



Mesenteric Cysts in Children: Review of 55 Cases in A Tertiary Hospital

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Abstract

Background: Mesenteric cysts are rare, benign, fluid-filled tumors that occur in the mesentery, a thin layer of tissue that supports the intestines. The management of mesenteric cysts in children typically involves surgical intervention. The aim of this study was to evaluate the prevalence, the clinical presentation and management of mesenteric cysts in children.

Material & Methods: This retrospective study was conducted in the Division of Pediatric Surgery, Bangladesh Shishu Hospital & Institute, Dhaka from July 2016 to June 2022. A total of 18,326 patients admitted in the Division of Pediatric Surgery, hospital records of 55 patients diagnosed with mesenteric cysts were evaluated and included in this study.

Results: The prevalence of mesenteric cyst in our study was almost 1 per 333 pediatric surgical admissions. In our study, the mean (\pm SD) age of the patients was 36.5 ± 13.5 months ranged between 2 days to 12 years. Majority of the patients were male (58.2%). Of the total of 55 patients, 18 patients required emergency surgery and 37 underwent elective surgery. Abdominal pain was the main presenting symptom, present in 52.7% of the patients. Fifteen of the emergency surgery were done on preoperative diagnosis of appendicitis or perforated appendicitis with peritonitis. Majority of patients (76.4%) had multiple numbers of cysts. The cysts were located in the small bowel mesentery in 23 cases, the base of the mesentery having retroperitoneal extension in 18 cases, the transverse mesocolon in 14 cases. Complete cyst excision was done in majority of the patients (65.5%) and complete excision with intestinal resection was required in 19 (34.5%) patients. With a mean follow-up of 9 months, we encountered no recurrences. Some patients are still under follow-up.

Conclusion: Mesenteric cysts are usually symptomatic and CT scan is the investigation of choice. Complete surgical excision is the optimal treatment. Prognosis is excellent after complete surgical excision; long-term follow-up is needed due to the possibility of recurrence, even in adulthood. Though mesenteric cysts are a rarity in children in the literature, but it is not so uncommon in our experience.

Keywords:- Management, Mesenteric Cysts in Children.

INTRODUCTION

Mesenteric cysts are rare intra-abdominal tumors which can develop anywhere in the

mesentery, from the duodenum to the rectum.^[1,2,3] Although they may also be detected in adults, 60% of these cysts develop before the age of 5.^[4] These cysts are widely

regarded as being congenital in origin due to their odd appearance, early in life.^[5] They can be found throughout the digestive system, most common being connected to the small intestine.^[6,7] Abdominal discomfort (80% of cases), abdominal distention (30-50%), an abdominal mass, nausea, vomiting, constipation, diarrhea, weight loss, fever, and peritonitis are other common symptoms.^[2,8] From asymptomatic people to critically sick patients who experience peritonitis, perforation, and death, clinical symptoms are incredibly diverse and non-specific.^[9] Due to the fact that its symptoms might mirror those of other abdominal conditions, diagnosis is particularly challenging.^[1] Surgery is the preferred course of action since a complete resection with negative boundaries is curative and recurrence-free.^[9] Caucasians are more likely to develop mesenteric cysts, which typically manifest in the fourth decade with a little female preponderance.^[9] Many theories have been proposed to explain the cyst's development, including the continuous growth of congenitally misaligned or misplaced lymphatic tissue as a result of trauma, degenerating lymph nodes, and improper fusion of the mesentery's leaves. These numerous factors imply that there can be multiple etiological mechanisms at play in the development of mesenteric cysts.^[1,2,9] Most cysts are single but can be unilocular or multilocular. They range from a few centimeters to a size that can take up the majority of the peritoneal cavity.^[1,9] Hemorrhagic cysts are trauma-related and can develop anywhere in the bowel. Chylous cysts are often connected to the small bowel mesentery, serous cysts typically arise in the mesocolon.^[1] Since mesenteric cysts lack any

pathognomonic signs or symptoms, preoperative diagnosis on clinical grounds is immensely difficult.^[10] Both ultrasound and CT can identify the lesion's location and size as well as its septation, debris, fluid levels, and wall thickness. It has been established that magnetic resonance imaging (MRI) is more accurate when evaluating cysts.^[10] Surgery is the preferred method of therapy for mesenteric cysts. The French physician who conducted the first surgical excision in 1880 defined the traditional Tillaux symptom as "mobility of mesenteric cysts in transverse plane, and not in longitudinal plane".^[9,11] The best course of action might include a straightforward cystectomy or a thorough resection of the intestine next to it.^[12,13] Due to the high likelihood of infection and recurrence, aspiration and marsupialization are not advised.^[14] To remove the cyst completely, it may require a localized resection of the intestine or other tissues.^[9] There are very few studies regarding mesenteric cysts in children. Therefore, the current study was conducted to assess the management of mesenteric cysts in children.

