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ORIGINAL RESEARCH

Clinical profile and management of Hydatid disease of liver in a tertiary care centre in Northern India

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ABSTRACT

Aim: To analyze the clinical profile and management of Hydatid disease of liver in a tertiary care centre in Northern India.

Material & Methods: This study was a retrospective, descriptive analysis of patients with HCL conducted at Department of surgery, Government medical college, a tertiary care center in Jammu. Cases with the diagnosis of a hydatid cyst were identified at the department of surgery. The patients who had extrahepatic hydatid cysts without any involvement of the liver were excluded from the study. Out of 75 medical records screened, 55 were of the patients with HCL and were included for analysis. USG and CT scan, either alone or in combination, were performed to identify and evaluate the presence of hydatid cysts in the hepatic and extrahepatic locations. The USG and CT appearance of HCL was classified based on the WHO classification system, which categorizes the cysts based on type.

Results: The median duration of presentation to the hospital after the onset of symptoms was 73 days. Most of the patients presented with a complaint of abdominal pain (90.9%). 40 patients (72.7%) had a single hepatic hydatid cyst, whereas 15 patients (27.2%) had multiple hepatic hydatid cysts. The laparoscopic procedure was used in 23.6 % (13) of those cases, whereas the rest underwent open surgical intervention.

Conclusion: This study's findings on HCL's demographics, clinical characteristics, and therapeutics can be used to plan the clinical and societal response to the illness. It is essential to raise awareness of the disease and make sure USG facilities are accessible across the nation.

Keywords: Liver, Hydatid, USG, Treatment

INTRODUCTION

In developing countries like India, hydatid cysts of the liver (HCL), which are most frequently brought on by the tapeworm Echinococcus granulosus, are a serious but underappreciated public health issue [1]. Cystic echinococcosis incidence in Southeast Asia was estimated by a World Health Organization (WHO) study in 2010 to be 0.8 [2]. However, the majority of cases have been recorded from southern and western India viz. Andhra Pradesh, Saurashtra, and Tamil Nadu with a prevalence of around 10-15%.[3]

Echinococcus has three hosts throughout its life cycle: a dog, which serves as the definitive host, an intermediate host (such as a sheep, goat, or bovine), and occasionally an incidental host (human) [4]. It is customary to butcher domestic animals and give domestic dogs their

raw organ meat. One method of transmission to people may be through the contaminated food and environment caused by the eggs produced in their stools. The location and size of the cyst affect the clinical signs of an Echinococcus infection. When the cyst is tiny, the infection may not show symptoms early on [5]. HCL can eventually manifest as epigastric or right upper quadrant abdominal discomfort, nausea, vomiting, and hepatomegaly as the condition worsens [6].

Making a diagnosis is frequently aided by imaging studies in conjunction with immunodiagnostic methods [7, 8]. Because it is simple to use, widely accessible, and reasonably priced, ultrasonography (USG) is the first imaging modality of choice for determining the number, location, size, and life of cysts [9]. The presumed imaging diagnosis may be strengthened by antibody testing. A negative serologic test, however, rarely excludes echinococcosis [10]. Deep-seated lesions can be diagnosed using computed tomography (CT) scans and magnetic resonance imaging, which can also be used to assess the size and health of avascular fluid-filled cysts [6].

HCL can be treated surgically, using percutaneous methods, with drugs, or by monitoring. The typical and preferred method of treating HCL permanently has been surgical cyst ectomy [11]. However, alternate therapeutic methods such cyst puncture, aspiration, chemical injection, and reaspiration (PAIR) have gradually supplemented and in some cases even taken the place of surgery as the preferred course of action [6, 12]. Albendazole-based chemotherapy is frequently used in addition to other forms of treatment since it lowers the rate of recurrence [4].

Hence the present study was done to analyze the clinical profile and management of Hydatid disease of liver in a tertiary care centre in Northern India.

MATERIAL & METHODS

This study was a retrospective, descriptive analysis of patients with HCL conducted at Department of surgery, Government medical college, a tertiary care center in Jammu. Cases with the diagnosis of a hydatid cyst were identified at the department of surgery.

The patients who had extrahepatic hydatid cysts without any involvement of the liver were excluded from the study. Out of 75 medical records screened, 55 were of the patients with HCL and were included for analysis. All the relevant data from the included patients were collected in a standard proforma. The variables used for data collection were demographic data (age & gender), clinical presentation (history & physical examination findings), laboratory investigations (hematological parameters, liver function tests, & serology), results of imaging studies (USG & CT scan), and treatment modalities. The diagnosis was established by imaging studies and serology using an enzyme-linked immunosorbent assay (ELISA). USG and CT scan, either alone or in combination, were performed to identify and evaluate the presence of hydatid cysts in the hepatic and extrahepatic locations. The USG and CT appearance of HCL was classified based on the WHO classification system, which categorizes the cysts based on type.

