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CLINICAL PRESENTATION, DIAGNOSTIC VARIABILITY AND MANAGEMENT OF INTRA-ABDOMINAL CYSTIC MASSES IN PAEDIATRIC AGE GROUP – SINGLE INSTITUTION OBSERVATIONAL STUDY

Paediatrics

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ABSTRACT

BACKGROUND: Benign intra-abdominal cystic masses originates from different organs. Mesenteric cyst, retroperitoneal cyst, omental cyst and duplication cyst are very rare intra-abdominal benign cystic lesion with variable clinical presentation, radiological findings and surgical intervention and outcome in paediatric age group.

METHODS: This observational study is carried out in department of paediatric surgery, SMS Medical college, Jaipur, India. This study includes 15 children, of which 11 were diagnosed and treated for mesenteric cyst, 3 for omental cyst and 1 for retroperitoneal lymphangioma. All cases subjected to clinical evaluation & radiological studies. Diagnosis was confirmed by laparotomy and histopathology.

RESULTS: Mesenteric cyst were present in nearly three-fourth of cases followed by omental cyst in one-fifth cases. Single case of retroperitoneal cyst was also observed. There is male preponderance with occurrence rate of 80%. Majority of cases presented after infancy (66.7%) with acute symptoms (73.3%) almost all with abdominal symptoms (93.3%). Most of the time cyst was single (93.3%), more than 5 cm in size (73.3%), unilocular (73.3%) & serous containing (80%). Histopathologically all cysts were suggestive of lymphangiomatous.

CONCLUSION: These cysts are difficult to diagnose clinically. Diagnosis is confirmed by exploratory laparotomy and histopathology.

KEYWORDS

Mesenteric cyst, Omental cyst, Retroperitoneal lymphangioma.

INTRODUCTION

Benign intra-abdominal masses have a wide spectrum of differential diagnosis based on organ of origin, clinical presentation, radiological investigations and surgical findings. These lumps includes hepatic cyst, pancreatic pseudocyst, splenic cyst, renal cyst, choledochal cyst, mesenteric cyst, omental cyst & duplication cyst.

Mesenteric, omental, retroperitoneal and duplication cyst are rare intra-abdominal benign tumors occurring one in 1 lakh to 2.5 lakh hospitalized patients[1]. Only 25% of cases diagnosed before age of 10 years[1-3].

Incidence of mesenteric cyst has been reported to be 1 in 20000 paediatric population, of which 30% of cases identified in children less than 15 years[4]. It was demonstrated that their proliferation is caused by lymphatic channels obstruction in the mesentery leading to non-communication with the rest of the lymphatic system[1-3]. Many authors consider these cysts are derived from the same embryological structures, and with similar pathogenesis, as ectopic lymphatic tissue[3,4].

Mesenteric cyst occurs anywhere in the mesentery from duodenum to rectum but majority in small bowel mesentery[1-4] and may extend from the base of the mesentery into the retroperitoneum.

The clinical presentation of these cysts in paediatric age group presents with wide spectrum of symptoms, from asymptomatic mass, found incidentally to non-specific complaints to an acute abdomen[5].

The objective of this study is to analyse various intra-abdominal cysts with different clinical presentation, radiological findings, age of diagnosis, male to female ratio, histopathology and surgical management.

MATERIAL METHOD

This prospective observational study is carried out in department of paediatric surgery, SMS Medical college, Jaipur, Rajasthan during September 2018 to August 2020. A total of 15 cases (12 male & 3 female) are included in this study. Their age ranges from 2 days to 12 years. All cases are clinically and radiologically evaluated. Diagnosis is confirmed by operative finding (location, size and content) & histopathology report.

INCLUSION CRITERIA

Intra-abdominal cystic lump arising from mesentery, omentum and retroperitoneum.

EXCLUSION CRITERIA

Intra-abdominal cystic mass arising from pancreas, liver, spleen, gallbladder, kidney and enteric duplication cyst.

