

MANAGEMENT OF ACUTE ABDOMEN IN CHILDREN: AN EXPERIENCE IN A TERTIARY CARE INSTITUTION

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Abstract

Acute abdominal pain accounts for about 8% of all children attending the emergency department. As a general rule, any abdominal pain in children which is lasting for more than four hours duration should be regarded as evidence of potential abdominal emergency unless proved otherwise. The entailed study was carried out prospectively on 160 children less than 14 years of age presenting to the OPD/Emergency of the Post Graduate Department of General Surgery Government Medical College, Jammu with history of Acute Abdominal pain, conducted over a period of 1 year w.e.f. 1st November 2021 to 31st October 2022. All the patients were treated as in-patients. The clinic-epidemiological profile of patients was noted and treatment modality was planned as per the clinical, hematological and radiological findings. The most common operative procedure was open appendectomy (25%) followed by release of band in 7.5 % cases.

Keywords: Acute Abdomen, Children (<14 years), Management.

1. INTRODUCTION

Acute abdomen is defined as a medical emergency in which there is severe pain of sudden onset with symptoms and signs that point towards abdominal involvement [1]. Acute abdominal pain accounts for about 8% of all children attending the emergency department [2]. Causes of acute abdominal pain can be classified as urgent (require immediate treatment) or non urgent [3]. The causes of abdominal pain in children can be varied some of which may be self limiting while others can be life threatening [4]. A detailed clinical history and clinical examination remains the key factor in approaching the diagnosis [5]. Warning signs that suggest a high possibility of surgical acute abdomen in children include pain, tenderness, rigidity, abdominal distension and rebound tenderness.

2. METHODOLOGY

Subjects

The entailed study was carried out prospectively on 160 children less than 14 years of age presenting to the OPD/Emergency of the Post Graduate Department of General Surgery Government Medical College Jammu with history of Acute Abdominal pain, conducted over a period of 1 year w.e.f. 1st November 2021 to 31st October 2022. All the patients were treated as in-patients. The informed consent was obtained from the parents of the children to be included in the study group. The clearance for study was sought from institutional ethical committee of GMC Jammu.

Data Processing

In the hospital patients, a detailed history regarding time of onset of pain, duration of pain, type of pain, site of pain, any shift in the site of pain, radiation of pain, relation of pain to any food intake or postural variation was recorded. History of vomiting, its frequency, color, amount, presence of blood in the vomitus were recorded. Any history of respiratory distress; urinary symptoms as frequency, retention of urine and hematuria was noted. Any previous history of surgical intervention; type of surgery, duration since surgery at presentation with any history of similar episode was noted. All the children underwent a detailed general physical examination and a thorough systemic examination which included Central nervous system, cardiovascular system, respiratory system and musculoskeletal system. Local examination included the examination of the abdomen, groin and genitalia. Per rectal examination was done in all the patients. All the patients were subjected to routine investigations including hemogram, Coagulogram, renal function tests, liver function tests, blood sugar, blood grouping, serology for HIV and Hepatitis, urine routine examination, serum amylase and serum lipase. X-ray chest and erect abdominal radiograph was ordered in all the cases. Ultrasonography of the abdomen was undertaken in all the cases. Contrast enhanced Computerized tomogram of the abdomen and magnetic resonance imaging was done wherever deemed to be necessary. IV fluid supplementation, IV antibiotics, analgesics were instituted along with nasogastric tube insertion for decompression and urinary catheterization for monitoring urinary output was employed wherever required. The patients were operated under general anesthesia after assessment by the anesthetist and obtaining a detailed informed written consent. A detailed note of the intra operative findings, the surgical procedure carried out, the employment of closed tube drainage/ corrugated rubber drain were made. The post-operative treatment, the outcome of the surgical procedure, the duration of hospital stay postoperatively and any complications were also noted. The findings of the histopathology of the excised specimen / biopsy were also noted whosoever applicable. Patients were periodically followed up in the OPD department of the Surgery GMC Jammu.

Inclusion criteria: All the children (<14 years) with acute abdomen admitted in the department of surgery Government Medical College, Jammu.

Exclusion criteria:

Children presenting with pain abdomen after sustaining abdominal trauma and Neonates were excluded from the study.

Statistical analysis

Data were entered in Microsoft Excel spreadsheet Version 2013 and analyzed. Data was represented in tables as below.