Our patient group underwent observation, albendazole therapy, the PAIR technique, & surgery as therapeutic methods. The nature and size of the cyst were taken into consideration by the doctors while choosing the treatment option.

Statistical Package for the Social Sciences, version 25, was used to code, enter, and analyse the data after checking for completeness. The categorical variables were described using frequencies and percentages, and the continuous variables were described using the mean or the median.

RESULTS

The age of patients ranged from 5 years to 81 years, with a median age of 35 years. The most commonly affected age group was 25 to 45 years of age (45.4%). Among 55 patients, 57.5% were female, and the female to male ratio was 1.4:1. The demographic characteristics of the study population are presented in Table 1.

Table 1: Demographics of the study population

Variable		N	Percentage
Age	5-25	10	18.1
	25-45	25	45.4
	45-65	12	21.8
	>65	8	14.5
Gender	Mae	23	42.5
	Female	32	57.5

The median duration of presentation to the hospital after the onset of symptoms was 73 days. Most of the patients presented with a complaint of abdominal pain (50, 90.9%), followed by fever (15, 27.2%). Other reported symptoms were abdominal mass, jaundice, nausea/-vomiting, malaise, abdominal discomfort, and weight loss. The most common physical finding in our study population was a palpable liver (19, 34.5%), followed by abdominal tenderness (13, 23.6%). The clinical features are tabulated in Table 2.

Table 2: Clinical features in the study population

Clinical features		N	Percentage
History	Abdominal pain	50	90.9
	Fever	15	27.2
	Jaundice	6	10.9
	Abdominal mass	4	7.2
	Nausea / vomiting	5	9.0
Physical examination	Palpable liver	19	34.5
	Abdominal tenderness	13	23.6
	Icterus	4	7.2
	Abdominal distention	2	3.6

USG and CT scans were the primary imaging modalities used to make a diagnosis of HCL in our study population. The maximum dimension of the cyst in USG was 11.7 cm, whereas the minimum dimension was 2.9 cm. Similarly, the maximum and minimum dimensions of the cyst in CT imaging were 16.9 cm and 2.4 cm, respectively. 40 patients (72.7%) had a single hepatic hydatid cyst, whereas 15 patients (27.2%) had multiple hepatic hydatid cysts. The types of cysts observed on USG and CT scan are presented in Table 3.

Table 3: Cyst characteristics in USG and CT abdomen

Cyst characteristics		N	Percentage
USG abdomen	Unilocular anechoic cystic lesion	14	36.8
	Multiseptated cyst	3	7.8
	Cyst with detached membranes	4	10.5
	Cyst with daughter cysts	6	15.7
	Cyst with heterogenous contents	7	18.4
	Calcified wall	3	7.8
	Features suggestive of infection	1	2.6
	Total	38	100
CT abdomen	Unilocular simple cystic lesion	13	30.9

	Multiseptated cyst	4	9.5
	Cyst with detached membranes	4	9.5
	Cyst with daughter cysts	6	14.2
	Cyst with heterogenous contents	1	2.3
	Calcified wall	10	23.2
	Features suggestive of infection	4	9.5
	Total	42	100

The right lobe was most commonly involved (76%), followed by the left lobe and the caudate lobe. The frequency of involvement of different lobes of the liver has been presented in Table 4.

Table 4: Involvement of different lobes of the liver

Lobes of liver	N	Percentage
Right lobe only	32	58.18
Left lobe only	11	20
Right and left lobes	10	18.1
All lobes	2	3.6

Surgery was the preferred modality of treatment in our study population, as shown in Table 5. 45 patients (81.8 %) underwent some form of surgical intervention. The laparoscopic procedure was used in 23.6 % (13) of those cases, whereas the rest underwent open surgical intervention. 3.6 % underwent PAIR and 5.45% went albendazole therapy.

Table 5: Modalities of treatment

Modalities of treatment	N	Percentage
Observation	5	9
Albendazole monotherapy	3	5.45
PAIR (+albendazole)	2	3.6
Surgery (+albendazole)	45	81.8

DISCUSSION

Our study's findings about the median age of 35 years are consistent with those of Hazra et al. and Jastaniah et al. [4, 13].According to our study, people between the ages of 25 and 45 are the ones most frequently impacted by HCL. The most economically active age group is between 25 and 45, and a large portion of the workforce is employed in agricultural and livestock rearing, which is a major contributor to HCL.

In our study, 42.5% of participants were male and 57.5% were female which is consistent with the findings reported by Ahmadi and Hamidi and Abebe et al. [14, 15]. This is because women are actively involved in domestic work, farming, and caring for animals. This practise is important in rural areas of the nation since a sizable portion of the young male population leaves the country in search of employment opportunities, leaving the female population in charge of all agricultural and livestock-related tasks.The female population may be more susceptible to the parasite and develop HCL as a result.

