

Case Series

Experience of management of abdominal cysts

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ABSTRACT

Benign intra-abdominal cystic masses in children are rare and they have diverse etiopathogenesis, clinical presentation. The present study highlights the experience in the management of benign intra-abdominal cysts pertaining to the diverse etiologies associated with these lesions. The medical records of our hospital between November 2016 to November 2019 were retrospectively reviewed. Patients with cystic abdominal masses were studied with respect to less different clinical presentations, localization of masses, diagnostic tests, surgical approaches, histopathological examinations and outcome. Out of the 55 cases, most common lesion was a choledochal cyst. Miscellaneous diagnosis includes an omental cyst, urachal cyst and a pedunculated bile duct cyst. All the cystic lesions of the abdomen need to be considered as close differentials in clinical practice due to the common presentations and similar symptoms produced by these lesions. All the lesions were managed by exploratory laparotomy except two ovarian cysts which were managed with laparoscopic approach.

Keywords: Benign intra-abdominal cystic masses, Choledochal cyst, Omental cyst, Ovarian cyst, Pedunculated bile duct cyst, Urachal cyst

INTRODUCTION

Cystic masses in the abdomen of a child have diverse etiology but excision with concomitant restoration of functional anatomy remains the mainstay of management.¹ Though these lesions have a varied etiopathogenesis they need to be considered as close differentials due to common presentations and similar symptoms produced by these lesions. The present study highlights the experience in the management of benign intra-abdominal cysts either by exploratory laparotomy or by laparoscopic approach pertaining to the diverse etiologies associated with these lesions. Cystic masses in the abdomen of a child in spite of investigation have diagnostic dilemma, poses intra-operative surprises. This study is based on the diagnostic challenges and

management of various cystic masses in children under a common cohort.

CASE SERIES

This retrospective observational descriptive study was conducted at department of Paediatric surgery, DY Patil Medical College, Pimpri. The medical records of between November 2016 to November 2019 were reviewed as per predetermined inclusion and exclusion criteria.

Inclusion criteria included medical case sheets of all children with intra-abdominal cyst detected on radiology and/or during surgery were included in the study. Exclusion criteria excluded patients who did not complete the treatment. Patients already operated in some

other facility for an intra-abdominal cyst and referred for surgical complications. 71 number of case sheets of patients with intra-abdominal cystic lesions were retrieved from the medical record section of the hospital. All the case sheets were thoroughly scrutinized as per the pre-determined inclusion and exclusion criteria. 55 number of cases were deemed fit for further evaluation and 16 cases were excluded.

Table 1: Types of intra-abdominal cystic lesion in patient study cohort.

Diagnosis	No. of cases (%)
Gastric duplication cyst	3 (5.5)
Intestinal duplication cyst	10 (18)
Ovarian cyst	6 (11)
Choledochal cyst	22 (40)
Mesenteric cyst	11 (20)
Miscellaneous	3 (5.5)
Total	55

Table 2: Clinical characteristics of patient study cohort.

Diagnosis	Mean age of presentation (years)	Sex (%)	
		Male	Female
Gastric duplication cyst	10±2	67	33
Intestinal duplication cyst	10±2	50	50
Ovarian cyst	6±3 (Months)	50	50
Choledochal cyst	8±4	54	46
Mesenteric cyst	10±3	55	45
Miscellaneous	10±3	67	33

Table 3: Clinical fetures of patient study cohort.

Diagnosis	Clinical features (%)
Gastric duplication cysts	Abdominal pain-100 Nausea, Vomiting-67
Intestinal duplication cyst	Abdominal Pain-80 Vomiting-90
Ovarian cyst	Abdominal pain-83 Abdominal distension-67 Abdominal pain and Abdominal distension-67 Nausea, Vomiting-83
Choledochal cyst	Abdominal pain-91 Vomiting-82 Weight loss-23
Mesenteric cyst	Abdominal pain-100 Abdominal distension-73 Persistent Vomiting-82
Miscellaneous	Abdominal Pain-100 Vomiting-67

The patients which satisfied the inclusion criteria were further studied on the basis of demographic characteristics, symptomatology, clinical features, radiological features and management modalities (Table 2, Table 3).

Corroboration between Ultrasonography, CT scan, MRI and findings on exploratory laparotomy.

Out of the 55 cases, most common lesion was a choledochal cyst (40%). Miscellaneous diagnosis (5.5%) include an omental cyst, urachal cyst and a pedunculated bile duct cyst. All the lesions were managed by exploratory laparotomy except two ovarian cysts which were managed with laparoscopic approach. Table 1 represents the nature of cystic lesions observed in this retrospective study.

