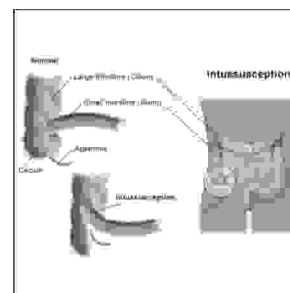


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# INTUSSUSCEPTION; MANAGEMENT IN INFANTS AND CHILDREN IN OUR SETUP



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**ABSTRACT...** [sajidhameed@yahoo.com](mailto:sajidhameed@yahoo.com) **Objective:** To review our results of management and compare them with other published series. **Design:** Retrospective study. **Period:** July 1995 to June 2006. **Setting:** Department of Paediatric Surgery, Allied Hospital, Faisalabad. **Patients and Methods:** The record of all patients was reviewed. **Results:** A total of 102 patients were managed during this period. They were predominantly males. Eighty four percent were under 1 year while more than half under 6 months. Two thirds four of the cases presented between the months of March and August. Intussusception was preceded by a bout of acute gastroenteritis in over one third of the cases. Mean duration of symptoms before presentation was 72 hours. All cases except one, underwent surgical exploration. At operation resection and anastomosis had to be done in nearly 60%. Wound infection (12%) and wound dehiscence (2%) were the major complications. Mortality rate was 8%. **Conclusion:** The management of intussusception in our setting is unsatisfactory when compared to the international standards. A high index of suspicion leading to early coupled with an improvement in the management standards is needed.

**Key words:** Intussusception, Intestinal Obstruction, Barium reduction, Pneumatic reduction

## INTRODUCTION

Intussusception, the invagination of a portion of the intestine into an adjoining part is an important condition

in paediatric surgery. It is the common cause of intestinal obstruction in infants. It has been recognized for over 300 years<sup>1</sup>. It is usually idiopathic in nature with a

physical lead point being found rarely. Upper respiratory tract infection, gastroenteritis and dietary factors have been considered as causes for the idiopathic variety.

The management of this condition has been changing gradually since Hirschprung reported successful reduction by hydrostatic pressure as early as 1876<sup>2</sup>. In the early 1940s hydrostatic reduction employing a barium solution under fluoroscopic control gained acceptance as being the first line of management in this condition. People then started to experiment with various contrast media and ways to monitor the progression of reduction<sup>3,4,5,6</sup>. These days pneumatic reduction, monitored ultrasonographically, is in vogue<sup>7,8,9</sup>. This had the advantage of reducing exposure to radiation. We decided to conduct this study to review the results of management of this condition in our centre and to compare them with other published series.

## PATIENTS AND METHODS

A retrospective analysis of the records of 102 patients with intussusception who presented to the Department of Paediatric Surgery, Allied Hospital, Faisalabad between July 1995 till June 2006 was done. At the initial presentation a detailed history was taken. Especially that of screaming attacks, vomiting passage of bloody mucus per rectum, diarrhea or constipation was elicited. In addition to a general physical examination, signs of dehydration, a palpable mass in the abdomen, visible bowel loops were noted. Rectal examination was done in all cases of suspected intussusception. The presence of bloody mucus-red currant jelly- on the finger or the feeling of tip of the intussusception was diagnostic. Routine tests included a complete blood count, serum electrolytes and a sample for blood grouping and cross matching.

A plain erect X-ray of the abdomen was obtained in all cases. A wide bore nasogastric tube was placed and put on continuous drainage. An intravenous line was established in every case and a dextrose saline solution was infused. Electrolyte replacement was done according to the results. Nasogastric aspirate was replaced with lactated Ringer's solution. Blood spectrum

antibiotics were administered in all cases. Once the cases were stable they taken to the OR. Operations were performed by one of the authors. Exploration was done by a right upper transverse incision in all cases. The findings were noted. An initial attempt was made to reduce the intussusception in all cases but was abandoned if no progress was noted or serosal tears started to occur in the intussusception. If reduction was successful then the reduced gut was fomented with warm saline packs for -10 minutes to improve the circulation. The gut was examined for non viable patches, which if present were oversewn. Resection of the involved gangrenous gut was followed by an end to anastomosis in nearly all cases. After ensuring the potency and integrity of the anastomosis, mass closure of the abdomen was done using an absorbable braided suture. Extensive peritoneal lavage with a copious amount of normal saline was done prior to closure. Post operatively the patients were kept on nasogastric suction till evidence of return of bowel motility and patency of the anastomosis were established. This was usually gauged by a return of bowel sounds and passage of flatus or stool. Gradual feeding was then started. As most of the patients came from peripheral areas they were kept in the ward till the removal of sutures. The record was analyzed to find out the age of presentation, sex distribution, duration and type of symptoms, frequency of various signs, type of lesion, associated anomalies, overall complications and rate of mortality.

## RESULTS

During the study period a total of 102 cases of intussusception were managed. Two thirds of these cases were males. Age at presentation ranged from 2 months to 10 years. Eighty four (85%) were less than 1 year old and infants under the age of 6 months constituted half of the cases. Majority, 69% of cases, were seen between the months of March and August. Duration of symptoms ranged from 12 hours to days with a mean of 3 days. Colicky abdominal pain, vomiting and passage of bloody mucus PR were seen in 76%, 60% and 48% cases respectively. The classic triad of symptoms was seen in 33% cases. Constipation was noted in 69%. The frequency of the various signs elicited

is given in table-I.