Abdominal pain and fever were the two most common symptoms among the individuals in our study. Abdominal discomfort was the presenting symptom in the research group, according to Biluts et al. [16]. According to a study conducted in Ethiopia, 97.6% of the patients complained of stomach pain. In the same study, fever was the most common presenting ailment, followed by nausea, vomiting, and weight loss [15]. Contrarily, in our study, fever was more frequent than nauseousness, vomiting, malaise, and weight loss. The higher incidence of fever in our study sample is probably because to the greater number of

patients with an infected hydatid cyst . The most frequent physical finding in our study population's clinical examination was palpable liver and abdominal soreness. This outcome is consistent with a study by Hazra et al., which revealed that 49.5% of the patients exhibited hepatomegaly in varied degrees [4].

In our patients, the diagnosis was made based on the clinical symptoms, USG, CT, and serology results. However, because to financial constraints, not all patients could have concurrent use of USG, CT scan, and immunodiagnostic method to confirm the diagnosis. 90 to 95% of Echinococcus cases can be detected using USG [17]. In a research by Niron et al examining the USG appearance of HCL, it was discovered that 40 out of 65 cysts displayed the spherical, unilocular, and anechoic features that are most frequently observed, with only a few cases exhibiting unusual USG findings [18]. Our USG findings are likewise supported by the CT imaging in our study population, with the unilocular, simple cystic lesion being the most frequent finding. In contrast to USG, CT was more effective at detecting cysts with calcified walls. This discrepancy can be related to the fact that USG is better at visualising cysts in their active stages than CT is at detecting minute calcifications within cysts [19].

The majority of hydatid cysts in our research population were found in the right lobe of the liver. In their study conducted in Yemen, Alghoury et al. found that the right lobe of the liver was damaged in 65.78% of cases of isolated hepatic cystic echinococcosis [20]. Our findings concur with those of studies from Nepal and Greece, according to which the right lobe is the most typical site for HCL [21]. Due to the structure of the portal blood flow, the right lobe of the liver is more adversely affected than the left lobe [22]. The oncospheres may have easier access to the right lobe due to the increased blood flow.

The type and size of the cysts, the knowledge and equipment that are accessible, and the patients' compliance with long-term follow-up all influence the treatment option [23]. Since surgery is the most effective way to remove cysts and produces a full recovery, several authors suggest it as the sole form of care [6, 7, 11]. In our study, 81.8% of the patients received surgery to have their hydatid cysts permanently removed. In our study population, partial pericystectomy was the most common type of surgery. This outcome is consistent with a study by Bayrak and Altintas, which found that partial pericystectomy, laparoscopic surgery, or open surgery accounted for the vast majority of operations performed on HCL patients [24]. In their work, Hazra et al. discovered that partial pericystectomy preserves tissue. PAIR, and albendazole monotherapy were implemented as less invasive modalities of care in individuals who did not need or qualify for surgery. If there are no contraindications to other modalities of care, they can be great alternatives to surgery in places with little resources and low economic standing.

The retrospective nature of our study was one of its drawbacks. We were unable to contact the patients to obtain the missing information from the medical records because the study was retrospective in nature. Because some patients couldn't afford the cost of the investigation, we were unable to include the serological results of all the patients in our study. All of the cases in our study came from a single tertiary care facility, so they might not be an accurate representation of how HCL manifests itself in primary care.

CONCLUSION

The liver's hydatid cyst is a serious but underappreciated public health issue. This study's findings on HCL's demographics, clinical characteristics, and therapeutics can be used to plan the clinical and societal response to the illness. It is essential to raise awareness of the disease and make sure USG facilities are accessible across the nation. The epidemiological pattern of the disease should be explained by multicentric research with a bigger sample of individuals.