3. RESULTS AND DISCUSSION

AGE GROUP (YEARS)	NO. OF PATIENTS	PERCENTAGE
0-3	28	17.5%
4-6	39	24.4%
7-9	38	23.8%
10-14	55	34.4%
Total	160	100%

Out of a total of 160 patients, maximum number of the patients were in the age group of 10-14 years (34.4%), followed by 24.4% in the age group of 4-6 years. The youngest patient in the study group was 4 months old whereas; the oldest one was 14 year old. The mean age of 160 patients was 7.5 year. The males and females contributed 50% of the cases each(80 cases each).

Distribution of Patients according to Etiology

ETIOLOGY	NO. OF PATIENTS	PERCENTAGE
Acute appendicitis	50	31.3%
Intussusception	20	12.5%
Acute intestinal obstruction	12	7.5%
Adhesion obstruction	6	3.8%
Mesentric Lymphadenitis	32	20%
Intestinal colic	16	10%
Perforation peritonitis	7	4.4%
Mid gut volvulus	3	1.9%
Meckels diverticulum	3	1.9%
Acute cholecystitis	5	3.1%
Acute pancreatitis	6	3.8%
TOTAL	160	100%

The most common etiology of acute abdomen in children was Acute aappendicitis (31.3%) followed by Mesentric Lymphadenitis (20%). Intussusception was present in 12.5% cases where as intestinal colic was present in 10% cases. The cases of acute appendicitis and mesenteric lymphadenitis were significantly higher in the older age groups. Intussusception was observed more in age group between 0-3 years.

Pain was present in 100% cases of acute abdomen, vomiting noted in 44.8% ,80%,100%,100%,16.13%,100% and 83.34% cases of acute appendicitis, intussusception, acute intestinal obstruction, adhesion obstruction, mesenteric lymphedinitis, acute cholecystitis and acute pancreatitis respectively and overall vomiting was noted in 51.87% cases of acute abdomen..Fever was noted in 44.44% cases of acute abdomen and etiology wise fever was noted in 38.7% cases of acute appendicitis, 50% cases of intussusception,100% cases of acute intestinal obstruction, adhesion obstruction ,acute pancreatitis and perforation peritonitis. Distension was noted in 100% of cases of acute intestinal obstruction and adhesion obstruction and also noted in25%cases of intussusception. Constipation was present in 100% cases of acute intestinal obstruction and adhesion obstruction. Diarrhea was noticed in 25% cases of intussusception.

Tenderness was present in 83.75% of cases. Guarding was present in 38.13% cases of acute abdomen. Bowel sounds were absent in 100% cases of acute intestinal obstruction and adhesion obstruction. Red currant jelly stool was noticed in 35% cases of intussusception, ballooning on DRE was noted in 100% cases of acute intestinal obstruction and adhesion obstruction. Tachycardia was present in 41.8 % cases of acute abdomen. Table showing that 50.6% cases were managed conservatively.The most common operative procedure was open appendectomy (25%) followed by release of band in 7.5 % cases.

Distribution according to treatment modality										
	Treatment modality									
	Open Appendectomy	Managed Conservatively	E/L with Appendectomy	Reduction of Intussusception	E/L with Reduction of Intussusception	Band Release	Adhesiolysis	Resection and Anastomosis	Primary Closure	LADD'S Procedure
Acute Appendicitis	31	10	9	0	0	0	0	0	0	0
Intussusception	0	12	0	7	1	0	0	0	0	0
Acute Intestinal Obstruction	0	0	0	0	0	12	0	0	0	0
Adhesion Obstruction	0	0	0	0	0	0	6	0	0	0
Mesenteric Lymphadenitis	0	32	0	0	0	0	0	0	0	0
Intestinal Colic	0	16	0	0	0	0	0	0	0	0
Perforation Peritonitis	0	0	0	0	0	0	0	2	5	0
Midgut Volvulus	0	0	0	0	0	0	0	0	0	3
Meckel's Diverticulum	0	0	0	0	0	0	0	3	0	0
Acute Cholecystitis	0	5	0	0	0	0	0	0	0	0
Acute Pancreatitis	0	6	0	0	0	0	0	0	0	0

