International Journal of Medical and Health Research
ISSN: 2454-9142, Impact Factor: RJIF 5.54
www.medicalsciencejournal.com
Volume 3; Issue 4; April 2017; Page No. 160-162

Assesment of Intestinal Obstruction in Children

Dr. Sushil Kumar Pathak, Dr. Sanjeev Kumar Sinha
[1] MBBS, MD, Senior resident, Upgraded Department of Pediatrics, Patna Medical College, Patna, Bihar, India
[2] MBBS, MD, Senior resident, Upgraded Department of Pediatrics, Patna Medical College and hospital, Patna, Bihar, India

Abstract
Intestinal obstruction is one of the commonest surgical emergencies seen in pediatric patients. In last few decades, the scenario of diagnosis and management of pediatric intestinal obstruction has been changed due to better understanding of pathophysiology, improvement in diagnostic methods, availability of better antibiotics, safer pediatric anesthesia and advanced pre and post-operative intensive care.
Objectives: To study the epidemiology, clinical features and outcome of intestinal obstruction in paediatric patients.
Methods: The present prospective study was conducted in department of Pediatric Surgery, Patna medical college, Patna, in paediatric patients admitted with clinical features and diagnosis of intestinal obstruction between Nov 2015 to Oct 2016 (1 years).
Results: Majority of cases of intestinal obstruction in our study were in age group of 0-1 years (70.2%), followed by the age group of 1-5 years (20.2%) and more than 5 years (9.6%).
Conclusion: Majority of patients (70.2%) were of less than one year age, and male to female ratio was found to be 3.5:1. Congenial causes of intestinal obstruction were more common (61.7%) than the acquired causes. Intussusception (18.1%) was the commonest cause of intestinal obstruction in this series.

Keywords: Intestinal obstruction, Neonate, Intussusception, Anorectal malformation, Intestinal atresia

1. Introduction
Intestinal obstruction is one of the commonest surgical emergencies encountered in pediatric patients. In last few decades, the scenario of diagnosis and management of pediatric intestinal obstruction has been changed due to better understanding of pathophysiology, improvement in diagnostic methods, availability of better antibiotics, safer pediatric anesthesia and advanced pre and post-operative intensive care [1].

The pathophysiology of intestinal obstruction in children is similar to that of the adults, except the fact that in paediatric patients congenital causes of intestinal obstruction play and additional role. Besides, during resuscitation of paediatric patients, exact estimation of fluid and electrolyte requirement plays a major role in the management. Various causes of intestinal obstruction in paediatric age group have been described. These causes vary from country to country and region to region [2-5].

In a series, Belokar *et al*. [6] has mentioned some common causes as intussusception, infantile hypertrophic pyloric stenosis, Hirschsprung's disease, imperforate anus, meconium ileus, malrotation and volvulus, intestinal atresia, annular pancreas etc. Majority of the paediatric patients with intestinal obstruction present with common symptoms of abdominal distension, constipation or failure to pass meconium, vomiting, fluid and electrolyte imbalance etc. Majority of birth defects present in neonatal age group, but Infantile hypertrophic stenosis commonly occurs around the age of 3 weeks.

Intussusception is commonly seen in healthy children of 6-11 months of age. The onset of signs and symptoms of intestinal obstruction also gives some idea about the diagnosis. For example, onset is acute in case of intussusception and volvulus, while features are chronic and intermittent in case of Hirschsprung's disease. The character of vomitus also plays an important role in making the diagnosis. Bilious vomiting soon after the birth goes in favor of intestinal atresia.

In majority of cases of duodenal atresia, vomiting is bilious as the obstruction is beyond the opening of ampula of Vater in second part of the duodenum. In infantile pyloric stenosis, vomiting is non-bilious and projectile. Severe vomiting in patients of intestinal obstruction can lead to dehydration, electrolyte imbalance and aspiration pneumonia in paediatric patients. In cases of duodenal atresia, abdominal distension is absent or negligible. In contrast, it is a prominent feature in cases of jejunal and ileal atresia, Hirschsprung's disease etc.

In severe cases, it can cause tenting of diaphragm, which can lead to difficulty in breathing. In majority of the cases, X-ray abdomen in erect position demonstrates dilated bowel loops with multiple air fluid levels [7]. Ultrasonography plays an important role in diagnosis of intestinal obstruction due to some cause like infantile hypertrophic pyloric stenosis, Intussusception etc [8].

Besides, antenatal ultrasonography can diagnose some congenital causes of intestinal obstruction like duodenal atresia etc [9]. Hirschsprung's disease is commonly diagnosed by barium enema and rectal biopsy. Early diagnosis and treatment is essential in intestinal obstruction in pediatric patients, otherwise it may lead to fluid and electrolyte imbalance, perforation peritonitis, aspiration pneumonitis etc.