Table (I)

Variable	Mesenteric cyst n=11 (%)	Omental cyst n=3 (%)	Retroperitonial cyst n=1 (%)
Gender			
Male	9 (81.8)	2 (66.7)	1 (100)
Female	2 (18.2)	1 (33.3)	0
Site			
Jejunal	6 (54.5)	0	0
Ileal	5 (45.5)	0	0
Omental	0	3 (100)	0
Retroperitoneal	0	0	1 (100)
Presentation			
Acute	10 (90.9)	0	1 (100)
Chronic	1 (9.1)	3 (100)	0
Symptom and sign			
Abdominal mass	4	1	1
Abdominal pain	2	1	1
Abdominal distension	3	0	0

Peritonitis	2	0	0
Urinary symptoms	0	1	0
Cyst size			
< 5 cm	4 (36.3)	0	0
5-10 cm	2 (18.2)	0	0
>10 cm	5 (45.5)	3 (100)	1 (100)
Number			
Single	10 (90.9)	3 (100)	1 (100)
Multiple	1 (9.1)	0	0
Loculation			
Unilocular	9 (81.8)	2 (66.7)	0
Multilocular	2 (18.2)	1 (33.3)	1 (100)
Pathology			
Lymphangioma	11 (100)	3 (100)	1 (100)
Contents			
Serous	10 (90.9)	1 (33.3)	1 (100)
Blood	1 (9.1)	0	0
Necrotic	0	2 (66.7)	0
Radiology			
USG	6 (54.5)	3 (100)	1 (100)
CECT	5 (45.5)	3 (100)	1 (100)
Age at surgery			
Neonate	2 (18.2)	0	0
Infant	3 (27.3)	0	0
Preschool	2 (18.2)	3	0
School-going	4 (36.3)	0	1
Plan of Surgery			
Emergency	9 (81.8)	0	0
Elective	2 (18.2)	3 (100)	1 (100)
Treatment			
Complete excision	2 (18.2)	3 (100)	0
Partial excision	0	0	1 (100)
Bowel resection	9 (81.8)	0	0
Outcome			
Live	9 (81.8)	3 (100)	1 (100)
Expired	2 (18.2)	0	0

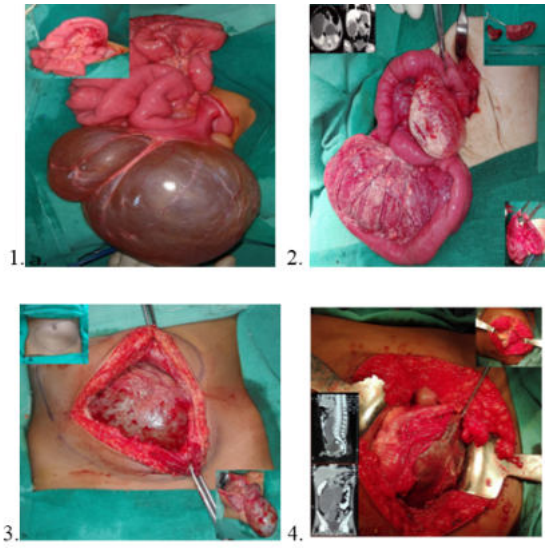

Fig.1)a-b Jejunal mesenteric cyst with complete excision.
Fig.2)a-e Two jejunal mesenteric cysts near DJ junction. Proximal small cyst excised and distal large mesenteric cyst require resection of the jejunal segment.
Fig.3)a-c Omental cyst
Fig.4)a-d Retroperitoneal lymphangioma

RESULTS

During the 2 years of prospective observational study a total of 15 patients were included, out of this 11 cases (9 male & 2 female) are of mesenteric cyst (73.3%) of which 2 presented in neonatal period, 3 in infancy, 2 at pre-school stage and 4 in school going age group. 10 cases presented in emergency. 4 patients presented with lump abdomen, 2 with abdominal pain and abdominal distension with feature of acute intestinal obstruction or peritonitis in 5 patients. Out of 11 mesenteric cysts 6 were located in jejunal mesentry and 5 in ileal mesentry. In 4 cases the cysts are less than 5 cm, 2 cases with cyst size between 5-10 cm and in 5 cases cysts are more than 10 cm. Only 1 case was having multiple cyst while others had single cyst. In 9 cases cysts are unilocular whereas in 2 it is multilocular. All cases are lymphatic cyst on the basis of histopathology. In 10 cases the content was serous while in one case it was haemorrhagic. 9 patients were operated in emergency whereas elective surgery was planned for 2. Cyst was complete excisied in 2 cases while in 9 cases resection of adjacent small bowel with anastomosis was done. Outcome was successful in 9 cases whereas 2 neonate expired post-operatively due to sepsis.

Omental cyst (20%) seen in preschool age group of which 2 were male and 1 was female. Different patients presented with different clinical symptoms like lump or pain abdomen & urinary complaints in OPD. All three omental cysts were single, lymphangioma & more than 10 cm. In 2 cases cyst was filled with necrotic material whereas in 1 case with serous. Unilocular cyst were found in 2 patients while multilocular in 1 cases. All cases operated electively with complete excision of cyst along with part of greater omentum

Single case of retroperitoneal cyst (6.7%) was observed in school going boy, presented in emergency with pain and lump abdomen. Cyst was single, multilocular, more than 10 cm, lymphatic & serous containing. Patient was operated electively & cyst was excised partially with cauterization of inner surface and margins along with 10% povidon-iodine solution wash.

