ORIGINAL RESEARCH PAPER

Paediatric Surgery

STUDY OF PEDIATRIC INTUSSUSCEPTION IN A TERTIARY CARE HOSPITAL IN THE PAST 2 YEARS

KEY WORDS:
Intussusception, Pediatric, Tertiary care hospital, Pneumatic reduction

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ABSTRACT

Intussusception is a common problem encountered in children, its various presentations and its management were seen in this retrospective study. This study included a total of 15 cases of pediatric intussusception treated at a tertiary care hospital. Among the 15 cases, 10 were classified as ileo-colic intussusception, while 2 were classified as ileo-ileal and 3 colo-colic intussusception, respectively. In these case series 9 cases underwent pneumatic reduction, 1 case underwent hydrostatic reduction, 2 cases required laparoscopy with manual reduction and 3 cases required emergency laparotomy. Pathological findings included intraluminal thick pedunculated polyp, telescoping of the bowel, fixed loop left of duodenojejunal flexure, and appendicitis.In this case series, abdominal ultrasound (USG) emerged as the primary diagnostic modality, and pneumatic reduction was the most commonly employed treatment approach. The classification of intussusception varied, with ileo-colic being the most frequent subtype. Pathological findings revealed various causes, including pedunculated polyps, telescoping of the bowel, fixed loops, and appendicitis. The absence of specific lead points in majority of the cases suggests that idiopathic or non-lead point intussusception was prevalent in this series. The identification of lead points in 3 cases highlights the importance of recognizing potential causative factors. These findings contribute to our understanding of pediatric intussusception and provide insights into the management of this condition in a tertiary care hospital setting.

INTRODUCTION

Intussusception is a condition where a part of the intestine slides into another, like a telescope, causing an obstruction. Pediatric intussusception is a relatively common cause of bowel obstruction in children, and prompt diagnosis and treatment are crucial to prevent complications. This article presents a comprehensive analysis of pediatric intussusception case studies and discusses various aspects, including presentation, classification, diagnosis, management, and follow-up.

Pediatric intussusception is a potentially life-threatening condition that requires urgent medical attention. This article examines 15 case studies of children with intussusception, detailing their presentations, classifications, diagnostic modalities, treatments, and follow-ups. By analyzing these cases, we aim to provide valuable insights into the diagnosis and management of pediatric intussusception.

Case	Sex/Age	Presentation	Classification	Diagnostic Modality	Operation	Pathology	Follow up months	Lead Point
1	Male - 1½ Years	Abdominal Pain – 5 days Decreased Urine Output – 2 days Blood in Stool – 1 day	Ileo-Ileal	USG of Abdomen and Pelvis	Emergency Laparotomy – Ileal Resection Anastomosis	Intraluminal Thick Pedunculated Polyp (5cm)	Performed - 27/5/22 Review- 8/6/22	40 cm from IC Junction
2	Female -10 Months	Fever – 3 days Blood in Stools – 2 Episodes	Colo-Colic	USG of Abdomen and Pelvis	Pneumatic Reduction	Telescoping of Bowel into the left Lumbar Region	Performed - 14/7/22 Review- 29/7/22	-
3	Male – 11 Years	Abdominal Pain – 5 days Vomiting – 4 days Loose Stool – 4 episodes	Ileo-Colic	USG of Abdomen and Pelvis CT Abdomen	Emergency Laparotomy – Manual Reduction and Appendectomy	Fixed Loop left of Duodojejunal Flexure Appendicitis	Performed - 26/06/21 Review- 7/7/21	Mesenteric Adenitis
4	Male -9 Months	Loose Stools – 2 - 3 Episodes/day – 2 days Red Jelly Stools	Ileo-Colic	USG of Abdomen and Pelvis CT Abdomen	Pneumatic Reduction	Small Bowel Loops in Left lumbar region	Performed - 8/3/23 Review- 15/3/23	-
5	Female -1½ Years	Loose Stools – 3 days Blood in Stools – 1 Day	Ileo-Colic	USG of Abdomen	Pneumatic Reduction	Telescoping of Bowel in RIF	Performed - 03/08/22 Review – 15/08/22	-
6	Female – 2 Years	Fever – 3 days Blood in Stools – 2 Episodes	Ileo-Colic	USG Abdomen	Hydrostatic Reduction	Small Bowel Loop in RIF	Performed - 21/9/21 Review – 6/9/21	-
7	Male -2½ Years	Loose Stools – 10 days Passing Red Currant Jelly Stools – 2 days Fever – 1 week	Ileo-Colic	USG Abdomen	Pneumatic Reduction	Telescoping of Bowel in RIF	Performed - 6/7/22 Review – 21/7/22	-