Materials and Methods
The present prospective study was conducted in department of Pediatric Surgery, Patna Medical College, Patna in paediatric patients admitted with clinical features and diagnosis of intestinal obstruction between Nov 2015 to Oct 2016 (1 years). Paediatric patients from newborn to 14 years of age were included in this study. Each patient was reviewed in terms of age, sex, symptoms, diagnosis, treatment and final outcome.

Results & Discussion

During this study period, total 94 pediatric patients of intestinal obstruction were studied in department of Pediatric Surgery, Patna Medical College, Patna during a period of 1 years (from Nov 2015 to Oct 2016).

1. Age groups

Majority of cases of intestinal obstruction in our study were in age group of 0-1 years (70.2%), followed by the age group of 1-5 years (20.2%) and more than 5 years (9.6%).

Table 1: Distribution of cases according to age

Etiology	Age		
	< 1 year	1-5 years	> 5 years
Congenital (58 cases)	51 (87.9%)	5 (8.6%)	2 (3.4%)
Acquired (36 cases)	15 (41.6%)	14(38.9%)	7(19.4%)
Total (94 cases)	66 (70.2%)	19 (20.2%)	9 (9.6%)

Belokar *et al.* [6] have reported the incidences in these age groups as 34.3%, 34.3% and 31% respectively, in their series. Jatav *et al.* [10] have reported 62.9% patients of their series to be of less than 1 year of age. In another study from Nigeria by Archibong *et al.* [11] maximum incidence (40.6%) was found in patients of age more than 5 years. Uba *et al.* [12] observed that 74% patients were of less than 1 year age while 26% patients were of more than 1 year.

2. Sex

In present study, out of 94 cases of intestinal obstruction, 73 (77.7%) were male and 21 (22.3%) were female children, thus making a male to female ratio of 3.5:1. Jatav *et al.* [10] have reported a male to female ratio of 4.4:1, with 220 male patients and 50 female patients. In other studies, Saran *et al.* [3] have reported male to female ratio of 2:1, while Uba *et al.* [12] have found this ratio to be of 4.4:1.

Table 2: Distribution of cases according to sex

Etiology	Sex	
	Male	Female
Congenital (58 cases)	47 (81.0%)	11 (18.9%)
Acquired (36 cases)	26 (72.2%)	10(27.8%)
Total (94 cases)	73 (77.7%)	21 (22.3%)

3. Clinical features

In our study, abdominal distension (61.7%) was found to be the commonest symptom, followed by vomiting (52.1%), constipation (43.6%), abdominal pain (40.4%), failure to pass meconium (28.7%) and abdominal lump (13.8%). In 2005, Momani *et al.* [13] found that vomiting (73.1%) was the commonest symptom of the patients in their study. Similarly, Jatav *et al.* [10] have observed vomiting as the most common symptom (82.6%) in their series, followed by constipation and abdominal distension. The presenting clinical feature varies in different cases due to difference in pathophysiology of intestinal obstruction in various cases.

4. Diagnosis

In our study, 58 (61.7%) cases where due to some congenital cause of intestinal obstruction, while 36 (38.3%) cases were of acquired causes. Overall, intussusception (18.1%) was found to be the commonest cause of intestinal obstruction in our study, followed by anorectal malformation (17.0%), Hirschsprung's disease (9.6%) and post-operative adhesions (8.5%). Anorectal malformation was found to be the commonest congenital cause of intestinal obstruction, while intussusception was the most common acquired cause in our series. Out of 16 cases of anorectal malformations, 12 were are of high variety, while the remaining 4 were of low type. Intussusception was the commonest cause of intestinal obstruction in many other studies like of Adejuyibe and Fashakin [14] (1989), Momani *et al.* [13] (2005), Ogundoyin *et al.* [5] (2009) and Somoro and Mughal [16] (2013). The incidence of intussusception is these studies ranged from 22.4% [14] to 35.8% [13].

5. Treatment and Outcome

Majority of patients (88.3%) required some form of operative procedure for their intestinal obstruction. Only 11 (11.3%) patients were managed conservatively. All patients with congenital causes of intestinal obstruction needed surgical intervention. Conservative management was attempted in acquired cases only.