Objectives

To evaluate the prevalence, the clinical presentation and management of mesenteric cysts in children.

MATERIAL AND METHODS

This retrospective study was conducted in the Division of Pediatric Surgery, Bangladesh Shishu Hospital & Institute, Dhaka from July 2016 to June 2022. From total 18,326 patients admitted in the Division of Pediatric Surgery,

hospital records of 55 patients treated for mesenteric cysts were evaluated and included in this study. CT scan of abdomen was advocated in elective cases, unlike the emergency cases. Laparotomy was performed on every patient. Depending upon the extension, surgical procedure included complete cyst excision with resection and re-anastomosis of the involved gut or complete cyst excision when feasible. All elective cases were subjected to the same management protocol including clinical evaluation, laboratory investigations, radiological studies. The preoperative diagnosis was primarily based on history, clinical features and the radiological assessment. The histopathological report confirmed the diagnosis in all the cases. Patients with at least 3 months follow-up were included in this study, some are still under ongoing follow up. History, clinical, radiological, per-operative, and histopathological findings were analyzed. Demographic data, clinical presentation, management strategies, operative finding and outcomes all were reported and presented in number and percentage with statistical analysis using SPSS.

RESULTS

We found that from a total of 18,326 patients admitted in the Division of Pediatric Surgery, 55 patients were diagnosed with mesenteric cyst. Therefore, the prevalence of mesenteric cyst in our study was almost 1 per 333 pediatric surgical admissions. Table I

demonstrates the demographic and clinical characteristics of the study subjects. In this study, the mean (\pm SD) age of the patients was 36.5 ± 13.5 months ranging between 2 days to 12 years. Majority of the patients were male (58.2%). Abdominal pain was the main presenting symptom which was present in 52.7% patients. Chronic presentation was seen in majority of the patients (67.3%) and acute presentation was seen in 32.7% patients. Table II shows characteristics of the cyst in the study subjects. Majority of patients (76.4%) had multiple number of cysts. Size of the cyst varied from 10-20 cm in most of the patients (45.5%). The cysts were located in the small bowel mesentery in 23 cases, the base of the mesentery with retroperitoneal extension in 18 cases, the transverse mesocolon in 14 cases. Serous cysts were encountered in majority of the patients (50.9%). Table III shows the operative procedures of the study subjects. Total 18 patients required emergency surgery and 37 underwent elective surgery. Fifteen of the emergency surgeries were performed on preoperative diagnosis of appendicitis or perforated appendicitis with peritonitis. Complete cyst excision was undertaken in majority of the patients (85.5%) and complete excision with intestinal resection was done in 8 (14.5%) patients. Histopathological examinations were done for all the resected specimen, which concluded mesenteric cyst. With a mean follow-up of 9 months, we have had no recurrences. Some patients are still under follow-up. Figure 1 demonstrates the CT scan of abdomen showing mesenteric cysts. Figure 2 demonstrates the varieties of mesenteric cysts from some patients. Figure 3 demonstrates the chylo-mesenteric cysts from some patients. Figure 4 demonstrates the Gut

Anastomosis after complete excision of mesenteric cysts.

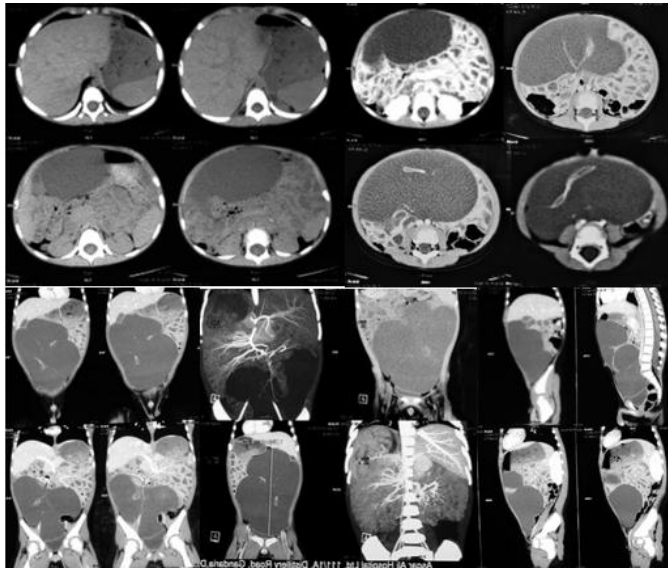


Figure 1: CT scan of abdomen showing mesenteric cysts. (N=55)