8	Male -4 Years	Abdominal Pain – 2 days Vomiting – 1 day	Recurrent Ileo-Colic	USG Abdomen	Diagnostic Air Cologram + Pneumatic Reduction but Laparoscopy + Manual Reduction	Large Mesenteric Nodes	Performed - 26/8/22 Review – 02/09/22	-
9	Female – 3 Years	Fever – 2 days Abdominal Pain – 3 days Blood in Stools – 1 Day	Ileo-Colic	USG Abdomen	Pneumatic Reduction	Telescoping of Bowel in RIF	Performed - 10/11/22 Review – 25/11/22	-
10	Male – 2½ Years	Loose Stools – 6 days Blood in Stools – 1 Day	Colo-Colic	USG of Abdomen	Pneumatic Reduction	Telescoping of Bowel in RIF	Performed - 15/12/22 Review – 31/12/22	-
11	Female -8Months	Abdominal Pain – 2 days Loose Stool – 4 episodes	Ileo-Ileal	USG of Abdomen	Emergency Laparotomy – Ileal Resection Anastomosis	Intraluminal Thick Pedunculated Polyp (4cm)	Performed - 5/1/23 Review- 18/1/23	38 cm from IC Junction
12	Male -1 Year	Fever – 1 day Blood in Stools - 2 Episodes	Ileo-Colic	USG of Abdomen	Pneumatic Reduction	Telescoping of Bowel in RIF	Performed - 21/2/23 Review – 5/3/23	-
13	Female – 7 Years	Loose Stools – 4 days Abdominal Pain – 3 days	Colo-Colic	USG of Abdomen and Pelvis	Pneumatic Reduction	Telescoping of Bowel into the left Lumbar Region	Performed - 18/4/23Review- 3/5/23	-
14	Male -5 Years	Abdominal Pain – 2 days Vomiting – 2 days	Recurrent Ileo-Colic	USG Abdomen	Diagnostic Air Cologram + Pneumatic Reduction but Laparoscopy + Manual Reduction	Large Mesenteric Nodes	Performed - 12/6/23 Review – 24/6/23	-
15	Female -9Months	Loose Stools - 3 episodes/day – 3 days Blood in Stools – 1 Day	Ileo-Colic	USG of Abdomen	Pneumatic Reduction	Telescoping of Bowel in RIF	Performed - 1/7/23 Review- 12/7/23	-

Classification of Pediatric Intussusception:

Pediatric intussusception is classified according to the location of the telescoping bowel segment. The classifications observed in the case studies include:

1. Ileo-Ileal: Intussusception occurs within the small bowel (Case 1, Case 11).
2. Colo-Colic: Intussusception occurs within the large bowel (Case 2, Case 10, Case 13)
3. Ileo-Colic: Intussusception occurs between the small bowel and the large bowel (Cases 3-7,9,12,15)
4. Recurrent Ileo-Colic: Intussusception recurs between the small bowel and the large bowel (Case 8, Case 14).

Diagnostic Modalities for Pediatric Intussusception:

The following diagnostic modalities were used in the case studies to confirm the diagnosis of pediatric intussusception:

- Ultrasound of Abdomen and Pelvis (USG): This non-invasive imaging test is the most commonly used diagnostic modality for pediatric intussusception. It is used to visualize the telescoping bowel segments and identify any lead points or complications.
- Computed Tomography (CT) Abdomen: CT scans provide detailed cross-sectional images of the abdomen and may be used to diagnose intussusception when ultrasound findings are inconclusive.
- Diagnostic Air Cologram: This diagnostic test involves the use of air to outline the colon and identify the site of intussusception.

