

# SURGICAL MANAGEMENT OF CHILDHOOD INTUSSUSCEPTION AND ITS OUTCOME IN DHQ TEACHING HOSPITAL, D. I. KHAN

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## ABSTRACT

**Background:** Intussusception is the commonest cause of intestinal obstruction in children. It can be managed by non-operative reduction or surgically. This study was conducted to assess our experience with surgical management of childhood intussusception and its outcome.

**Material & Methods:** A retrospective study of the medical records of admitted cases of childhood intussusception from 1<sup>st</sup> January 2007 to 31<sup>st</sup> December 2010, in District Headquarter Hospital, Dera Ismail Khan was undertaken.

**Results:** Out of 50 cases, 31 (62%) were male and 19 (38%) female. The age range was 3 months to 10 years. Majority of the cases (60%) presented with the classic triad of vomiting, abdominal pain and rectal bleeding. After resuscitation, all the patients were operated upon. In 20 patients (40%), manual reduction with appendisectomy was done while in the remaining 30 (60%) patients, resection and end to end anastomosis was done. Post-operative complications occurred in 14% of cases. Four (8%) developed wound infection, 1 (2%) pneumonia, 2 (4%) incisional hernia, and one patient died due to septicemia.

**Conclusion:** The surgical management of intussusception has good outcome in outcome in our setting.

**Key words:** Intussusception, Surgical management, Childhood.

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## INTRODUCTION

Intussusception occurs when one segment of bowel (intussusceptum) invaginates into another (intussusciens) just distal to it leading to obstruction.<sup>1,3</sup> Intussusception is the commonest cause of intestinal obstruction in children.<sup>1,3</sup> Intussusception affects 1.5-4 cases per 1000 live births, with a male to female ratio of 3:2.<sup>1</sup> The peak incidence is between 5 and 10 months of age.<sup>2</sup>

In children the cause of intussusception is said to be idiopathic in 90% of the cases.<sup>2</sup> In the remaining 10%, it is secondary to a pathological lead point such as Meckel's diverticulum, polyp, enteric duplication cyst and small bowel lymphoma, etc.<sup>1,2</sup> Such lead points are more commonly seen in children older than 3 years.<sup>1</sup> Ileocolic intussusception is considered to be the commonest type. Colocolic and ileo-ileal intussusceptions are the other types.<sup>1</sup>

Classically a previously healthy infant presents with colicky abdominal pain and vomiting (milk then

bile).<sup>1,2</sup> Between episodes child initially appears well. Later they may pass a redcurrant jelly stool. Clinical signs include dehydration, abdominal distension and a palpable sausage shaped mass in the right upper quadrant.<sup>1,2</sup> Rectal examination may reveal blood or rarely the apex of an intussusception.<sup>1,2</sup>

X-ray abdomen may show signs of intestinal obstruction.<sup>1,2</sup> Diagnosis can be confirmed by an ultrasound scan.<sup>1,2,4</sup>

After resuscitation with intravenous fluids, broad spectrum antibiotics and nasogastric drainage, non-operative reduction of the intussusception can be attempted. Non-operative reduction techniques using enemas may be hydrostatic (using barium, water soluble contrast, saline or Hartmann's solution) or pneumatic (using either air, or medical gases such as carbon dioxide).<sup>1,2,5</sup> Both of these procedures can be performed under fluoroscopic or ultrasound guidance.<sup>5</sup> Non-operative reduction is contraindicated if there are signs of peritonitis or perforation, with a known pathological lead point or in the presence of profound shock.<sup>2</sup> In general, the longer the duration of symptoms (particularly if >24 hours) the lower the likelihood of successful non operative reduction.<sup>5</sup>

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Many centers are now practicing laparoscopy in the treatment of childhood intussusception, when conservative reduction measures fail. The use of laparoscopy avoids laparotomy in many cases.<sup>6-8</sup> In our hospital non-operative reduction is not in practice due to lack of facilities and non-availability of paediatric radiologist.

This study was conducted to assess our experience with surgical management of childhood intussusception and its outcome in a district hospital.

## MATERIAL AND METHODS

The files of all admitted patients with childhood intussusception in Surgical unit of District Headquarter Teaching Hospital over a period of 4 years from 1<sup>st</sup> of January 2007 to 31<sup>st</sup> December 2010 were obtained and studied. All children with surgically diagnosed intussusception up to the age of 12 years were included in the study. The details of age, sex, clinical presentation, diagnostic investigations, management and subsequent outcome were entered into SPSS version 11.0 for analysis.

