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Study of Hepatic Cystic Echinococcosis Patients Undergoing Surgery

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ABSTRACT

Background: Diagnosis of hydatid cyst sometimes may be accidental. Routinely it can be diagnosed by imaging studies including USG, CT, MRI and serology studies like direct hemagglutination, latex agglutination, ELISA. Various treatment modalities have been choosing carefully depending on size and location of cyst, number of cysts, patient in surgical risk, and calcification of cyst. Aim: To know the epidemiology of Hepatic hydatid disease at our community, focusing on those patients who have undergone surgery. **Methods:** A total of 40 cases of Hepatic hydatid cysts were included in this study. After confirmation of hydatid disease, patients were managed depending on each case. Albendazole 400 mg od was prescribed for 3 months to all patients. **Results:** Out of 40 hepatic hydatid cysts, 22(55%) were observed in right lobe, 12 (30%) were observed in left lobe and 6 (15%) were noted in both lobes. 72.5% (29/40) had single cyst and 27.5% (11/40) had multiple hydatid cysts in liver. Pericystectomy is the most common procedure performed among hydatid disease patients (82.5%). 4 (10%) out of 40 were managed by radical surgery. 2 (5%) cases had calcified cysts, so conservative approach (wait and observe policy) was chosen and only one (2.5%) inoperable case was managed by PAIR technique. **Conclusion:** Combination of medical and surgical therapy helps to reduce the disease burden and recurrence. Active hydatid cyst can cause serious life threatening infection and leads to complications; population should aware of hydatid disease and its spread to humans.

Keywords: Hydatid cyst, Liver, Surgery.

INTRODUCTION

Hydatid disease or echinococcosis is caused by infection with the larval stage of the dog tapeworm, Echinococcus granulosus. It is a zoonotic infection, man acts as an accidental and intermediate host, following ingestion of dog tapeworm eggs.

Echinococcus granulosus is a worldwide distribution, with annual incidence rate of 1-200 per 100000 populations and it's a major endemic health problem in Asia,[1] America, North Africa, Canada and the Mediterranean region.[2-4] Hydatid disease causes significant morbidity and mortality in community; WHO has endorsed this disease in 2008-2015 strategic plans for control of Neglected Tropical Diseases (NTDs).[5]

Echinococcosis usually affects the liver (50-70%) and less frequently the lung, the spleen, the kidney, the bones and the brain.[2-4] Larvae carried to the lung by escape of hepatic filtering, resulting in 15-30% of lesions.

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Most of the hydatid cysts tend to be located in right lobe of liver. Hydatid disease presents as upper abdominal pain, abdominal discomfort, and obstructive jaundice and can present as ascending cholangitis features. It can lead to complications such as infection, rupture to the pleural cavity and rarely can result in fistulization of skin, portal hypertension, vascularization erosions.[6]

Diagnosis of hydatid cyst sometimes may be accidental. Routinely it can be diagnosed by imaging studies including USG, CT, MRI and serology studies like direct hemagglutination, latex agglutination, ELISA. But the combination of imaging, serologic and immunologic studies gives accurate diagnosis.

Various treatment modalities have been choosing carefully depending on size and location of cyst, number of cysts, patient in surgical risk, and calcification of cyst.[7] We have high lightened the epidemiology of Hepatic hydatid disease at our community, focusing on those patients who have undergone surgery.

MATERIALS AND METHODS

Study design: Prospective observational
Study Period: May 2016 to June 2019

Inclusion criteria: Patients presented with space occupying lesions of liver and confirmed as hepatic hydatid cyst.

Exclusion criteria: Extra hepatic hydatid cyst

A total of 40 cases of Hepatic hydatid cysts were included in this study. Informed consent has been taken from all the patients.

Patients presented with symptoms like abdominal pain, fever, and jaundice; confirmed by imaging studies.

All the patients were managed depending on each case. Most of the cases underwent pericystectomy. After hydatid cyst removal, associated surgical interventions were undertaken. Albendazole 400 mg od was prescribed for 3 months to all patients.

Post operative follow up was done for assessment of post operative complications, recurrence. Statistical analysis plotted for all descriptive variables in the form of numbers, percentages.

RESULTS

Out of 40 cases, majority of the cases were noted in 31-40 years (55%), followed by 20-30 years (37.5%) and 41-50 years (7.5%). Female predominance was noted. Among 40 patients, 27 (67.5%) were females and 13 (32.5%) were males (Table 1).

Table 1: Age and sex wise distribution of Hydatid disease.

Age in years	Male		Female		Total	
	No. of patients	%	No. of patients	%	No. of patients	%
20-30	4	10	11	27.5	15	37.5
31-40	8	20	14	35	22	55
41-50	1	2.5	2	5	3	7.5
Total	13	32.5	27	67.5	40	100

Out of 40 hepatic hydatid cysts, 22(55%) were observed in right lobe, 12 (30%) were observed in left lobe and 6 (15%) were noted in both lobes. 72.5% (29/40) had single cyst and 27.5% (11/40) had multiple hydatid cysts in liver [Figure 1].

