

## Original Research Article

# Clinical profile of patients with intussusception in a tertiary care institution in South India

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## ABSTRACT

**Background:** Intussusception is a common abdominal emergency in children. It is the most common cause of intestinal obstruction in children less than 2 years. Awareness about the clinical presentation vomiting, abdominal pain, blood in stools, abdominal mass helps in early diagnosis. This study describes the demographics and clinical profile of patients with intussusception in a tertiary care institute in South India.

**Methods:** This was a prospective case series study conducted in the pediatric surgery department in a tertiary care hospital in South India. Children upto 12 years with clinically and radiologically confirmed intussusception were enrolled over 12 months study period. Demographic and clinical data was collected and recorded.

**Results:** Eighty two children with clinical and radiological picture suggestive of intussusception were studied. 57 patients (75%) were below 1 year of age. Male:female ratio was 1.7:1. The classical triad of abdominal colic, palpable abdominal mass and rectal bleeding was seen in 39 patients (50%). Most common signs were rectal bleed and abdominal mass.

**Conclusions:** Awareness about the clinical presentation of intussusception helps in early diagnosis and prompt treatment of this common pediatric emergency and helps to prevent mortality.

**Keywords:** Clinical profile, Intussusception

## INTRODUCTION

Intussusception is a common abdominal emergency in children, which needs prompt diagnosis and management. In intussusception, a segment of proximal intestine (intussusceptum) telescopes/invaginates into the lumen of distal bowel (intussusciens).<sup>1</sup> There is noticeable variation in the number of cases reported from different pediatric centres. Intussusception occurs in 1-4/1000 live births. Intussusception is more common in males.<sup>2</sup> Highest incidence is in the ages 3 months-2 years with peak at 5-9 months. 90% cases have no identified etiology and are thought to be caused by hypertrophied lymphoid tissue secondary to viral illness which serves as the lead point. The classical triad of intussusception is vomiting, abdominal pain and passage of red currant jelly

stools.<sup>3</sup> The two classical signs are sausage shaped abdominal mass and rectal bleeding. Ultrasonography is the commonest method used to diagnose intussusception at present. Characteristic sonological finding is 3-5 cm diameter mass (doughnut/target sign) on the right side of abdomen.<sup>4</sup> The role of plain radiograph is controversial. Barium study of the colon was considered gold standard for the diagnosis of intussusception until mid-1980s, when the value of ultrasonogram was recognised.

Treatment options for intussusception are radiological reduction, manual reduction, resection of gangrenous segment, closure of perforation or excision of pathological lead point by either laparotomy or laparoscopy. There are very few Indian studies describing the demographics of intussusception. In this study we

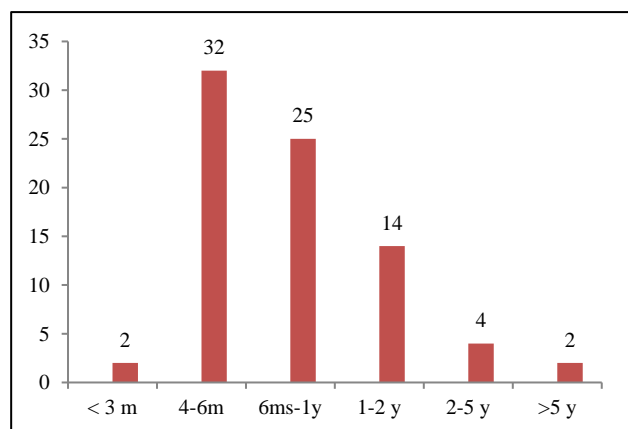
have described in detail the demographics and clinical picture of intussusception in a tertiary care institute in South India.

## METHODS

This was a prospective case series study conducted in the pediatric surgery department in a tertiary care hospital in South India. All children aged upto 12 years admitted with clinical diagnosis of intussusception and confirmed by USG were enrolled in the study. The study period was from January 2010 to December 2010. Patient details including demographic data, symptoms, physical signs, radiological findings were prospectively recorded. Abdominal X-ray was taken if there were features of perforation or peritonitis. The study protocol was approved by the institutional ethics committee. Statistical methods used in the study were: 1) Frequency distribution of the clinical variables were expressed in mean±standard deviation and median with range. 2) Percentage analysis was done and expressed using bar diagram/pie diagram.

## RESULTS

Eighty two infants and children were evaluated and treated for intussusception during the study period. All of them had clinical signs and sonological features of intussusception. There were 52 males (63.4%) and 30 females (36.6%) The median age of patients was 13.86 months (range 3 months-12 years). 57 patients (75%) were below 1 year of age. Majority of patients presented between 4-6 months of age. There was no significant seasonal variation in the incidence of intussusception in the present study (Figure 1).



