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ANALYSIS OF SURGICAL MANAGEMENT OF OBSTRUCTIVE JAUNDICE DUE TO SPONTANEOUS INTRABILIARY RUPUTE HYDATID CYSTS OF LIVER

[1]Dr Zeeshan Rasul Awan, [2]Dr Hassan Mohsin, [3]Dr Muhammad Muddassar Shafiq

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Abstract:

Aims and objectives: *Hepatic hydatid disease usually runs asymptomatically, while clinical features, if present, are usually due to complications that supervene. The main objective of the study is to analyse the surgical management of obstructive jaundice due to spontaneous intrabiliary rupute hydatid cysts of liver.*

Material and methods: *This descriptive study was conducted in Health department Punjab during 2019. The data was collected from 100 patients. A cyst-biliary communication was detected in 24 (21%) patients. These patients were examined in 2 groups: 15 (13%) had an occult perforation and 9 (8%) had a frank intrabiliary rupture.*

Results: *The data was collected from 100 patients. The age range was from 8 to 75 years (mean, 40 years). The most common presenting symptom was right upper quadrant abdominal pain. A history of jaundice was found in 9 (8%) of the patients. Thirteen patients (11%) were asymptomatic. The duration of symptoms ranged from 1 month to 7 years (median, 3 months). The disease was primary in 22 (92%) patients, and recurrent in 2 (8%). Seventeen patients (71%) had a single cyst, and 7 (29%) had multiple cysts.*

Conclusion: *It is concluded that better results can be obtained by using the clinical predictors that are demonstrated in this study for the early diagnosis and proper management of an intrabiliary rupture of a hydatid cyst of the liver.*

Corresponding author:
Dr. Zeeshan Rasul Awan,

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INTRODUCTION:

Hepatic hydatid disease usually runs asymptomatically, while clinical features, if present, are usually due to complications that supervene. The most commonly encountered complication, occurring in almost 50% of cases on admission, is rupture into the biliary tree with secondary biliary obstruction by intracystic material or cholangitis. Intracystic or subphrenic abscess formation after intraperitoneal rupture, as well as rupture into the bronchial tree, is less frequent [1]. In the case of intrabiliary rupture, endoscopic retrograde cholangiography (ERC) in conjunction with endoscopic sphincterotomy (ES) achieves decompression of the biliary tree from intracystic debris and prevents recurrence of the obstructive jaundice by ES.

An elevated pressure inside hydatid cyst leads to rupture and most often communicating with biliary system. This can be small communication or frank rupture. However, frank rupture into the biliary tree occurs in only 5–15% of cases [2]. Biliary communication is due to incorporation of biliary radicles into the pericyst of hydatid liver. Small rupture remains occult or asymptomatic. Later in time rupture of the hydatid cyst into biliary tree produces symptoms and signs of obstructive jaundice, or sometimes an acute cholangitis occurs. Modalities of investigation for confirming diagnosis are ultrasound abdomen (USG), computed tomography scan (CT Scan) abdomen, magnetic resonance cholangiopancreatography (MRCP) and endoscopic retrograde cholangiopancreatography (ERCP) [3]. ERCP is both diagnostic as well as therapeutic and is considered the gold standard in management of intrabiliary rupture of hydatid cyst of liver.

Cystic hydatid disease usually affects the liver (50–70%) and less frequently the lung, the spleen, the kidney, the bones, and the brain [4]. Liver hydatidosis can cause dissemination or anaphylaxis after a cyst ruptures into the peritoneum or biliary tract. Infection of the cyst can facilitate the development of liver abscesses and mechanic local complications, such as mass effect on bile ducts and vessels that can induce cholestasis, portal hypertension, and Budd-Chiari syndrome [5].

Aims and objectives:

The main objective of the study is to analyse the surgical management of obstructive jaundice due to spontaneous intrabiliary rupute hydatid cysts of liver.

MATERIAL AND METHODS:

This descriptive study was conducted in Health department Punjab . The data was collected from 100 patients. A cyst-biliary communication was detected in 24 (21%) patients. These patients were examined in 2 groups: 15 (13%) had an occult perforation and 9 (8%) had a frank intrabiliary rupture. A *frank intrabiliary rupture* was defined as an overt passage of the hydatid material into the biliary system. An *occult perforation* was defined as the presence of bile in the cyst without an overt passage of intracystic content into the bile duct.

Data collection:

All patients underwent a complete blood cell count and liver function test determinations. A real-time abdominal ultrasonographic examination was performed in all patients. Computed tomography was not used routinely. An indirect hemagglutination test and a radioallergosorbent test were used for serologic confirmation of the diagnosis. Endoscopic retrograde cholangiography (ERC) could be performed only in a few patients because of unavailability, although it was indicated in more. Patients were operated on through either a right subcostal or a midline incision. All patients underwent chemotherapy for at least 3 months, beginning from 10 to 15 days before their operations or any other invasive procedures.

Statistical analysis:

The data was collected and analysed using SPSS version 20.0. All the values were expressed in mean and standard deviation.

