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(RESEARCH ARTICLE)

A study of 100 children with intussusception in Misan

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Abstract

In early childhood the commonest cause of bowel obstruction is intussusception. A total of 100 children of intussusception were managed during the period from January 2014 to October 2018, male (73) and female (27). Those children were subjected to ultrasonic for diagnosis of intussusception.

Results revealed that the common symptoms were excessive cry (87%), vomiting (77%) blood in stool (52%). Ileocolic intussusception (97%) was the commonest type.

Ninety five children of the present study underwent hydrostatic reduction (with salie enema done after inflation of Foleys catheter in the rectum and flowing saline through it). The hydrostatic reduction was successful in seventy-one children (71%). Twenty nine children (29 %) needed surgery. The median hospital stay was 2 days and children (75%) went home within 48 hrs. Eight children (8%) of the study population developed complications. (1%) had shock. (5%) had perforation, 1% peritonitis and 1% septicaemia.

Keywords: Children Intussuscepti; Vomting; Blood Stool

1. Introduction

Intussusception is the telescoping of one bowel segment into another. It is an emergency condition mostly affects infants between 5 and 9 months of age and the etiology is usually idiopathic but can occur at any age neonates, older children and adults and the etiology more commonly due to lead points such as a Meckel's diverticulum or a neoplasm. Early diagnosis and treatment is important to avoid morbidity and mortality. Common symptoms of intussusception include abdominal pain, vomiting and bloody stools some came with lethargy and irritability. A rectal examination can reveal red currant jelly stool which is important sign of diagnosis besides feeling of abdominal mass .ultrasound can support the diagnosis. Barium enema is the good option for diagnosis and also has therapeutic potential for reducing the intussusception after exclusion of contraindications, saline enema also a good alternative way for reductions and also we have surgical operations and the last performed if no operative reduction is contraindicated or unsuccessful, or if a lead point is suspected [1].

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2. Methods

The study was prospective study carried out in Department of Surgery, Alsader Teaching General Hospital/Misan. All cases diagnosed by ultrasound. All children below 12 years of age who attending the emergency, outpatient and inpatient departments' surgery.

The study was carried on during the period from 1st January 2014 to 1st October 2018. A detailed history included the name, age, sex, vital signs, presenting complaints. The details regarding the method of diagnosis, treatment modality and the immediate outcome in the next 48 hours were also recorded. The presence of complications if any was also noted. Hospital stay in hours/days was also recorded. Data were subjected to statistical analysis, and Chi-square test was used to assess the significant differences among percentages. $P<0.05$ is considered as a significant difference.

3. Results

A total of 100 children were evaluated during the study period. All children were diagnosed by ultrasound technique. 71% of intussusception occurred between 6 months and two years (Table 1). The mean age of presentation was 17 months and 95% of children were below two year of age. 5% are more than 2 yrs of age (Table 1). The differences among percentages are significant ($P<0.05$).

Age of occurrence was similar to be observed in other studies. Youngest age was 2 months and oldest one was 9years.

Table 1 Age wise distribution

Age	No.of children	P-value
< 6 months	24(24%)	<0.0001
6 months -2years	71(71%)	
> 2years	5(5%)	
Total	100	

Seventy-one children (71%) out of 100 were underwent hydrostatic reduction successfully. Twenty-nine children needed surgery (Table 2) and the differences between them is significant ($P<0.05$).

Table 2 Distribution based on treatment modality

Treatment modality	No. of children	P-value
Surgery	29(29%)	<0.0001
Hydrostatic reduction	71(71%)	
Total	100	

The most common symptoms noted on admission of definite intussusceptions cases were excessive cry (87%), vomiting (77%), and bloody stools (52%) (Table 3).

Table 3 Percentage distribution based on presenting complaints (100)

Complaint	No. Children	P-value
Vomiting	77(77%)	<0.0001
Excessive cry	87(87%)	
Bloody stool	52(52%)	

Out of 100 children, 97(97%) had Ileo colic type of intussusception. 2 children (2%) had ileo ileal and 1 (1%) had colo-colic type (Table 4).

Table 4 Percentage distribution based on the type of intussusception

Type of intussusception	Percentage	P-value
Ileoileal	2(2%)	<0.0001
Ileocolic	97(97%)	
Colocolic	1(1%)	

(75%) left hospital within 48 hrs.

Eight children (8%) of the study population developed complications. one patient (1%) had shock. Five patients (5%) had perforation and one (1%) had peritonitis. One child developed septicemia.

Death was reported in one delayed case with severe shock i.e mortality 1%

Three children (3%) had to spend more than 1 week in hospital due to complications (Table 5).

Table 5 Percentage distribution based on complication

Complications	Percentage	P-value
No complications	92(92%)	<0.0001
Peritonitis	1(1%)	
perforation	5(5%)	
shock	1(1%)	
Septicemia	1(1%)	

Most of our cases were primary type 95 % and only five cases have leading points 5% (Table 6).