DISCUSSION

Our study observed that mesenteric cyst are more common (73.3%) followed by omental (20%) & retroperitoneal cysts (6.7%). Al-Saied G et. al. observed almost equal prevalence of mesenteric (72.7%) & omental cysts (27.3%) at Cairo in 2017. In present study we observed that cysts are more common in male child (80%) that is slightly higher than observed by Al Saied G et.al. (63.6%).

In our study nearly equal percentage of mesenteric cysts presented in jejunum (54.5%) & ileum (45.5%) whereas Al Saied G et.al. observed 100% cases in ileum. We observed acute presentation in 73.3% cases which is in contrast with study of Al Saied G et.al. (18.2%). Varied clinical symptoms observed but mostly patients presented with abdominal mass, distension & pain in different permutations & combinations. Study findings of Belhassen S et.al., So Hyun Nam et. al., Makhija D et.al., Chung MA et.al. & Gafar AM et. al. also supports our study. We also observed urinary symptoms apart from abdominal symptoms in one case of omental cyst.

Majority of cases (66.7%) presented after infancy but before 10 years of age. This observation is in contrast with available literature which says only 25% cases diagnoses before 10 years of age[11]. In present study cyst were solitary in almost all cases (93.3%) whereas Al Saied G et.al. reported in two-third cases (62.5%). We also observed unilocular cyst (73.3%) & more than 5 cm size cyst (63.7%) similar to Al Saied G et.al. (72.7% & 72.7% respectively). We found 80% cyst filled with serous fluid followed by 13.3% necrotic & 6.7% blood filled. Similar findings were reported by Al Saied G et.al. viz. 81.8% serous cyst & 18.2% blood filled.

During this study we performed bowel resection in 60% cases, complete excision in 33.3% cases & partial excision in 6.7% whereas Al Saied G et.al. performed resection in 31.8% cases & complete excision in 68.2%. Mortality is observed in 2 cases (13.3%) due to postoperative sepsis.

Mesenteric cysts are more common out of rare benign intra-abdominal tumors. In present study also three-fourth of cases are of mesenteric one. On larger review of literature also, mesenteric cysts is commonly described by various authors. Prakash A et. al. & Gafar AM et.al. reported nearly same gender-wise incidence (64.7% & 61.5% males) of mesenteric cysts at Mumbai in 2010 & Sohag (Eygpt) in 2018 respectively whereas 81.8% males were affected in our study.

Our findings (jejunal 54.5%, ileal 45.5%) for site of mesenteric cyst occurrence are in concurrence with Gafar AM et. al. (jejunal 53.8%, ileal 30.8%, mesocolon 15.4%) & Prakash A et. al. (jejunal 47.1%, ileal 35.3%, sigmoid colon 17.6%). We found 91% of mesenteric cyst presents acutely similar to Prakash A et. al. (64.7%) but reverse incidence (chronic 84.6%) was observed by Gafar AM et. al.

Nearly equal incidence of the mesenteric cyst is seen before infancy (45.5%) & after infancy (54.5%) similar to Gafar AM et. al. (before 53.9% & after 46.1%) & Prakash A et. al. (before 35.3% & after 64.7%). We observed solitary mesenteric cyst in almost all cases (90.9%) just like Gafar AM et. al. (100%) whereas Prakash A et. al. reported solitary mesenteric cyst only in 58.8%. Unilocular mesenteric cysts were observed in 81.8% cases whereas Gafar AM et. al. reported only in 53.8%.

Contrast incidences were reported by different researchers regarding content of mesenteric cysts. We observed content was serous in 90.9% & hemorrhagic in 9.1%. Gafar AM et. al. reported 53.8% serous, 30.8% chylous & 15.4% serosanguinous content. Prakash A et. al. described content 41.2% chylous, 23.5% serous, 23.5% hemorrhagic & 11.8% infected.

We performed bowel resection in 81.8% & complete excision in 18.2% similar to Gafar AM et. al. (84.6% & 15.4% respectively) whereas Prakash A et. al. performed complete excision in 41.2%, marsupialisation in 35.3% & bowel resection in 23.5%.

CONCLUSION

These cyst are difficult to diagnose clinically due to non-specific symptoms and vague presentation, radiologically also it is difficult to label these different cysts. They can be diagnosed per operatively and confirmed by histopathology.

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