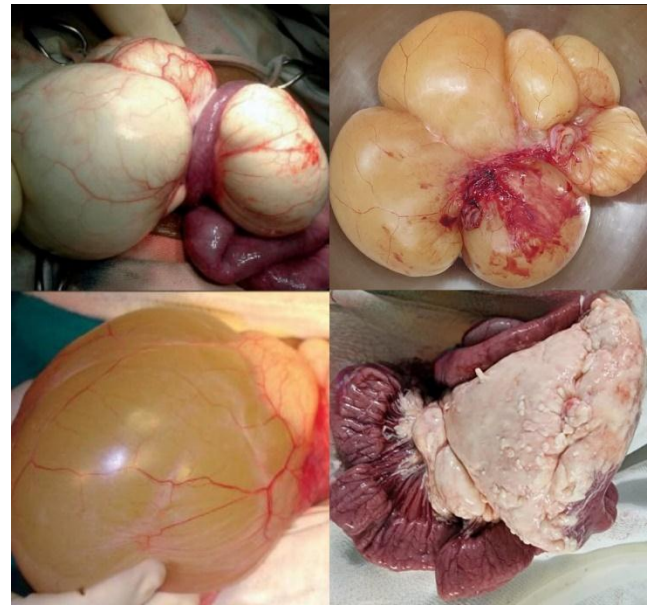


Figure 3: Chylo-mesenteric cysts from some patients. (N=55)



Figure 2: Varieties of mesenteric cysts from some patients. (N=55)

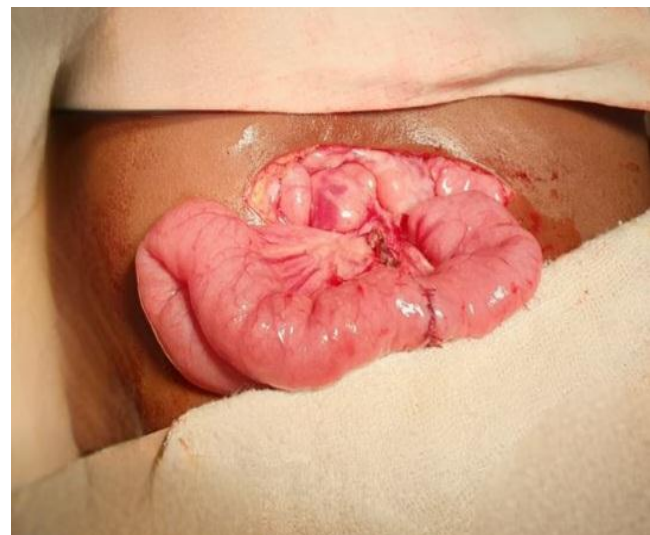


Figure 4: Gut Anastomosis after complete excision of mesenteric cysts. (N=55)

Table 1: Demographic and clinical characteristics of the study subjects. (N=55)

Characteristics	Mean ± SD	n	%
Age (Months)		36.5±13.5	



	Range	2 days-12 years	
Sex	Male	32	58.2
	Female	23	41.8
Symptoms	Pain in abdomen	29	52.7
	Lump abdomen	11	20.0
	Abdominal distension	10	18.2
	Intestinal obstruction	8	14.5
	Asymptomatic	8	14.5
Presentation	Acute	8	14.5
	Chronic	47	85.5

Table 2: Cyst characteristics of the study subjects. (N=55).