REFERENCES

1. B. Devleesschauwer, A. Ale, P. Torgerson et al.,"The Burden of Parasitic Zoonoses in Nepal: A Systematic Review," PLoS Neglected Tropical Diseases, vol. 8, no. 1, article e2634, 2014.
2. P. R. Torgerson, B. Devleesschauwer, N. Praet et al., "World Health Organization estimates of the global and regional disease burden of 11 foodborne parasitic diseases, 2010: a data synthesis," PLoS medicine, vol. 12, no. 12, p. e1001920, 2015.
3. Alexander PV, Rajkumar D: The pattern of hydatid disease-a retrospective study from Himachal Pradesh, India. Indian J Surg. 2010, 72:331-5.
4. N. K. Hazra, H. Batajoo, S. Ghimire, and B. Sathian, "Open Conservative Surgical Management of Cystic Echinococcosis in a Tertiary Care Hospital, Nepal," Journal of clinical and diagnostic research: JCDR, vol. 9, no. 7, pp. PC01–PC03, 2015.
5. W. S. Kammerer and P. M. Schantz, "Echinococcal disease," Infectious disease clinics of North America, vol. 7, no. 3, pp. 605–618, 1993
6. P. Moro and P. M. Schantz, "Echinococcosis: a review," International journal of Infectious diseases, vol. 13, no. 2, pp. 125– 133, 2009
7. D. Ghartimagar, A. Ghosh, M. K. Shrestha, O. P. Talwar, and B. Sathian, "14 years hospital based study on clinical and morphological spectrum of hydatid disease," Journal of Nepal Medical Association, vol. 52, no. 190, pp. 349–353, 2013.
8. R. Morar and C. Feldman, "Pulmonary echinococcosis," European Respiratory Journal, vol. 21, no. 6, pp. 1069–1077, 2003.
9. H. Salama, M. F. Abdel-Wahab, and G. T. Strickland,"Diagnosis and treatment of hepatic hydatid cysts with the aid of echoguided percutaneous cyst puncture," Clinical infectious diseases, vol. 21, no. 6, pp. 1372–1376, 1995.
10. P. L. Moro, Clinical manifestations and diagnosis of echinococcosis, vol. 1, 2016
11. S. Marwah, H. Kamal, and N. Marwah, "Laparoscopic management of a large primary retroperitoneal hydatid cyst," Clinical journal of gastroenterology, vol. 3, no. 5, pp. 230–232, 2010.
12. C. Dervenis, S. Delis, C. Avgerinos, J. Madariaga, and M. Milicevic, "Changing concepts in the management of liver hydatid disease," Journal of Gastrointestinal Surgery, vol. 9, no. 6, pp. 869–877, 2005.
13. S. Jastaniah, T. S. Malatani, S. A. Eshy, M. Al Shehry, J. Hamdi, M. Al Naami et al., "Hydatid cyst disease (Echinococcus granulosus): experience at Asir central hospital," Saudi Journal of Gastroenterology, vol. 3, no. 3, pp. 140–143, 1997.
14. N. A. Ahmadi and M. Hamidi, "A retrospective analysis of human cystic echinococcosis in Hamedan province, an endemic region of Iran," Annals of Tropical Medicine & Parasitology, vol. 102, no. 7, pp. 603–609, 2013. 6 Journal of Parasitology Research
15. E. Abebe, T. Kassa, M. Bekele, and A. Tsehay, "Intra-abdominal hydatid cyst: sociodemographics, clinical profiles, and outcomes of patients operated on at a tertiary hospital in Addis Ababa, Ethiopia," Journal of parasitology research, vol. 2017, 6 pages, 2017.
16. H. Biluts, M. Minas, and A. Bekele, "Hydatid disease of the liver: a 12 year experience of surgical management," East and Central African Journal of Surgery, vol. 11, no. 2, pp. 54–60, 2006.
17. P. Dhar, A. Chaudhary, R. Desai, A. Agarwal, and A. Sachdev, "Current trends in the diagnosis and management of cystic hydatid disease of the liver," The Journal of communicable diseases, vol. 28, no. 4, pp. 221–230, 1996.
18. E. A. Niron and H. Özer, "Ultrasound appearances of liver hydatid disease," The British journal of radiology, vol. 54, no. 640, pp. 335–338, 1981.

19. Z. Suwan,"Sonographic findings in hydatid disease of the liver: comparison with other imaging methods," Annals of Tropical Medicine & Parasitology, vol. 89, no. 3, pp. 261–269, 2016.
20. A. Alghoury, E. El-Hamshary, A. Azazy, E. Hussein, and H. Z. Rayan, "Hydatid disease in Yemeni patients attending public and private hospitals in Sana'a city, Yemen," Oman medical journal, vol. 25, no. 2, pp. 88–90, 2010.
21. M. C. Safioleas, E. P. Misiakos, M. Kouvaraki, M. K. Stamatakos, C. P. Manti, and E. S. Felekouras, "Hydatid disease of the liver: a continuing surgical problem," Archives of surgery, vol. 141, no. 11, pp. 1101–1108, 2006.
22. N. Bhutani and P. Kajal, "Hepatic echinococcosis: a review," Annals of medicine and surgery, vol. 36, pp. 99–105, 2018
23. E. Brunetti, P. Kern, and D. A. Vuitton, "Expert consensus for the diagnosis and treatment of cystic and alveolar echinococcosis in humans," Acta tropica, vol. 114, no. 1, pp. 1–6, 2010.
24. M. Bayrak and Y. Altıntas, "Current approaches in the surgical treatment of liver hydatid disease: single center experience," BMC surgery, vol. 19, no. 1, p. 95, 2019.