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General Surgery

INCIDENCE OF HYPERBILIRUBINEMIA IN PATIENTS WITH AMOEBIC HEPATIC ABSCESS

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ABSTRACT Raised bilirubin has been seen in patients with amoebic hepatic abscess. Cause of jaundice is still unknown. It is either due to parenchymal injury or due to bile statis due to compression on the intrahepatic bile ducts by abscess cavity or combination of both. Aim of this study is to know the incidence and cause of jaundice in the amoebic hepatic abscess. This study is conducted in teerthanker Mahaveer hospital, Moradabad on the patients with amoebic hepatic abscess. We have evaluated 80 patients of hepatic abscess from June 2021-May 2022. We have divided the patients into two groups. Group A serum bilirubin less than 1 mg/dl and Group B serum bilirubin more than 1 mg/dl. After detailed evaluation, both the Groups were compared on basis of parameters like clinical symptoms (e.g. fever, pain), alcohol intake, leucocytosis, bilirubin levels, liver enzymes, size of cavity, and response to treatment. Statistical analysis used: Chi square test/ Fischer's exact test was used for qualitative data, and for quantitative data, t-test/Mann Whitney test was used. In this study, 25 out of 80 patients of hepatic abscess is present with hyperbilirubinemia (incidence= 31.2%). Overall the serum bilirubin values ranged from 0.4 to 11.9 mg/dl (mean=1.551) whereas in group 1 it ranged from 1.3 to 11.9 mg/dl (mean=3.71). Higher serum bilirubin level mostly associated with raised ALP in 20 out of 25 cases (80%). Hyperbilirubemia mostly relieved by percutaneous drainage of the abscess. Conclusion- Hyperbilirubinemia occurs frequently in cases of amoebic liver abscess which seems to obstructive in nature and it can be treated by surgical drainage of the abscess cavity.

KEYWORDS : Hyperbilirubinemia; Jaundice; Obstructive, Alkaline phosphatase enzyme (ALP), MRCP

INTRODUCTION

Liver abscess is a common problem in India and is associated with high morbidity. Incidence of amoebic liver abscess ranges from 3%-5% of all cases of amoebiasis, which is found in up to 20% of Indian population. Amoebic liver abscess is mostly coexist with amoebiasis. Incidence ranges between 6-28%(1,2,3). Out of all the symptomatic patient only one third patients develop clinical jaundice. Cause of this is still unknown. It is either due to parenchymal injury or due to bile statis due to compression on the intrahepatic bile ducts by abscess cavity or combination of both.(4,5)

MATERIAL AND METHODS

Study Design- Randomized prospective study
Total Number Of Patient- 80
Duration – June 2021- May 2022

Patients was diagnosed on clinical examination and ultrasonography, were assessed and their clinical history, examination findings, biochemical investigations including amoebic serology and sonographic evidence were recorded on a predetermined Performa. Amoebic liver abscess was differentiated from pyogenic abscess on basis of clinical history of no high grade fever, amoebic serology and ultrasound appearances. Patients were thoroughly explained about the study and an informed consent was taken.

Exclusion Criteria-

Jaundice Patients due to choledocholithiasis, drug induced or viral hepatitis, stricture and other causes of extra hepatic biliary pathology.

METHODOLOGY

Selected patients were divided into two groups, Group A (sr. bilirubin more than 1 mg/dl) and Group B (sr. bilirubin less than 1 mg/dl). In addition, cases of Group A also underwent magnetic resonance cholangiopancreatography (MRCP). All cases were admitted and started on Metronidazole along with broad spectrum antibiotics and the response was recorded based on improvement in clinical findings, WBC count, liver function tests and ultrasonography.

Group A cases, percutaneous therapeutic drainage of abscess cavity was performed using pigtail catheter while in Group B, cases were kept on medical treatment and with failure of conservative treatment or high risk abscesses (cavity diameter more than 5 cm, lesion near porta hepatis) were managed with percutaneous drainage. In such cases the aspirated pus was examined and cultured. The outcomes in terms of resolution of abscess on the basis of ultrasonography.

Statistical analysis

Data was evaluated using Chi square test/ Fischer's exact test for qualitative data and, t-test/Mann Whitney test for quantitative data.

RESULTS

In the 80 patients under study (72 males, 8 females) the mean age was 41.84 years (range 20-65 years). Of these 25 patients (31.2%) had hyperbilirubinemia (total bilirubin ≥ 1 mg/ dl).

Presence of symptoms like fever and abdominal pain was not found to be statistically different in two.

Out of 80 patients, 50 patients (62.5%) had history of alcohol intake; all of these patients were males. The ratio was 80% in Group I with 20 of 25 cases were found to have history of alcohol intake which was significantly more than Group B.

Out of 80 patients, 38 patients showed leucocytosis, but the ratio was 47.5% in Group A which was significantly higher than Group B .Serum bilirubin level ranged from 0.4 to 11.8 mg/dl (mean=1.551). Group A, 15 cases had serum bilirubin level ≥ 1-3 mg/dl (65.21%), four cases had serum bilirubin >3-5 mg/dl (17.4%) and four cases had serum bilirubin >5 mg/dl (17.4%) (Table 1). In Group I patients, it ranged from 1.3 to 11.7 mg/dl and direct bilirubin was more than the indirect bilirubin in most of the patients.

TABLE 1- Showing the percentage of cases with various levels of bilirubin in Group A

Bilirubin Range (mg/dl)	No. of Cases (n=25)	Percentage
1-3	14	56%
3-5	6	24%
More than 5	5	20%

Raised bilirubin was found to have relation with size of cavity as ten patients (40%) of Group A had size of the cavity >400 c.c. while only 6 (24%) patients had size <200 c.c. and remaining 9 patients had size of the cavity 200-400 c.c. (36%). In Group B, only 13 patients had size of the cavity >400 c.c (23.6%) (Table 2).