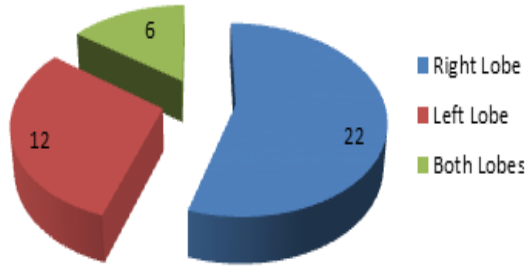

Figure 1: Hydatid cysts distribution in hepatic lobes

On clinical presentation evaluation, abdominal pain, prodromal symptoms, fever were observed in majority of cases. 85% of patients had pain abdomen, 60% patients presented with prodromal symptoms, 47.5% had fever, 40% had Hepatomegaly, 35% came with complaints of mass per abdomen and 10% had jaundice [Figure 2].

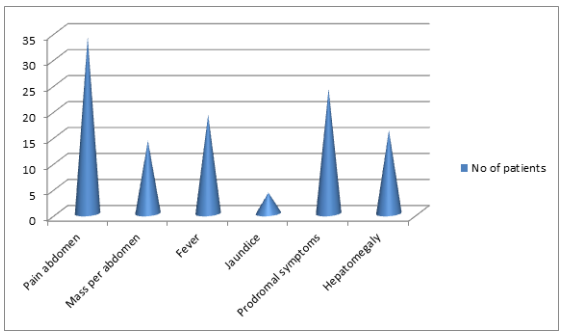

Figure 2: Clinical features of hydatid disease

Pericystectomy is the most common procedure performed among hydatid disease patients (82.5%). 4 (10%) out of 40 were managed by radical surgery. 2 (5%) cases had calcified cysts, so conservative approach (wait and observe policy) was chosen and only one (2.5%) inoperable case was managed by PAIR technique.

4 (10%) out of 40 hepatic hydatid cyst cases had recurrence. 3 (7.5%) patients had high biliary fistula and 7 (17.5%) had low biliary fistula, which were repaired by ERCP/Sphincterectomy/stents procedure depending on each case. One patient (2.5%) expired; cause of death was multiple hydatid cysts with secondary infection.

DISCUSSION

Although surgery is the only modality applicable over the entire spectrum of the disease, systemic chemotherapy and percutaneous drainage have evolved as alternative therapies in the last three decades. Various laparoscopic techniques have also been described for safe and optimal management of this entity.[8]

Out of 40 hepatic hydatid cases, majority of the cases were noted in 31-40 years (55%), followed by 20-30 years (37.5%) and 41-50 years (7.5%). Female predominance was noted. Among 40 patients, 27 (67.5%) were females and 13 (32.5%) were males in this study. Muniswamy Gattu E et al,[9] documented the most common age group affected was 25 - 29 years (50%) followed by 35 - 39 years (46.7%). Rate of hydatid cyst incidence noted highest in 44-54 years age group and 70-79 years in Tasmania,[10] and Uruguay.[11] Al Shaibani et al,[12] did a study in Yemen, noted highest incidence was seen in individuals younger than 20 years old, and the age range of 41-60 years showed the lowest. Mahmoud

SS,[13] Hassoun AS et al,[14] in their hydatid cyst studies stated that hydatid disease can be present in age group between 2nd to 6th decades. Muniswamy Gattu E et al,[9] stated that males constituted 46.7% and females 53.3%. Female predominance was observed in relation to hydatid disease by various studies.[15-17]

Figure 1: Showing gross picture of Hydatid cysts removed from liver.

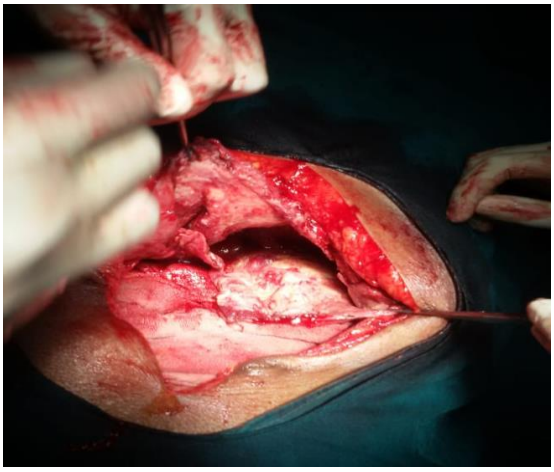

Figure 2: Showing hydatid cysts on right lobe of liver.

Female predominance for hydatid cyst was noted by various studies at Iran, Jordan, Austria, Sudan and Yemen. The cause behind that could be the result of lifestyle women, for being more contact with animals by taking care of those and handling of contaminated vegetables and fruits.