## RESULTS

Out of 50 patients, 31 (62%) were males and 19 (38%) females with a male to female ratio of 1.6:1. There was an age range of 3 months to 10 years. Majority of patients 35 (70%) were below 1 year of age. The median age at presentation was 8 months. (Table-1)

All cases presented after 24 hours of the start of symptoms (range 24 hours to 7 days). Five (10%) patients presented between 24 and 48 hours, 15 (30%) between 48 and 72 hours, while 30 (60%) presented after 72 hours. Mean duration from onset to presentation was 3 days.

**Table 1: Age distribution of study patients.**

Age	Number of patients	Percentage
<1 year	35	70%
1-2 years	10	20%
>2 years	5	10%

**Table 2: Type of intussusception at laparotomy.**

Type of intussusception	Number of cases	Percentage
Ileo-colic	38	76%
Colo-colic	7	14%
Ileo-ileal	5	10%

All the patients presented with vomiting and abdominal pain. Passage of red currant jelly stools occurred in 30 (60%) patients and fever in 14 (28%) patients. Gross abdominal distension was noticed in 20 (40%) cases, abdominal mass was palpable in 20 (40%), in 5 (10%) cases mass was palpable per rectal examination, while in one case, apex of intussusception was lying outside the anus.

The types of intussusception found at laparotomy are shown in Table 2.

All the patients were treated by laparotomy via right supraumbilical incision. In 20 (40%) patients where gut was viable, manual reduction was done along with appendectomy, while in 30 (60%) patients limited resection and end to end anastomosis was done as portion of gut had become gangrenous in 25 and perforation occurred during manual reduction in 5 patients.

Post-operatively, 4 (8%) patients developed wound infection. Three of them had undergone resection and end to end anastomosis of gut. All of them responded well to antibiotics and dressings. One patient (2%) who had bowel gangrene requiring resection developed pneumonia. Two (4%) patients developed incisional hernia, one of whom had wound infection post-operatively. One patient died post-operatively due to septicemia.

Minimum hospital stay was 3 days and maximum 2 weeks. Mean duration of stay was 5 days.

## DISCUSSION

Hydrostatic or pneumatic reduction is considered the treatment of choice in stable patients without evidence of ischemic bowel, perforation or sepsis.<sup>1,3,8</sup> In developed countries, most patients present early<sup>9</sup> and have very good results with non-operative reduction. Success rates of up to 90% have been reported.<sup>1,5,8</sup> However, non-operative reduction procedures are not done in our institution due to reasons already mentioned. Also it is worth-mentioning that in our study, most of the children (90%) were found to have presented after 48 hours. Most of these cases were referred by pediatricians. Carneiro et al,<sup>10</sup> Mansur et al<sup>11</sup> and Kella et al<sup>12</sup> in their studies showed that most of the patients presented after 48 hours. On the other hand, Jung et al<sup>13</sup> and Al-Bassam et al<sup>14</sup> have shown 86% and 71.3% patients respectively, presenting during first 48 hours of illness. It has been noted in several studies that late presentation is associated with more chances of gut gangrene, morbidity and mortality.<sup>10-12,15,16</sup>

In our study, 60% patients required resection of gut, which is nearer to 67.5% and 52.1% presented by Kella et al and Khan et al, respectively.<sup>12,17</sup> On the other hand, Jung et al and Al-Bassam et al

have shown in their studies (where most cases presented early) that 16% and 16.6% cases respectively required bowel resection.<sup>13,14</sup>

Wound infection occurred in 8% cases, which is comparable with 8.7% shown by Kella et al<sup>12</sup> and is higher than 0.8% discovered in study by Jung et al.<sup>13</sup> Bode<sup>15</sup> on the other hand, has reported 36.1% cases of wound infection which is very high percentage. 4% cases of incisional hernia were encountered in our study which is not similar to 8% cases mentioned by Kella et al. Bode has on the other hand shown 4.1 % cases of incisional hernia along with 3% cases of burst abdomen.<sup>15</sup>

Mortality occurred in one patient (2%), which is closer to 3.7% revealed by Kella et al,<sup>12</sup> but in sharp contrast with 6%, 8.5%, 12.1% and 25% mortality noticed by Latipov et al,<sup>18</sup> Ekenze et al,<sup>16</sup> Bode<sup>15</sup> and Carneiro et al,<sup>10</sup> respectively. On the other hand, Jung et al and Al-Bassam et al have shown 0.4% and 0% mortality respectively, in their studies.<sup>13,14</sup>

**CONCLUSION**

The surgical management of intussusception has good outcome in outcome in our setting.

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**CONFLICT OF INTEREST**  
 Authors declare no conflict of interest.  
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