DISCUSSION

All the cystic lesions of the abdomen need to be considered as close differentials in clinical practice due to the common presentations and similar symptoms produced by these lesions.

Diagnostic challenges

Ovarian cysts are the most common type of abdominal cysts diagnosed in fetuses.^{2,3} To accurately identify the type of fetal abdominal cyst, the aspects should be considered are: Cyst location and adjacent structures, Cyst morphology and tension, Cyst wall thickness, Cyst motility.^{4,5}

Larger alterations in size are observed in ovarian cysts and the majority reduce in size or disappear. However, choledochal cysts become larger in size on follow-up observation, and intestinal duplication and mesenteric cysts typically do not change in size at all during follow-up.

Varied symptomatology

These cystic lesions can remain asymptomatic for variable period of time before they are either diagnosed or produce symptoms. Some lesions are picked up during ultrasonographic evaluation done for some other cause.

Symptoms produced by these lesions are varied and overlap. Symptoms may be an abdominal pain, abdominal mass, vomiting due to intestinal obstruction, fever due to infection of the cyst contents etc. Choledochal cysts can present with obstructive jaundice. Cysts near the pancreas can sometimes present with symptoms suggestive of acute pancreatitis.

An asymptomatic abdominal mass is generally perceived by mother's or caregiver's during bathing the child.

As the symptoms overlap, it is very difficult to clinically diagnose these masses. Ultrasonography comes in handy in such scenarios. It can easily detect these cysts and can provide valuable information on its contents and the probable site of its origin. But in huge cysts which occupy the whole of the abdomen it becomes difficult to exactly delineate the site of origin. A moderate sized cyst in a small child poses a similar problem. Thus, it's not the size of the cyst but its ratio with the size of abdominal cavity that causes problems in delineating the exact site of origin.

These short comings of ultrasonography can be overcome by the judicious use of computed tomography scans and/or magnetic resonance imaging. CT scans of the abdomen provide for better anatomical orientation, and identification of its relation to the adjacent organs.^{6,7}

CT scans especially help the operating surgeon to plan the surgery when laparoscopic approach is contemplated. Magnetic resonance (MR) imagining can provide similar information as CT but with better image quality in certain anatomical locations. MR demonstrates features common to cysts with typical signal characteristics being: T1: low signal, T2: high signal. T1 C and (Gd): the cyst wall can show slight enhancement.⁸

MRI and CT Scans are very useful for planning of surgery but they are difficult to perform in a small child. Also, their availability poses a specific challenge in resource limited settings.

It is essential to quantify the blood levels of Lactate dehydrogenase, beta- human chorionic gonadotropin and alpha- feto protein in all suspected cases of ovarian cysts.

In spite of a thorough diagnostic work-up; these lesions, especially the larger ones throw up a surprise at exploratory laparotomy or laparoscopy. Such lesions are- Cysts abutting liver, Cysts abutting diaphragm, Huge cysts occupying and whole of abdomen. Disappearing cysts, commonly the ovarian cysts.

It is imperative to perform a routine histopathological examination of all the excised cystic lesion. It not only helps in confirmation of diagnosis but also rules out presence of malignancy. Though no malignancy or malignant focus was detected in any of the cases, the literature is replete with such instances. Inability to diagnose such a focus can prove to be a major pitfall in the management of these lesions.

Exploration and laparoscopic approach

Laparoscopic surgery has increasingly been used in the diagnosis and management of intra-abdominal cysts in children. However, there are several challenges, with laparoscopic approach, especially in cases of large cyst in relation to the size of the patient. It is often difficult to gain access to the peritoneal cavity for port placement

and one encounters difficulty in intracorporeal dissection and manipulation of the cyst because of limited space in smaller children and the need for multiple incisions and instrumentations. Also, chemical peritonitis may result from leakage of benign cyst fluid into the peritoneal cavity.¹⁰ In order to address these issues, several laparoscopic approaches and modifications have been described. These include either drainage of the cyst by ultrasound guided paracentesis or drainage during laparoscopy followed by excision or manipulation of the cyst or extracorporeal cystectomy.⁹⁻¹⁴

CONCLUSION

All the cystic lesions of the abdomen need to be considered as close differentials in clinical practice due to the common presentations and similar symptoms produced by these lesions. All the lesions were managed by exploratory laparotomy except two ovarian cysts which were managed with laparoscopic approach. It is imperative to perform a routine histopathological examination of all the excised cystic lesion. It not only helps in confirmation of diagnosis but also rules out presence of malignancy.

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