RESULTS:

The data was collected from 100 patients. The age range was from 8 to 75 years (mean, 40 years). The most common presenting symptom was right upper quadrant abdominal pain. A history of jaundice was found in 9 (8%) of the patients. Thirteen patients (11%) were asymptomatic. The duration of symptoms ranged from 1 month to 7 years (median, 3 months). The disease was primary in 22 (92%) patients, and recurrent in 2 (8%). Seventeen patients (71%) had a single cyst, and 7 (29%) had multiple cysts. The cysts were localized in the right lobe of the liver in 14 (58%) patients and in the left lobe in 8 (33%). Partial cystectomy, evacuation of the cyst content, and drainage of the cyst cavity were performed in all patients with occult biliary communications. Cholecystectomy was performed in 2 patients for the presence of cholelithiasis.

Table 1. Comparison of Patients With and Without an Intrabiliary Rupture

Clinical Variable*	Patients With a Rupture (n = 24)	Patients Without a Rupture (n = 92)	*P* Value
Categorical†			
Male-female	10:14 (42:58)	27:65 (29:71)	.25
Symptoms			
History of jaundice	6 (25)	3 (3)	<.001
Nausea and vomiting	17 (71)	37 (40)	.007
Abdominal pain	22 (92)	71 (77)	.11
Flatulence	11 (46)	15 (16)	.007
Signs			
Tenderness	5 (21)	16 (17)	.70
Jaundice	5 (21)	3 (3)	.002
Cyst features			
Type			
I	4 (17)	34 (37)	.07
II	4 (17)	15 (16)	.97
III	4 (17)	26 (28)	.25
IV	12 (50)	17 (19)	.001
Single	17 (71)	71 (77)	.52
Multiple	7 (29)	21 (23)	
Primary	22 (92)	84 (91)	.96
Recurrent	2 (8)	8 (9)	
Leukocytosis	2 (8)	4 (4)	.43
Suggestive ultrasonographic findings	8 (33)	0	<.001
Elevated direct bilirubin level	9 (38)	8 (9)	<.001
IHA titer >1/1600	11 (46)	29 (32)	.19
Morbidity			
Total	13 (54)	13 (14)	<.001
Wound infection	5 (21)	5 (5)	.02
External biliary fistula	6 (25)	0	<.001
Pulmonary	2 (8)	8 (9)	1.00
Mortality	1 (4)	1 (1)	.30
Quantitative‡			
Age, y	42.2 ± 18.0	40.0 ± 16.7	.57
Duration of symptoms, mo	8.3 ± 10.1	7.8 ± 14.7	.92
Cyst diameter, cm	13.9 ± 5.9	9.9 ± 3.9	<.001
ALT level, U/L	66.8 ± 89.3	28.4 ± 32.9	.001
AST level, U/L	45.0 ± 52.4	24.6 ± 19.6	.003
GGT level, U/L	117.1 ± 137.7	46.7 ± 66.4	.005
ALP level, U/L	328.3 ± 271.1	130.1 ± 120.5	<.001
Total bilirubin level, mg/dL§	2.6 ± 5.0	0.8 ± 0.6	.001
Postoperative hospital stay, d	13.7 ± 9.2	9.4 ± 8.4	.03

*IHA indicates indirect hemagglutination; ALT, alanine aminotransferase; AST, aspartate aminotransferase; GGT, γ-glutamyl transpeptidase; and ALP, alkaline phosphatase.
†Data are given as number (percentage) of patients.
‡Data are given as mean ± SD.
§To convert total bilirubin from milligrams per deciliter to Système International units of micromoles per liter, multiply milligrams per deciliter by 17.1.

DISCUSSION:

Spontaneous rupture into the biliary tract is the commonest complication of the liver hydatid. The causative factors for the rupture are trauma, infection or pressure from the progressively increasing size of cyst [6]. Rupture may occur in biliary tree, thorax, peritoneum or subcutaneously. About 90% of liver hydatid cysts which rupture are communicating with biliary channels. Hydatid cysts of the liver exert pressure on the surrounding parenchyma. Due to higher pressure in the cyst, the cysts eventually leak into small bile ducts or perforate into large ones. Rupture is most likely to occur in centrally located cyst with a high intracystic pressure up to 80 cm H_2O [7]. According to Lewall and McCorkell, the cyst rupture can occur in three clinical forms: contained,

communicating and direct. Contained rupture occurs when the cyst contents are confined within the pericyst. Communicating rupture defines tearing of the pericyst and evacuation of cyst contents into the biliary tract or bronchioles. Direct rupture describes complete tear of the cyst wall and spillage of the cyst contents into the peritoneal or pleural cavity [8].

Rupture occurs in the right duct in 55-60% of cases, in the left duct in 25-30%, and rarely in the confluence or gallbladder. Fistula formation with the gallbladder is a very rare entity. Typically, the fistulous communication is not discovered until surgery, although in some patients it is found at radiology [9].

Biliary obstruction is reported to occur in 5-17% of cases after rupture of hepatic hydatid. It has been reported that if the cystobiliary opening is larger than 5 mm, cystic content migration into the biliary tract would occur in 65% of the cases. Obstructive jaundice occurs in 57% to 100% of cases following intrabiliary rupture, especially when the rupture occurs into the large bile ducts thus emptying the contents into the biliary tract. When rupture into the biliary tract occurs, the cystic fluid escapes into the biliary tract with daughter cysts; or ruptured membranes discharged into the common bile duct, causing biliary colic, obstructive jaundice, and possibly liver abscess [10].

CONCLUSION:

It is concluded that better results can be obtained by using the clinical predictors that are demonstrated in this study for the early diagnosis and proper management of an intrabiliary rupture of a hydatid cyst of the liver.

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