Cyst characteristics		n	%
Number of cysts	Single	13	23.6
	Multiple	42	76.4
Size of the cysts (cm)	<10	14	25.5
	10-20	25	45.5
	>20	16	29.1
Location of the cyst	Small bowel mesentery	23	41.8
	Base of the mesentery	18	32.7
	Transverse mesocolon	14	25.5
Fluid content	Serous	28	50.9
	Chylous	19	34.6
	Serosanguinous	6	10.9
	Chylo-Serous	2	3.6

Table 3: Operative procedures of the study subjects. (N=55)

Operative procedures		n	%
Surgical intervention	Emergency	18	32.7
	Elective	37	67.3
Cyst excision	Complete excision	36	65.5
	Complete excision with intestinal resection	19	34.5
Follow up (months)	Mean ± SD	9±1.5	

DISCUSSION

Mesenteric cyst is defined as any cyst located in the mesentery with a recognizable lining of endothelium or mesothelial cell,^[15] it is seen in children particularly. The current study was conducted to assess the management of

mesenteric cysts in children. The incidence of mesenteric cyst ranges from 1 per 100,000 to 1 per 250,000 admissions in most published data.^[2,16,17,18,19] In our study, the prevalence of mesenteric cyst was almost 1 per 333 pediatric surgical admissions which is much higher

compared to other studies. It may be so as, our center is the largest pediatric surgical center in the country and the patients even referred from other tertiary center also. So many patients directly come from grassroots levels also. In our study, the mean (\pm SD) age of the patients was 36.5 ± 13.5 months ranging between 2 days to 12 years. Numerous studies found that one third of mesenteric cysts occur in children less than 10 years of age which is consistent with our study.^[20,21,22,23] Majority of the patients were male (58.2%) in the current study. Male sex predominance is also found in other studies.^[24,25] Abdominal pain was the main presenting symptom with 52.7% patients in our study, similar to the studies of Walker and Putnam,^[26] Chung et al,^[6] and Prakash A et al,^[27]. In our study, chronic presentation was seen in majority of the patients (85.5%) and acute presentation was seen in 14.5% patients. In the study of Gafar AM et al,^[24] chronic presentation was seen in majority of the patients (84.6%) and acute presentation was seen in 15.4% patients which is similar to our study. In this study, most of cases (76.4%) had multiple numbers of cysts. Size of the cyst varied from 10-20 cm in majority of the patients (45.5%). The cysts were located in the small bowel mesentery in 23 cases, the base of the mesentery with retroperitoneal extension in 18 cases, the transverse mesocolon in 14 cases. Most cysts were serous in nature (50.9%). Published literatures described the most common location of mesenteric cyst to be small bowel mesentery.^[6] Study by Caropreso PR28, Ileal (60%) showed the most common type, followed by mesocolon (24%—most common sigmoid mesocolon), retroperitoneum (15%), and isolated omental cysts (< 1%). Mesenteric cysts can be single or multiple,

unilocular or multilocular, and content differing from serous (distal small bowel/colonic mesentery), chylous (proximal small bowel), hemorrhagic, or mixed material.^[29,30] Total 18 patients required emergency surgery and 37 underwent elective surgery. Fifteen of emergency surgery were done for preoperative diagnosis of appendicitis or perforated appendicitis with peritonitis. In the study of Gafar AM et al,^[24] surgical intervention was elective in 11 (84.6%) patients; while urgent surgical intervention required in 2 (15.4%) cases. In our study, complete cyst excision was performed in majority of the cases (65.5%) and complete excision with intestinal resection was done in 19 (34.5%) patients. Complete excision is the treatment of choice to avoid the risk of recurrence.^[12,31,32] In the study of Chung MA6, among 15 patients, complete cyst excision was done in 9 patients, complete excision with intestinal resection in 5 patients, and drainage of the cyst in 1 patient. With a mean follow-up of 9 months, we have had no recurrences. Some patients are still in follow-up.

Limitations of The Study

In this study, study population was selected from a single center in Dhaka city, hence the study may not represent a wider range of population. As this was a retrospective study, many information was not recorded.

CONCLUSIONS

Mesenteric cysts are usually symptomatic and CT scan is the investigation of choice. Complete surgical excision is the optimal treatment. Prognosis is excellent after complete surgical excision; long-term follow-up is



required due to the possibility of recurrence, even in adulthood. Though mesenteric cysts are a rarity in children in most literatures, but it is not so uncommon in our experience. Further multicenter studies with larger sample size are required to obtain association with other relevant factors and also the geographical

variations. Prospective research can be conducted to gain a better understanding of the increased prevalence of mesenteric cysts that was discovered in our study, as well as the factors that contributed to this higher prevalence.

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