**Figure 1: Age distribution.**

When the clinical history was reviewed, four children (5.1%) had past history of intussusception. These patients presented within 24 hours to the hospital during the recurrence since their parents were already aware of the symptoms. Eight patients (10.3%) had fever at presentation. Abdominal mass was palpable in 67 patients (85.9%). On examination under general anaesthesia, mass

was palpable in 74 patients (94.9%). Most of these masses were felt in the right upper quadrant. Abdominal distention was reported in 9 patients (11.5%). Rectal examination revealed red currant jelly stool in 39 patients (50%) and frank blood in 11 patients (14.1%) and palpable mass in 1 patient (1.3%). Two children had features of peritonitis and three had features of intestinal obstruction at presentation. Intestinal obstruction was diagnosed by the presence of multiple air fluid levels in the plain x-ray abdomen (Table 1).

**Table 1: Clinical features (n-78).**

	N (%)
<b>Gender</b>	
Male	52 (63.4)
Female	30 (36.6)
<b>Clinical features</b>	
<b>Symptoms</b>	
Cry/Pain	64 (82.0)
Vomiting	58 (74.3)
Bleeding PR	52 (66.7)
Diarrhoea	13 (16.6)
Fever	11 (14.1)
Abdominal distension	9 (11.5)
Constipation	7 (8.9)
Convulsion	2 (2.5)
Rectal mass	1 (1.2)
<b>Signs</b>	
Currant jelly stools PR	39 (50.0)
Abdominal mass	67 (85.9)
Abdominal distension	9 (11.5)
Frank blood PR	11 (14.1)
Palpable mass PR	1 (1.3)
Fever	8 (10.3)

## DISCUSSION

Intussusception is a common paediatric disease. This study enrolled 82 patients with intussusception during the one year study period. Intussusception rates among Indian infants were low (~18 cases per 100,000 infant years of follow-up).<sup>5</sup> The overall incidence of intussusception reported by Trotta et al in their study from Italy reported the overall incidence rate of intussusception as 21/100,000 children less than 15 years.<sup>6</sup> The incidence varies from one country to another. This may be due to difference in the genetic predisposition, prevalence of enteric infection, feeding practices, and prevalence of malnutrition among different population. Intussusception is known to have male preponderance. The male to female ratio observed in our study was 1.7:1 (52 male, 30 female). Most of the studies report male:female ratio 3:1.<sup>7</sup>

Considering the age of occurrence of intussusception, 58 of our patients (74.4%) were below the age of one year. Most studies report that in 60-94% cases, intussusception

occurs in the first year of life. The peak age was between four to six months of age. Liu et al in his study on the epidemiology of intussusception published from China observed that the peak age of intussusception was six to eight months.<sup>8</sup> Zaman et al in their study from Bangladesh reported that 90% patients with intussusception were aged less than one year.<sup>9</sup> The youngest patient in our study was aged 3 months and the oldest was aged 5 years and six months. Various studies have reported intussusception in children as old as 9 years, 11 years etc.<sup>6,7</sup>

In our study, 57.89% patients presented within 24 hours of onset of symptoms. 18% patients presented within 48 hours and 18% presented at 72 hours or later. The late presentation may be due to delay in seeking medical advice or missing the diagnosis by the attending physician.

The classical triad of abdominal colic, palpable abdominal mass and rectal bleeding which clinches the diagnosis was seen in 39 patients (50%). Various studies report the incidence of this triad as 12-40%. The most common symptom reported by patients in our study were incessant/intermittent cry, abdominal pain (in older children) followed by rectal bleed. The presence of rectal blood and abdominal mass were the most common signs on examination.

John et al in their study reported that 92% cases had five or more symptoms. The most common symptom observed in their study was vomiting (76.9%) followed by incessant cry (65.38%). In their study blood in stools were present in 53.84% and mass abdomen was found in 11.53%.<sup>7</sup>

No significant seasonal variation in the incidence of intussusception was observed in our study. Liu et al in his study from China has made similar observation.<sup>8</sup> No patient had died in our cohort. In the study reported by Trotta et al which was a nationwide cross sectional study spanning 10 years, consisting of 20,524 children with intussusception, mortality rate reported was 0.39/1000. In contrast to this, some regions of Brazil report a high in hospital mortality of 4-5%, mainly attributed to delay in presentation to hospital.<sup>9</sup>

In our study four children (5.1%) had past history of intussusception. In a metaanalysis published by Ye et al which included 12008 participants from 10 studies reported that presence of fever and pathological lead point poses high risk of recurrence following enema reduction for intussusception.<sup>10</sup> In a study reported by Gupta et al from Chandigarh, they have observed seasonal variation in the incidence of intussusception and they attributed this to the seasonality in acute diarrhoeal disease in North India.<sup>11</sup> They have also observed that there is no seasonal variation of intussusception cases in South India which is similar to our observation.

## CONCLUSION

The present study is a hospital based prospective study on the clinical profile of intussusception. 75% cases intussusception occurred in less than 1 year of age. Intussusception occurs more commonly in males than females. There is no seasonal variation in the incidence of intussusception. The classical triad of abdominal colic, palpable abdominal mass and rectal bleeding was seen in 50% patients in our study. Incessant/intermittent cry, abdominal pain and rectal bleed were the most common symptoms reported. Untreated intussusception leads to lymphatic obstruction, venous congestion, arterial ischemia, bowel gangrene and death. All the patients in our study group received appropriate treatment and there was no mortality.

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