Intra-Operative Findings

	Infamed Appendix	Appendicular Perforation	Gangrenous Appendix	Ileocolic Intussusception	Ileoileal Intussusception	Colocolic Intussusception	Band Adhesion	Adhesions	Ileal Perforation	Midgut Volvulus	Meckel's Band Obstruction
Acute Appendicitis	28	11	1	0	0	0	0	0	0	0	0
Intussusception	0	0	0	6	1	1	0	0	0	0	0
Acute Intestinal Obstruction	0	0	0	0	0	0	12	0	0	0	0
Adhesion Obstruction	0	0	0	0	0	0	0	6	0	0	0
Perforation Peritonitis	0	0	0	0	0	0	0	0	7	0	0
Midgut Volvulus	0	0	0	0	0	0	0	0	0	3	0
Meckel's Diverticulum	0	0	0	0	0	0	0	0	0	0	3

out of 40 cases operated for acute appendicitis, intraoperative finding in majority was inflamed appendix (28) cases followed by appendicular perforation (11) cases. Ileocolic intussusception was present in 6 cases intraoperatively. In this study, 93.75% patients were discharged without complications, 5% developed wound infection whereas 1.25% developed respiratory infection.

In our prospective study 160 patients presenting with acute abdominal pain were undertaken over a period of 12 months w.e.f. 1st November 2021 to 31st October 2022. The data was collected, analyzed and discussed with previously available literature.

In the present study, the mean age of 160 patients was 7.5 years. Acute abdominal pain most commonly occurred in age group of 10 to 14 years (34.4%) followed by 4 to 6 years (24.4%). The male female ratio was 1:1. Different authors have observed almost same findings in their studies on spectrum of acute abdominal pain in childhood[6],[7],[8],[9]. In our study, most common etiology of pain abdomen in children was acute appendicitis [31.3%] followed by mesenteric lymphadenitis (20%), followed by intussusception (12.5%) and followed by intestinal colic (10%). Our study goes well with study of other authors[10]. Different authors have observed different causes of acute abdomen in children in their studies[11],[12].

In our study, pain was noticed in 100% cases of acute abdomen, vomiting noted in 44.8 %,80%,100%,100%,16.13%,100% and 83.3% cases of acute appendicitis, intussusception, acute intestinal obstruction, adhesion obstruction, mesenteric lymphadenitis, acute cholecystitis and acute pancreatitis respectively and overall vomiting was noted in 51.87% cases of acute abdomen. Fever was noted in 44.44% cases of acute abdomen and etiology wise fever was noted in 38.7% cases of acute appendicitis, 50% cases of intussusception, 100% cases of acute intestinal obstruction, adhesion obstruction, acute pancreatitis and perforation peritonitis. Distension was noted in 100% of cases of acute intestinal obstruction and adhesion obstruction and also noted in 25% cases of intussusception. Constipation was present in 100% cases of acute intestinal obstruction and adhesion obstruction. Diarrhea was noticed in 25% cases of intussusception. In our study tenderness was elicited in 83.75% of cases. Guarding was present in 38.13 cases of acute abdomen. Bowel sounds were absent in 100% cases of acute intestinal obstruction and adhesion obstruction. Red currant jelly stool were noticed in 35% cases of intussusception, ballooning on DRE was noted in 100% cases of acute intestinal obstruction and adhesion obstruction. Tachycardia was present in 41.8 % cases of acute abdomen. Various symptoms and clinical signs have been observed by various authors in their studies on children presenting with acute abdominal pain which simulate those observed in our study[12],[13],[14].

In our study 50.6% of patients were managed conservatively. The most common operative procedure was appendectomy which was performed in 25% of all cases, reduction of intussusception was performed in 5% of cases, release of band was performed in 7.5 % of all cases. Ladd's procedure was performed in all 3 cases of midgut volvulus. Out of 7 cases of perforation peritonitis, primary closure was done in 5 cases; whereas resection and anastomosis was performed in 2 cases. Adhesiolysis was done in all 6 cases of adhesion obstruction. Out of 40 cases operated for acute appendicitis, intraoperative finding in majority of cases was inflamed appendix (28) cases followed by appendicular perforation (11) cases. Out of 8 cases of intussusception, intraoperative finding of 6 cases was ileocolic intussusception.

93.75% patients were discharged without complications, 5% of patients developed wound infection, 1.25% developed respiratory infection. Various authors have resorted to various surgical procedures to cure different causes of abdominal pain in children in their studies[8],[13],[14].

4. CONCLUSION

Acute abdomen among children is one of the common surgical emergency. The clinical examination followed by haematological and radiological investigations help in reaching a diagnosis. Conservative management in terms of observation, repeated examination and medication in the form of intravenous injectables and intravenous fluid administration helps in resolution of symptoms in good number of patients. The surgical exploration in the patients with non settling pain after conservative management and those presenting with features of peritonitis/acute intestinal obstruction because of varying causes need surgical management.

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