Sign	%
Blood & Mucus on PR	68
Mass palpable on PR	36
Abdominal Distension	35
Mass palpable on Abdominal Palpation	28
Dehydration	18
Visible bowel loops	12
Mass prolapsing PR	02

History of a recent episode of diarrhoea was found in nearly 0% of the cases compared to history of an episode of URTI which was noted in only 5%. Four of our cases developed intussusception postoperatively after abdominal exploration for some other cause.

Except for one case, in whom hydrostatic reduction was successful; all the rest underwent abdominal exploration. Out of the 101 case who underwent abdominal exploration, manual reduction of the intussusception was possible in only 42 (41.5%) cases. In the remaining cases resection and anastomosis of the affected gut had to be done. The duration of the symptoms was found to have a bearing on the rate of resection as can be in table-II.

Duration of symptoms	No. Of cases	Resection
- 1 day	05	2 (40%)
- 2 days	35	12 (34%)
- 3 days	25	12 (48%)
- 4 days	19	15 (79%)
> 4 days	18	18 (100%)

A lead point was found in 2 cases only. In one it was a Meckel's diverticulum and in another, a case of PJ syndrome, it was a jejunal polyp. Associated malrotation (Waugh's syndrome) was noted in 1 case.

Average duration of hospital stay was 6 days and ranged from 1 to 15 days. Two cases had to be re-explored due to anastomotic leakage. Wound dehiscence was encountered in 2 cases managed successfully. Superficial wound infection was noted in 12% cases. We lost 8 (7.8%) patients in our series mainly due to sepsis consequent to late presentation.

## DISCUSSION

We did not find any significant difference in the mean age or sex distribution of the patients from other reported local and international studies<sup>5,6,7,8,10,11</sup>.

Most of our patients presented late. The mean duration of symptoms in our study was 72 hours with a range from 12 hours to 7 days. This was significantly higher than that reported internationally<sup>4,5,9</sup>. Other local studies have also noted the same<sup>11,12,13,14</sup>. Delay in presentation was a significant cause of the increase in morbidity seen from the table II this has a direct relationship with the rate of resection and anastomosis at operation.

Gandapur from Abbottabad has reported that in 69% cases the initial diagnosis was infective diarrhea. These patients were referred to the diarrhea treatment unit<sup>13</sup>. Other local studies have made the same observation<sup>11,14</sup>. In our series more than one third case (40%) followed an episode of acute diarrhea.

The classical triad of symptoms, i.e. pain, vomiting and bleeding PR was noted in only 33% cases. Blood and mucus was noted on rectal examination in nearly 68% cases. The presence of this sign alone should have raised the suspicion of intussusception. It would appear that the symptoms of colicky abdominal pain, distension and constipation are confused with PDI and passage of blood and mucus with an episode of infective diarrhoea.

Ileocolic intussusception was the commonest<sup>11,12,14</sup>.

Waugh syndrome was noted in 15% of our cases which more or less conforms with the reported incidence<sup>11,12</sup>. The rate of complications and death is quite high compared to international standards but is equal to the reported local incidence<sup>11,12</sup>.

In our study, except for a one case the rest underwent surgical exploration. Roughly the same situation has been reported from most local centres<sup>11,12,14,15</sup>. Success rate ranging from 85% to 97% have been reported for non operative reduction<sup>3,4,5,6,7,8,9,10</sup>. Locally the only significant attempt at hydrostatic reduction has come from Gandapur with a 36% success rate<sup>13</sup>.

It has been observed that even in the west the treatment of intussusception is not uniform<sup>16,17,18</sup>. Even when reviewed in this context, our results are not satisfactory. All of our local studies have originated from specialized paediatric surgical departments in tertiary care teaching hospital<sup>11,12,13,14,15</sup>. Such a high rate of surgical exploration for a condition which has a good chance of being spread from surgery in the rest of the world cannot be justified.

Reduction using a barium solution under fluoroscopic monitoring has been practiced with an increasing rate of success since it was described in the 1940s. This has been due to an improvement in the technique coupled with early diagnosis. The main hazard of this used to be the extensive dose of radiation during the procedure. In our setting the main stumbling block in the usage of this method was the non availability of fuoroscopic machines in the majority of our radiology departments. With the acceptance of ultrasonographically (US) monitored pneumatic reduction, this has been overcome as the departments of radiology in all secondary and tertiary care hospitals have the latest US machines, Pneumatic reduction also avoids the potentially disastrous complications associated with spillage of barium into the peritoneal cavity. What is needed now is to impart the required training to the radiologists so that this treatment can be offered to our patients.

## CONCLUSION

The management of intussusception in our setting is unsatisfactory when compared to the international standards. The main emphasis needs to be placed on early diagnosis. This can only be achieved if a high index of suspicion resides in the mind of the first treating physician regarding the possibility of the presence of intussusception. It is essential that with a history of intermittent colicky severe abdominal pain, intussusception must be ruled out before any other diagnosis is considered.

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