Table 3: Distribution of cases according to etiological incidence

	Etiology	No. of cases	%
	Congenital	**58**	**61.7%**
1	Anorectal malformation	16	17.0%
2	Hirschsprung's disease	9	9.6%
3	Meckel's diverticulum with band	7	7.5%
4	Jejunoileal atresia	7	7.5%
5	Malrotation	6	6.4%
6	Infantile hypertrophic pyloric stenosis	4	4.3%
7	Meconium ileus	4	4.3%
8	Duodenal atresia	3	3.2%
9	Annular pancreas	1	1.1%
10	Giant cystic meconium peritonitis	1	1.1%
	Acquired	**36**	**38.3%**
1	Intussusception	17	18.1%
2	Post op adhesions	8	8.5%
3	Ileo-caecal tuberculosis	3	3.2%
4	Paralytic ileus	3	3.2%
5	Worm obstruction	3	3.2%
6	Obstructed inguinal hernia	2	2.1%

Out of 94 patients in this series, 8 (8.5%) patients expired due to various causes. Seven out of these eight patients were having some congenital cause of intestinal obstruction. Different mortality rates found in other studies on pediatric intestinal obstruction were 76% by Saran *et al.* [3] (1973), 24% by Belokar *et al.* [6] (1978), 21.1% by Adejuyigbne and Fasahkin [14] (1989), 12.6% by Archibong *et al.* [11] (1994), 11.1% by Uba *et al.* [12] (2004), 3.08% by Ogundoyin *et al.* [15] (2009) and 16% by Saha *et al.* [17] (2012).

The overall mortality rate in paediatric intestinal obstruction has been reducing with time because of increasing awareness, early diagnosis and intervention, improved pediatric anesthesia, better antibiotics and improvement of post-operative care of paediatric patients.

Conclusion

In present study, 94 patients of intestinal obstruction of paediatric age group were studied in the department of Pediatric Surgery, Patna Medical college, Patna during period of 1 years (from Nov 2015 to oct 2016). Majority of the patients

were of less than one year of age (70.2%). Male to female ratio in this study was found to be 3.5:1. Majority of patients in these series were having some congenital cause of intestinal obstruction (61.7%).

The most common cause of intestinal obstruction was intussusception (18.1%), followed by high anorectal malformation (17.0%), Hirschsprung's disease (9.6%) and post-operative adhesions (8.5%). Abdominal distension (61.7%) was the commonest symptom in this series, followed by vomiting (52.1%), and constipation (43.6%). Only 11.3% patients in this series were managed conservatively, while rest of the patients required some operative intervention. Overall mortality rate in this study was found to be 8.5%.

References

1. Baker JW, Ritter KJ. Complete surgical decompression for late obstruction of the small intestine with reference to a method. Ann Surg. 1963; 179:759-69.
2. Ojha D. Ind J Surg. 1950; 12:42.
3. Saran HS, Dandia SD, Pendse AK. Acute intestinal obstruction – A review of 504 cases. J Ind Med Assoc. 1973; 60(12):455-60.
4. Moses R. Amer J Surg. 1949; 77:235.
5. Sankaran V. Indian J Surg. 1962; 24:784.
6. Belokar WK, Subrahmanyam M, Anant KS, Ingole NS, Kolte R. Pediatric acute intestinal obstruction in Central India. Indian J Pediatr. 1978; 45(365):201-5.
7. Gupta AK. Acute intestinal obstruction: A experience of 128 cases and review of literature. Gastroenterology Today. 1999; 111:21-24.
8. Blumhagen JD, Maclin L, Krauter D, Rosenbaum DM, Weinberger E. Sonographic diagnosis of hypertrophic pyloric stenosis. AJR Am J Roentgenol. 1988; 150(6):1367-70.
9. Phelps S, Fisher R, Partington A, Dykes E. Prenatal ultrasound diagnosis of gastrointestinal malformations. J Pediatr Surg. 1997; 32(3):438-40.
10. Jatav A, Gandhi A, Jalthania M, Gothwal S, Prabhakar G, Singh V. Intestinal obstruction in neonatal and pediatric age group (A clinic-pathological study). Int J of Recent Scientific Research. August. 2015; 6(8):5868-5874
11. Olumide F, Adedeji A, Adesola AO. Intestinal obstruction in Nigerian Children. J Peditr Surg. 1976; 11:195.
12. Uba AF, Edino ST, Yakubu AA, Sheshe AA. Childhood intestinal obstruction in Northwestern Nigeria. West Afr J Med. 2004; 23:314-8
13. Momani HA, Saleem MM, Ghandoor K, Khalaf MA. Intestinal obstruction in children – Jordan University Hospital Experience. JMJ. 2005; 39(2):113-116.
14. Adejuyigbe O, Fashakin EO. Acute intestinal obstruction in Nigerian children. Trop Gastroenterol. 1989; 10:33-40.
15. Ogundoyin OO, Afolabi AO, Ogunlana DI, Lawal TA, Yifieyeh AC. Pattern and outcome of childhood intestinal obstruction in tertiary hospital in Nigeria. Afr J Health Sci. 2009; 9:170-3.
16. Soomro S, Mughal SA. Intestinal obstruction in children. J Surg Pak Int. 2013; 18(1):20-23.
17. Saha AK, Ali MB, Biswas SK, Sharif HMZ, Azim A. Neonatal intestinal obstruction: pattern, problem and outcome. Bang Med J Khulna. 2012; 45:6-10.