.1%) patients did not manifest any features of abdominal pain and form the basis of this report. More male were affected. The mean age of the patients at presentation was 3 months with a range of 2 to 6 months. Vomiting was the most common symptom and ileocolic intussusception was seen in 100 percent of the patients. All the patients had laparotomy since non-operative treatment was ineffective in the treatment of the patients. Wound infection was the most common complication following surgery and about one-tenth of the patients expired due to overwhelming sepsis.

**Conclusion:** Painless intussusception may be infrequent in children. However, it occurs in infants especially in younger infants. Presentation may be atypical and non-operative treatment may not be effective in the treatment of painless intussusception.

**Keywords:** *Abdominal Pain; Infants; Intussusception; Painless; Laparotomy*

### **Introduction**

Intussusception is the invagination of a segment of the bowel into another segment of the bowel. It is a frequent etiology of bowel obstruction in children particularly in infants and a cause of abdominal surgical emergency in children [1,2]. Worldwide, 1 - 4 per 2000 children is the reported incidence of intussusception and frequently, the etiology of intussusception in children is unknown [3].

Different classes of intussusception have been described; the ileocolic type being the most frequent [3]. Abdominal pain, passage of red currant jelly stool and vomiting are the classical features of childhood intussusception [4]. This triad is not present in all the children [5]. Abdominal pain has been described as the first and pivotal symptom of intussusception. Children with intussusception manifest abdominal pain by sudden loud crying and they pull their knees to their chest while crying. The abdominal pain is colicky and usually comes every 15 to 20 minutes. The abdominal pain is colicky because of intermittent nature of the bowel contraction. Some authors have described the

pain of intussusception as paroxysmal [6]. Marsicovetere., *et al.* documented that the clinical presentation of intussusception is variable but it is generally marked by abdominal pain [7] and Xuan., *et al.* in their series reported abdominal pain in hundred percent of their patients [8]. However, some reports have it that patients with intussusception may or may not have symptoms [9]. One study from Indonesia reported intussusception in a 4-months old infant who presented with abdominal distension, vomiting and constipation; But here was no abdominal pain (high pitch cry) and no passage of red currant jelly stool [10].

**Purpose of the Study**

The purpose of this study was to analyze our practice with children who were managed for intussusception but had no features of abdominal pain at presentation.

**Materials and Methods**

This was a retrospective analysis of children aged 1 year and younger who were evaluated for intussusception at the pediatric surgery unit of a teaching hospital in Enugu, Nigeria. the study covered a 5-year period. Only infants with intussusception who manifested no abdominal pain were recruited into the study. Patients who have had surgery or any form of intervention for intussusception (for example, hydrostatic or pneumatic reduction) at a peripheral hospital before referral to Enugu State University Teaching Hospital (ESUTH) for further treatment were excluded from this study. Patients older than 1 year of age were also not recruited into the study. ESUTH is a teaching hospital located in Enugu, Southeastern Nigeria. The teaching hospital serves the people of Enugu State and the neighboring states. Information was retrieved from the patients’ medical records. The information extracted included the age, sex, clinical features, symptom duration prior to presentation, finding at surgery, definitive surgical procedure performed, complications of treatment, duration of hospitalization and treatment outcome. Diagnosis of intussusception was made based on outcome of clinical evaluation and radiological reports. The patients were followed up for 12 months. Informed consent was not obtained from the patients’ caregivers due to retrospective nature of the study. Data entry and analysis were performed on Statistical Package for Social Science (SPSS) version 21 (manufactured by IBM Corporation Chicago Illinois). Percentages, mean, and range were the forms of data expression.

**Results**

**Patients’ demographics**

A sum of 378 cases of pediatric intussusception in infants was managed during the study period. Out of this number, 8 (2.1%) patients did not manifest any features of abdominal pain at presentation and form the basis of this report. Demographic features of the patients are shown in table 1.

