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Study of Clinical Features and Surgical Management of Choledochal Cyst

KEYWORDS

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INTRODUCTION

Choledochal cyst is defined as an isolated or combined congenital dilation of the extra hepatic or intra hepatic biliary tree. The word "Choledochal cyst" has a Greek origin Chole + dechomai + Kystis which mean Bile, to receive & sac respectively..

Bile duct cysts are typically a surgical problem of infancy and childhood. However in nearly 20% of patients with bile duct cysts, the diagnosis is delayed until adulthood. In contrast of the pediatric patient, adults have an increased rate of associated biliary pathology and they often present with complications of previous cyst related procedures. In children the classical findings include a right upper quadrant abdominal mass, jaundice and abdominal paint.

In the setting of a suspicion for Choledochal cyst, the diagnosis should always be established preoperatively through investigation modalities. The most reliable and primary mode of investigation is the ultrasonography. This is followed by cholangiography and other investigation modalities are the CT scanning, TC 99m scanning HIDA scanning, MRCP, and ERCP & PTC.

The most common complications are recurrent cholangitis, pancreatitis, gall bladder diseases & carcinoma of biliary tract. It is important that these complications need to be recognized and diagnosed before planning treatment, as they guide the course of the treatment.

The Management depends on the type of cyst and its associated complications. Choledochal cyst excision with reconstruction via biliary enteric Roux-en-y anastomosis has become the treatment of choice for most types of choledochal cyst

Complications of surgery although very rare, include intraoperative bleeding, injury to major vascular structures and post-operative biliary leak & pancreatic complications. The late complications are anastomotic strictures and malignancies in biliary tract are present.

AIM OF STUDY

Study of the clinical presentations, diagnostic modalities, associated complications and methods of surgical management practiced for cases of choledochal cyst in Osmania General Hospital over a period of three years (2004 – 2007).

MATERIALS AND METHODS

Materials:

The present study included 18 patients of all ages having choledochal cyst presented to Department of Surgery and Gastroenterology Department in Osmania General Hospital. The present study period is between 2012 to 2015.

Methods:

Clinical features:

The clinical features considered are: Pain abdomen, Jaundice, Fever, Mass abdomen, Nausea & vomiting, upper gastro intestinal bleeding.

Biochemical Tests:

Test that are done were Liver function tests, serum amylase, serum proteins, blood grouping typing, blood sugar and blood urea etc.

Imaging Studies:

Ultrasonography of abdomen done to all the patients. Some of these patients were subjected to ERC with side viewing duodenoscope. Some of these patients were subjected to computerized Tomographic scan and magnetic resonance cholangio pancreatography.

Management:

All the patients have undergone both medical and surgical management. The medical management includes pre-operative stenting with 8F/10F pig tail stent to reduce levels of jaundice and control of cholangitis before surgery.

Complete excision of cyst with Roux-en-Y hepatico jejunostomy, end to side anastomosis with 4-0 vicryl was done. The patients are observed postoperatively for complications like wound infections, bile leak, pancreatitis & cholangitis. The specimens of cysts in all patients are subjected for histopathological examination to diagnose cyst itself and particularly for evidence of malignancy. The complications of cyst are diagnosed by clinical features, biochemical studies, surgical exploration and histopathological examination of cyst.

RESULTS

Age incident:

In present series age group is extending from 7 years to 56 years. The youngest patient is 7 years old and oldest is 56 years old. The mean age in the present series is 17.24 years.

Sex incidence:

In this series 14 female patients and 4 male patients are present. Female to male ratio is 3.5 : 1

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Incidence of symptoms:

S.No.	Clinical Features	No. of cases	Percentage of cases
1.	Pain abdomen	18	100%
2.	Fever	11	61%
3.	Jaundice	14	77%
4.	Mass Abdomen	7	38%
5.	Nausea/Vomiting	4	22%
6.	Hepatomegaly	4	22%
7	Upper GI Bleeding	0%	0%

TABLE-1: Incidence of clinical features in present series of 15 cases.

All the patients in the present series had pain abdomen which is usually recurrent, episodic, dull ache type in right hypochondrium and epigastric region with or without radiation. Jaundice and fever were next common symptoms.

Four patients presented with choledocholithiasis and two presented with pancreatitis. The provisional diagnosis before investigations in most of the patients is either acute or chronic cholecystitis or obstructive jaundice due to CBD stones

Mode of imaging:

S.No.	Mode of Imaging	No. of cases
1.	USG abdomen	18
2.	USG alone only	5
3.	ERCP	8
4.	MRCP	4
5.	CT Scan abdomen	2

Table – 2: Modes of imaging studies used in this series

Ultrasonography of abdomen was done in all patients as a primary mode of imaging. Out of 18 cases, 16 cases were diagnosed as choledochal cyst. 5 cases were investigated only with USG abdomen and operated. In other cases further investigation with ERCP, MRCP or CT Scan abdomen were done to confirm choledochal cyst.

ERCP was done in the 8 patients after ultrasonography. In 2 patients CBD stricture was noted at the lower end. Stenting was done for 3 patients. All 8 patients were managed by I.V. antibiotics. Nil oral for two days. No complications were noted.

Lab Investigations:
11 patients showed raised serum alkaline phosphates levels, as high as 1843 Kau/dL.

6 patients showed Hyperbilirubinaemia

2 patients showed raised SGPT levels.