TABLE 2- Comparing cavity sizes in two groups

	Less than 200 cc	200-400 cc	More than 400 cc
GROUP A	6 (24%)	9 (36%)	10 (40%)
GROUP B	18 (32.7%)	24 (43.6%)	13 (23.6)

The serum alkaline phosphatase ranged from 70 units to 2700 units (mean=331.19) and 47 (58.7%) patients showed raised values out of which 22 were in Group A (88%) and 25 in Group B (45.4%). In all patients with size of the cavity >400 c.c. (n=23), ALP was raised (100%) while patients with cavity size 200-400 c.c. (n=33) had raised ALP in 19 patients (57.7%) and 16 patients (66.6%) had raised ALP in patients with size of cavity <200 c.c. (n=24). The size of the cavity directly correlated with hyperbilirubinemia as well as with raised ALP levels

MRCP was performed in all patients in Group A. IHBRD was seen in 1 patient only whereas in 15 patients abscess cavity was very close proximity to the main biliary ducts. It was seen that 40% (10) patients had cavity size >10 cm and 56.0% (n=14) had abscess cavity in segment 1/5/6/7 and multiple segments were involved in n=16 patients(64.0%).(Table 3)

TABLE 3- MRCP findings in cases with jaundice

MRCP FINDINGS	No. of Cases (n=25)	Percentage
IHBRD	1	4%
IHBR not dilated	15	60%
Abscess cavity of size more than 10 cm	10	40%
Abscess cavity in segment 1/5/6/7	14	56%
Multiple abscesses	16	64%

Frequency of complications like rupture in peritoneal cavity were seen in 12% patients (n=3) of Group A, while in Group B, it was present only in 9.09% (n=5) cases.

Medical treatment was given in all patients with broad spectrum antibiotics and metronidazole. Out of 80 patients, 15 responded only to medical management without any surgical intervention. Of these, 13 patients belonged to Group B while 2 patients belonged to Group A .In Group A treatment was drainage of abscess done either by ultrasound guided needle aspiration or by pigtail catheter insertion.

In group A, 22 improved symptomatically, with relief of pain no episode of fever and decrease in serum bilirubin levels. There was also decrease in liver enzymes, WBC count. The size of abscess cavity also decrease after treatment which was followed by USG.

DISCUSSION

Hyperbilirubinemia is common in patients with amoebic liver abscess but the cause is still unknown. Ramachandran et al. reported 137 cases of amoebic liver abscess in which jaundice was seen in 11 patients only (8%), out of which 9 patients had serum bilirubin 2-5mg/ dl and two patients had Serum bilirubin >5 mg/dl[6]. Whereas Sharma and Sarin [7] reported 70 cases of amoebic liver abscess with 33% incidence of jaundice. In this study, 31.2% patients had hyperbilirubinemia out of which 5 had serum bilirubin >5 mg/dl, 6 had serum bilirubin in 3-5 mg/dl range and 14 patients had serum bilirubin in 1-3 mg/dl range. Sharma et at observed that jaundice occurs because of intrahepatic obstruction or associated hepatitis and is usually seen in large or multiple abscesses; abscess situated at porta hepatis is more likely to produce jaundice because of extra-hepatic obstruction. In this study ,MRCP was performed in all patients in Group A. IHBRD was seen in 1 patient only whereas in 15 patients abscess cavity was very close proximity to the main biliary ducts. It was seen that 40% (10) patients had cavity size >10 cm and 56.0% (n=14) had abscess cavity in segment 1/5/6/7 and multiple segments were involved in n=16 patients(64.0%). This relation of cavity size and jaundice has also been confirmed by necropsies and therefore, the main cause of jaundice in ALA is postulated to be the pressure and distortion of the biliary tree resulting in intrahepatic bile statis. Drainage of these large abscesses leads to significant improvement of the laboratory parameters including the serum bilirubin, serum ALP, ALT, AST as well as WBC count in three to seven days.

MRCP was performed in Group A patients which showed that in majority of patients, the location of cavities were central and in proximity of the main biliary ducts/porta hepatis causing compression of the ducts with or without IHBR dilatation. These were present in right lobe involving segment 5/6/7 or caudate lobe (segment 1).

As a fact all cases with caudate lobe involvement were found to have hyperbilirubinemia. When other segments like segment 8 (which is anterolateral to the right branch of portal vein in right lobe) or segments 2, 3, 4a, 4b (left lobe) were involved, there was lesser incidence of jaundice as these are comparatively far away from the porta hepatis.

In our study, we also found a correlation between ALP, size of the cavity and bilirubin levels. In all patients with size of the cavity >400 c.c., serum ALP was raised. So, it was observed that increase in the size of the cavity directly related with raised bilirubin and raised ALP levels suggestive of the obstructive pathology. Also, there is decrease in the ALP levels in all patients after drainage of the abscess.

Limitations

Though the number of 80 cases with jaundice is small to quote true incidence, it is significant enough to realize to expect and investigate patients of amoebic liver abscess for possible jaundice.

CONCLUSION

In conclusion, 31.2% of the patients had hyperbilirubinemia the cause of which in our observation was obstruction. Despite the fact that there was no radiological evidence of obstruction, this was indicated by high ALP and very early reversal to normal bilirubin levels after rupture of the abscess or drainage. Further evidence is of the fact that large abscesses especially those near the main bile ducts are more prone to cause hyperbilirubinemia. On the basis of our study, drainage of amoebic liver abscess along with of medical therapy at the outset of all the abscesses more than 400 c.c.

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