In females, we found a significantly higher fraction of the hydatid cysts to occur in the liver compared to that proportion in the males ($p < 0.001$). These findings are similar to those reported in Iran and other areas including Jordan, Austria, Sudan, and Yemen.[18-22] The differences could be the result of the lifestyle of women, who may be more likely to be in direct contact with a source of infection, such as vegetables and soil contaminated with eggs of E. granulosus.[23]

Parisa Islami Parkoohi et al,[24] did a study in Northern Iran observed the highest and the lowest prevalence of CE cases were in age ranges of 50–59 (19.0%) and more than 80 (5.0%) yr, respectively. Male/female ratio was 0.88 (47.0% vs. 53.0%). Majority of the cases were urban residents (54.0%) and had no close contact with animals (58.0%). Nearly, two third of the patients (n=54), the affected organ was liver.

Out of 40 hepatic hydatid cysts, 22(55%) were observed in right lobe, 12 (30%) were observed in left lobe and 6 (15%) were noted in both lobes. 72.5% (29/40) had single cyst and 27.5% (11/40) had multiple hydatid cysts in liver. Same as that of this study observations, Alghoury et al,[25] shown that 61% of patients had single cysts. Venukumar R,[26] stated higher percentage of patients with single cyst, it was 93.3% and 6.7% were with multiple cysts.

As per our study, abdominal pain, prodromal symptoms, fever were observed in majority of cases. 85% of patients had pain abdomen, 60% patients presented with prodromal symptoms, 47.5% had fever, 40% had Hepatomegaly, 35% came with complaints of mass per abdomen and 10% had jaundice. In line with this study, Muniswamy Gattu E et al,[9] observed the most common presenting complaint was pain abdomen (90%), Prodormal symptoms (50%) followed by mass abdomen (30%) and Jaundice was present in 3.3% of patients.

Surgery remains the gold standard treatment for hydatid liver disease. It can be approached by either conservative or radical depending on each case. The principles of hydatid surgery are: removal of all infective cysts, prevention of spillage of scolices, obliteration of residual cavity, management of communicated cyst and adjacent structures.[27] For inoperable patients, chemotherapy and PAIR technique offers an alternative therapy. For homogenously calcified cyst walls, probably no surgery is required but only a ‘wait and observe’ approach. Conservative approach is a safe, simple and quick procedure; marsupialization was the most common used procedure. However, disadvantages are post operative complications such as bile leak, bilomas and bile peritonitis. Radical surgical procedures include cystectomy, pericystectomy, lobectomy and hepatectomy. These procedures shows lower rate of complications and recurrences.[28-30] Now - a – days, in feasible and manageable cases, surgeons prefer laparoscopic management.[31]

Pericystectomy is the most common procedure performed among hydatid disease patients (82.5%). 4 (10%) out of 40 were managed by radical surgery. 2 (5%) cases had calcified cysts, so conservative approach (wait and observe policy) was chosen and

only one (2.5%) inoperable case was managed by PAIR technique in this study.

Parisa Islami Parkoohi et al,[24] observed recurrence rate of hydatid cyst in 4 patients out of 79. 66 patients underwent radical surgery, 6 patients were managed by Percutaneous puncture-aspiration-injection reinjection (PAIR) technique and in 7 patients medical treatment with antiparasitic agents was the only option.

In the present study 4 (10%) out of 40 hepatic hydatid cyst cases had recurrence. 3 (7.5%) patients had high biliary fistula and 7 (17.5%) had low biliary fistula, which were repaired by ERCP/ Sphincterectomy /stents procedure, depending on each case. One patient (2.5%) expired; cause of death was multiple hydatid cysts with secondary infection.

Ali Ezer et al,[32] observed daughter cysts in the biliary system in 9.1% patients, abscess in 7%, and biliary fistula in 11.3% and 7% patients had wound infections. They also stated the recurrence rate was 9% with a mean follow-up of 11.9±10.8 months. Kayaalp et al,[33] noted among patients treated for hydatid disease, 26% had biliary leakages; this leak stopped in 7 days in 9 out of 14 patients, whereas biliary fistulas occurred in the other five patients.\

Amit N Pothare et al,[34] documented that the highest incidence of hydatid disease was found in 3rd decade (27.59%) and predominantly in females (70.69%). Liver is most common organ involved (86.2%). Partial cystectomy with omentoplasty with external drainage was most commonly performed surgery after through irrigation with scolicidal solution. Presence of cystobiliary communications was most common intra-operative complication (22%). The mean duration of stay after surgery was about 9.34 days.

Among post operative hydatid cyst complications, relapse is a major concern in surgery. For confirmation of relapse, IHA (Indirect hemagglutination) test and an IgE radioallergoabsorbent test (RAST) will be more useful than ultrasonography, as they remain positive for a long time after surgery.[35] After and Before surgery opting for medical therapy is appropriate and helps to reduce relapses.[36] Especially in patients with several cysts, medical therapy along with surgery is most useful.[37] Antiparasitic agents, including albendazole or mebendazole were used for nearly three-fifths of the patients.[38]

CONCLUSION

Hydatid cyst of liver is most common affecting adult age group population, predominantly females. Single cyst is the major presentation. Most of the cases underwent pericystectomy. Combination of medical and surgical therapy helps to reduce the disease burden and recurrence. Active hydatid cyst can cause serious life threatening infection and leads to complications, population should aware of hydatid disease and its spread to humans.

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