Table 6 The cases with leading points

No of patients	Leading point
2	Mickles diverticulum
2	Lymphoma
1	Henoch-Schönlein purpura

4. Discussion

Intussusception is one of the common surgical emergencies in children below 2 years of age [2] with an estimated occurrence of 1-4 per 1000 live birth.

We evaluated 100 cases of intussusception which were diagnosed by ultrasound imaging during the study period. Among children, most intussusceptions develop in 1st 2 years of life. There were seventy one children (71% of the study population between 6 months-2 years which is consistent with the literature showing 80% of cases occurred before 2 years of age. Twenty-four children (24%) belonged to less than 6 months and 5%children were more than 2 years. Some researchers have reported 50% of cases occurring in the second year of life [2].

Yalcin et al., [3] found 67% of his study population under 1 year. Intussusception is rare in neonates. There was no case of intussusception in the new-born age during the course of this study. In Blanch study the median age of presentation was 9 months[4]. In the present study median age was 17 months. About 86% of cases were under 1 year of age(5). Justice et al., [6] showed that most patients (80%) were <12 months of age.

Out of the 100 children 73 (73%) were males. Several investigators have found that males are predominance.

In the present study male: female ratio is 2.7:1. This value is corresponding to most of the studies worldwide. Chen et al., [7] showed that male children had a higher incidence rate than female children (61.3 vs. 38.7 per 100,000 person-years. Khumjui et al., [5] showed that male to female ratio was 1.7:1.

Eighty-seven children (87%) presented with excessive cry which was found to be most common symptom in the present study.

Khumjui et al., [5] found the commonest symptom to be colicky abdominal pain. In the present study most common presenting complaint was excessive cry, followed by vomiting and blood in stool. This was comparable to study of Yalcin et al., [3] where vomiting was the commonest complaint. The combination of abdominal pain, lethargy and vomiting was reported in 78% of infant were studied by Justice et al., [6].

Mostly, 90% of case is idiopathic but a lead point could be found in the average of about 2-12% [2]. The older the child the higher the risk of a lead point. Only 5% in our study have leading points.

The most common type of intussusception in our study was ileocolic which is comparable to most of the other studies. Ninety seven children (97%) had ileo colic type followed by ileo ileal and colo-colic types. In the present study seventy one children (71%) underwent ultrasound guided hydrostatic reduction successfully. In patients with ileocolic intussusceptions in other studies also contrast reduction under fluoroscopy or hydrostatic reduction in ultrasonic guidance has got success rate of approximately 80-95%.In patients with prolonged intussusception with signs of shock, peritonitis, and pneumoperitoneum hydrostatic reduction should not be attempted. Twenty nine children (29%) required surgery. The global rate successful reduction was 81.9% Gonzalez-Spinola et al., [8].

Surgical reduction is indicated in the presence of refractory shock, suspected bowel necrosis or perforation, peritonitis, and multiple recurrences with lead point In those required surgery delayed presentation was a feature. 100% of the study population in Bajaj et al., [9] required surgery. In ileo-ileal intussusception reduction hydrostatic reduction is difficult. Such intussusceptions can develop insidiously after surgery and require exploration if they do not reduce spontaneously. Ileo ileal disease is common with Henoch-Schönlein purpura and other unidentifiable disorders and usually resolves without the need for any specific treatment.

In our study 5 children underwent resection (cases with leading points).

Bowel perforations occurred in 5 children in this study and 4 of them was excluded from hydrostatic reduction and only one complicate saline enema. In other studies 0.5-2.5% of attempted barium and hydrostatic (saline) reductions perforation occurred. The perforation rate with air reduction is 0.1-0.2%.The rate of recurrence was 9.7%. No perforation was seen by Gonzalez-Spinola et al., [8].

In the present study one child (1%) had recurrence within 48 hours of hydrostatic reduction. None had recurrence after surgical reduction. Bajaj et al showed 10.3% of recurrence [9]. Yalcin et al., [3] in his study found a recurrence rate of 2.2% only. Other studies reported the overall recurrence rate was 9 %[10].

Eight children developed complications, out of which one child had shock. Five had perforation, one had peritonitis and one child had septicemia.

The mortality rate in the present study was 1%, other reported 5 deaths Hutchison et al., [11] other studies revealed no mortality was observed [6].

5. Conclusion

The present study was prospective study on various aspects of intussusception. In 95 % of the study population intussusception was noted below 2 years of age.

Vomiting, excessive cry, blood in stool and abdominal pain were the most common symptoms.

Hydrostatic reduction using saline is a simple and effective technique with success rate 71% it can be used to diagnose intussusception, to reduce it and to confirm reduction. It is less time consuming, cost effective, has no radiation hazard, almost rare complication and minimal hospital stay.

Occurrence of sequence of events in the signs and symptoms guide one to early diagnosis and decision for early intervention to save the gut and the life of the child.

Recommendations

- Ultrasonic evaluation is needed for all suspected cases came with common mentioned symptoms.
- Saline reduction is an easy method recommended for all cases after exclusion of contraindications.
- Close surgical follow-up is needed after saline reduction, to detect any recurrence and prevent complications.

Compliance with ethical standards

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Disclosure of conflict of interest

Authors declared that there was no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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