Demographic features	Value
Mean age	3 months (2 - 6)
<b>Gender</b>	
Male	5 (62.5%)
Female	3 (37.5%)
Mean interval between symptom onset and presentation	3 days (1 - 7)
Mean duration of hospital stay	9 days (6 - 15)

**Table 1:** Demographic features of the patients (n = 8).

**Clinical features (n = 8)**

Clinical features	Number of patients (%)
Vomiting	8 (100)
Passage of red currant jelly stool	7 (87.5)
Palpable abdominal mass	2 (25.0)
Abdominal distension	2 (25.0)

**Table 2**

**Intra-operative finding and procedure performed**

All the 8 patients had ileocolic intussusception. Non-operative treatment (hydrostatic reduction) of intussusception was unsuccessful in all the patients and they all had operative treatment. Three (37.5%) infants had viable bowel and manual reduction of intussusception was done. Five (62.5%) patients had gangrenous bowel and required bowel resection. The bowel resections were right hemicolectomy with ileotransverse anastomosis. Failure of non-operative treatment was the indication for surgical treatment.

**Post-operative complications**

Surgical site infection occurred in 2 (25%) patients. Anastomotic leak was recorded in 1 (12.5%) patient.

**Treatment outcome**

Seven (87.5%) patients did well post-operatively and were allowed home. One (12.5%) expired due to overwhelming infection following anastomotic leak.

**Discussion**

The first recording of intussusception was 1674 by Paul Barbette of Amsterdam. John Hunter described a classic case of what he called “introsusception” [11]. The symptoms of intussusception differ from one child to another. Although the diagnosis of intussusception in children is often straightforward, cases do occur which present some difficulties [12]. Classically, the abdominal pain of intussusception happens occasionally at first, usually at an average of 25 minutes interval. But as time passes, the pain will happen more often and the duration is more prolonged. However, some children that have intussusception may have no pain at all. A painless intussusception could be defined as intussusception in which the child does not have colicky abdominal pain, does not cry and does not show any outward appearance of discomfort with the occurrence of intussusception [13]. A study from Toronto Canada reported this clinical entity called painless intussusception [13]. However, another study from Hue, Vietnam reported that one hundred percent of their intussusception patients had abdominal pain [8]. The reason for these differences remains unknown.

During the study period, infants who had painless intussusception accounted for about 2% of the total number of children that were managed for intussusception. This percentage illustrates the relative infrequency of painless intussusception in children. The mean age of 3 months of our patients is consistent with the mean age of 2 case reports of painless intussusception [12]. Some researchers have reported that painless intussusception occur more in younger infants [14]. In the present study, more males were affected. This male predominance may be explained by the findings that childhood intussusception is more common in males [5]. The delayed presentation of the patients is clear in the 72 hours mean lag period before presentation to the hospital. Sigmund, *et al.* reported that the children with painless intussusception presented to the hospital later than children with painful intussusception [13].

In the current series, vomiting was the most frequent symptom in the patients. The symptomology of painless intussusception may vary from one child to another. One report from United Kingdom reported vomiting as the only symptom present in an infant with painless intussusception [12]. Listlessness, refusal of feeds and passage of red currant jelly and loose stool are other symptoms that may be seen in infants with painless intussusception [12].

All the patients had ileocolic intussusception. Ileocolic intussusception is the most frequent type of intussusception in children [7]. Non-operative treatment was ineffective in the treatment of these infants with painless intussusception. A published report reiterated the fact that hydrostatic reduction is less effective in treating painless intussusception [13]. Operative treatment was carried out in all our patients. Majority had bowel resection and anastomosis. Other studies also agree with this operative treatment for painless intussusception [13]. The atypical presentation of painless intussusception and the point that the infant does not appear upset may have caused delayed presentation with resultant bowel non-viability.

Wound infection was the most common complication recorded in the current series. Chalya, *et al.* also reported surgical site as the most frequent complication following operative treatment for intussusception [5]. The emergency nature of the surgery for intussusception and exposure of the surgical site to intestinal flora, when there is bowel resection, may explain the high wound infection rate.

Almost ninety percent of the patients did well post-operatively and were allowed home. About one-tenth of the patients expired from severe sepsis. The tender age and inadequate immunity of these small infants may explain the increased sepsis.

### Conclusion

Painless intussusception may be infrequent in children. However, it occurs in infants especially in younger infants. Presentation may be atypical and non-operative treatment may not be effective in the treatment of painless intussusception.

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