3 patients showed high values of serum amylase indicating possible presence of pancreatitis.

SURGICAL MANAGEMENT:
Preoperative management included usage of antibiotics, stenting, vitamin K injection, and bowel preparation. In all patients right sub costal incision was taken preoperative stenting was done in 3 patients. In all patients cholecystectomy was done.

In Type-I cases complete excision of choledochal cyst with Roux-en-Y end-to-side Hepatico-jejunostomy was done with 3-0 vicryl. In one Type-I case with dense adhesions to cyst wall, Lilly's modification was done.

In Type IV cases extra hepatic cysts were completely excised and hepatico-jejunostomy was done. 'T' tube was kept in five cases for whom 'T' tube cholangiogram was done on 10th post-operative day and was blocked and then 'T' tube was completely removed in 6 weeks. The post-operative stay of patients varies from 5 to 18 days with an average of 9 days.

COMPLICATIONS OF SURGERY

Complications	No. of cases	Percentage %
Anastomotic leak	4	22%
Wound infection	3	17%
Atelectasis	4	22%
Pancreatic leak	1	5%
DVT	1	5%
Death	1	5%
Significant Intra-operative bleeding	0%	0%

Table -4: Showing complications of surgery in number of cases.

Anastomotic leak was seen in 4 cases which were managed conservatively and which subsided spontaneously in 5-10 days. Wound infection was seen in 3 cases managed by daily dressing, drainage of abscess and secondary suturing.

1 case had pancreatic leak – which was managed by continued Ryle's tube aspiration and medical management.1 case developed DVT, a patient of 56 years for which low molecular weight heparin was given.

Type of cyst:
In this series, type of cyst is determined by imaging studies and surgical exploration.

1 patients had type I Cyst – specifically type Ic cyst.
2 patients had type IV Cyst – which was diagnosed preoperatively and confirmed during surgery.

Complication of cyst:

Complications	No. of cases	Percentage %
Cystolithiasis	3	16%
Choledocholithiasis	4	20%
Cholelithiasis	1	4%
Pancreatic leak	2	9%

Table 5: Showing complication of cyst in percentage of cases.

ANALYSIS & DISCUSSION
The present series of 18 cases from 2012-2015 are compared with different series as presented in different journals and Text books.

Sex variation:

Series	Female : Male Ratio
Present	78: 22
N.A.Wani et al	65:35
Khandelwal et al	56 : 44
Chijiiwa et al	89:11

Table 6: Showing sex variation in different series.
The incidence in present series is comparable to published data to be at 3-4:1. the present series has 3.5:1 or 78:22 for 100 cases, which is same as other series.

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AGE Presentation:

Series	Mean age
Present	17.24 yrs.
N.A.Wani et al	27 yrs.
Chijiiwa et al	24 yrs.
John Hopkins	23 yrs.

Table 7: Showing mean age in different series.

The mean age in the present series is 17.24 years, which is less compared to the published data. The present series has age group ranging between 7- 56 years.

Presenting symptoms

Symptoms	Present Series	N.A.Wani Et al	Chijiiwa et al
Pain abdomen	100%	85%	78%
Fever	61%	42.8%	28%
Jaundice	77%	35%	43%
Mass abdomen	38%	17.8%	13%
Classical Triad	33.3%	7%	15%

Table 8: Showing clinical features in percentage in different series.

In the present series, the classical triad presentation in this series is 33.3%, which is high when compared to other published data. The presentation of choledochal cyst as mass abdomen in the present series is 38%, is high when compared to other Indian series

Associated pathology of the cyst

Complication of Cyst	Present Series	NA wani et al series
Cystolithiasis	16%	20%
Choledocholithiasis	20%	30%
Cholelithiasis	4%	0%
Pancreatitis	9%	30%
Cholangiocarcinoma	0%	28%
Cirrhosis	0	0

Table 9 : shows the complications of cyst at presentation in percentages

The total percentage of complications associated with the cyst at presentation in this series is 55.5%, which is high when compared to the western series but is same when compared to Indian series. The high rate in the present series may be due to high rate of gall bladder disease & cholangitis associated with choledochal cyst.

Type of cyst

Type	Present Series	Todani et.al.	NA wani et al
I	88%	79%	71.4%
II	0	13%	17.8%
III	0	4%	0%
IV	12%	2.6%	7%
V	0	0.5%	3.5%

Table 10: shows incidence of type of cysts in different series

Type I cyst is the commonest type of cyst in this series, about 88%, which is comparable to other series. The incidence of type IV cyst in this series is 12%, which is comparable to other series

CONCLUSIONS

- The incidence among male: female is about 1:3.5
- Mean age of incidence of Choledochal cyst is 17.24 yrs.
- Recurrent cholangitis is the most common clinical presentation in this series.
- The incidence of classical triad of symptoms (pain abdomen, jaundice & mass) is 33.3%, which is high comparable to other series.
- Ultrasound abdomen is the primary mode of investigation with 96% sensitivity. ERCP has 100% sensitivity.
- Type I Choledochal cyst is the most common presentation. Type II, III & V are not encountered.
- Surgical excision of cyst is the main modality of treatment, more so in our population because of poor follow up.
- Complication date after surgery is 60% which is high..
- A larger series is needed to postulate definite recommendations of management of Choledochal cyst

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