Management of Pediatric Intussusception:

The management of pediatric intussusception depends on the severity and duration of the condition, as well as the presence of complications. The following treatment options were employed in the case studies:

- Pneumatic Reduction: A non-surgical treatment option that involves the use of air pressure to push the telescoping bowel segments back into their normal position (Cases 2, 4, 5, 7, 9, 10, 12, 13 and 15).
- Hydrostatic Reduction: Similar to pneumatic reduction, this non-surgical treatment option uses water pressure to push the telescoping bowel segments back into place (Case 6).
- Emergency Laparotomy: A surgical procedure involving an incision in the abdomen to access the affected bowel segments and manually reduce the intussusception, or perform a resection if necessary (Cases 1, 3, and 11).
- Laparoscopy + Manual Reduction: A minimally invasive surgical approach that involves the use of a laparoscope to visualize the intussusception and perform manual reduction (Case 8, 14).

Fig 1

Fig 2

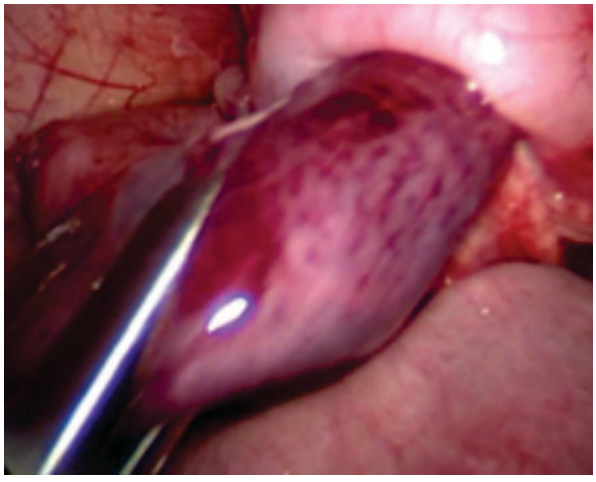

Fig 3

Fig 4

DISCUSSION:

The present study provides a comprehensive analysis of pediatric intussusception cases in a tertiary care hospital, shedding light on various aspects related to its diagnosis, classification, treatment, and outcomes. The findings of this study are consistent with existing literature on pediatric intussusception, and they add valuable insights to the available knowledge on this challenging condition.

The classification of intussusception observed in this study aligns with previous research, which categorizes it into ileo-ileal, colo-colic, and ileo-colic subtypes^1. Among these, ileo-colic intussusception was the most frequent subtype, corroborating the findings of previous studies^2. Understanding the different types of intussusception is crucial for appropriate management and predicting possible complications.The study's findings on the occurrence of pediatric intussusception in terms of gender distribution reveal that among the 15 cases analyzed, there were 10 male patients and 5 female patients. Therefore, the percentage of occurrence for male patients in this study was 66.7%, while the percentage for female patients was 33.3%.This gender distribution is consistent with previous research that has reported a slightly higher incidence of intussusception in males compared to females^1^2.

The use of ultrasound (USG) as the primary diagnostic modality in this study is consistent with the established guidelines and recommendations for diagnosing pediatric intussusception^3. Non-surgical reduction techniques, such as pneumatic and hydrostatic reduction, were found to be successful in the majority of cases, mirroring previous research that highlights these methods as safe and effective treatment options^4. However, the necessity for emergency laparotomy in a subset of cases emphasizes the importance of a prompt diagnosis and tailored treatment approach based on individual patient characteristics.

The identification of specific lead points in a few cases corroborates the existing literature, which suggests that lead points are more common in older children and may necessitate a more cautious approach to treatment^5. The majority of cases in this study, however, were classified as idiopathic or non-lead point intussusception, in line with previous research suggesting that most pediatric intussusception cases have no identifiable lead point^6. Comparing the outcomes of this study to the available literature, it is evident that the follow-up period of 6 to 12 months is adequate for monitoring patients' recovery and identifying any recurrences or complications^7. All patients in this study showed no signs of recurrence during the follow-up period, consistent with the favorable prognosis reported in the majority of pediatric intussusception cases^8.

CONCLUSION:

This study contributes to the available literature on pediatric intussusception by providing a comprehensive analysis of cases in a tertiary care hospital setting. The findings support the established knowledge on the classification, diagnosis, and treatment approaches of pediatric intussusception. The identification of lead points in some cases underscores the importance of recognizing potential causative factors, while the predominance of idiopathic cases highlights the need for further investigation into the etiology of this condition. Overall, this study enhances our understanding of pediatric intussusception and offers insights that can aid healthcare professionals in managing similar cases effectively.

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