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Original Research Article

A study on profile of hydatid cyst of liver presented at a tertiary care hospital

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ABSTRACT

Background: In many countries, hydatid disease is more prevalent in rural areas where there is a closer contact between people and dogs and various domestic animals which act as intermediate vectors.
Methods: This study was carried out in the Department of Surgery at a tertiary care hospital. The patients attended surgical OPD and got admitted with hydatid cyst of Liver during the study period were the study subjects.
Results: Majority of patients were farmers by occupation (76.7%) and some of them were house wives (13.3%) and Students (10%). The most common presenting complaint was pain abdomen (90%) followed by mass abdomen (30%).
Conclusions: Effective interventions include regular de-worming of dogs and vaccinating dogs and other livestock, such as sheep, that also act as hosts for the tapeworm.

Keywords: Echinococcus, Hydatid cyst, Tape worm

INTRODUCTION

Many hydatid cysts remain asymptomatic, even into advanced age. The parasite load, the site, and the size of the cysts determine the degree of symptoms. A history of living in or visiting an endemic area must be established. Also, exposure to the parasite through the ingestion of foods or water contaminated by the feces of a definitive host must be determined.[1]

Theoretically, echinococcosis can involve any organ. The liver is the most common organ involved, followed by the lungs. These 2 organs account for 90% of cases of echinococcosis.

In CE, symptoms can be produced by a mass effect or cyst complications. Symptoms due to the pressure effect of the cyst usually take a long time to manifest, except when they occur in the brain or the eyes. Most symptomatic cysts are larger than 5 cm in diameter. Organs affected by *E. granulosus* are the liver (63%), lungs (25%), muscles (5%), bones (3%), kidneys (2%), brain (1%), and spleen (1%).[2]

Cystic hydatid disease usually affects the liver (50–70%) and less frequently the lung, the spleen, the kidney, the bones, and the brain. 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.[3]

Echinococcus granulosus is spread almost all over the world, especially in areas where sheep are raised and is endemic in Asia, North Africa, South and Central America, North America, Canada and the Mediterranean

region. In many countries, hydatid disease is more prevalent in rural areas where there is a closer contact between people and dogs and various domestic animals which act as intermediate vectors. Hydatid disease remains frequent and endemic in Tunisia.[4]

After infection with *Echinococcus granulosus,* humans are usually asymptomatic for a long time. The growth of the cyst in the liver is variable, ranging from 1 mm to 5 mm in diameter per year. Most primary infections consist of a single cyst, but up to 20%-40% of infected people have multiple cysts. The symptoms depend not only on the size and number of cysts, but also on the mass effect within the organ and upon surrounding structures.[5]

Hydatid cyst of the liver is frequently silent and only diagnosed incidentally during abdominal investigation for other pathology. The clinical signs appear gradually with the increase volume of the cyst.

The most common symptom, when it occurs, is right upper quadrant or epigastric pain and the most common findings on examination are an enlarged liver and a palpable mass. Pressure effects are initially vague. They may include non-specific pain, cough, low-grade fever, and the sensation of abdominal fullness. As the mass grows, the symptoms become more specific because the mass impinges on or obstructs specific organs.

METHODS

Descriptive study was carried out in the Department of Surgery at a tertiary care hospital. The patients attended surgical OPD and got admitted with hydatid cyst of liver during the study period. A total of 30 cases of hydatid cyst of liver were studied. Non probability purposive sampling technique was followed for study.

Inclusion criteria

Patients presenting with varying gastrointestinal symptoms and signs, and symptoms of space occupying lesions of liver like obstructive jaundice, mass per abdomen, patients with complications due to rupture of hydatid cyst.

Exclusion criteria

- Extra hepatic hydatid cyst
- Advanced complications where diagnosis was difficult.

RESULTS

The most common age group affected was 25 - 29 years (50%) followed by 35 - 39 years (46.7%). The age of patients range from 25 years to 40 years.

Table 1: Distribution based on gender.

Gender	Frequency	Percentage
Male	14	46.7
Female	16	53.3
Total	**30**	**100**

Study subjects included both males and females. Males constituted 46.7% and females 53.3%.

Table 2: Distribution based on occupation.

Occupation	Frequency	Percentage
Farmer	23	76.7
Housewife	4	13.3
Student	3	10.0
Total	**30**	**100**

Majority of patients were farmers by occupation (76.7%) and some of them were house wives (13.3%) and students (10%).

Table 3: Distribution based on dog contact.

Dog contact	Frequency	Percentage
Yes	25	83.3
No	5	16.7
Total	**30**	**100**

History of dog contact was present in 83.3% of patients

Table 4: Descriptive statistics of study subjects (investigations).

	N	Minimum	Maximum	Mean	Std. deviation
Hb	30	7.0000	13.0000	10.8666	1.3128892
Tc	30	2400	15700	7340.00	2183.259
Eosiniophils	30	0.1	0.4	0.233	0.0711
Bilirubin	30	0.3000	1.3000	0.746667	0.2473770
AST	30	12.0	42.0	21.150	6.5190
ALT	30	10.0	40.0	25.603	7.7592
ALKP	30	28.0	149.0	89.540	23.8831

The most common presenting complaint was pain abdomen (90%) followed by mass abdomen (30%). Prodormal symptoms were present in 50% of patients. Jaundice was present in 3.3% of patients.

DISCUSSION

Hydatid disease is characterized by cystic space - occupying lesions in the liver, lungs and rarely in other parts of the body.[6] All evidences provided ensure that hydatid disease till now major health problem in spite of modern equipments available for diagnosis and treatment. The surgically confirmed cases are the only reliable source of data on human hydatidosis, since hydatid infection is a notifiable disease, and it is difficult to determine the specific source of infection and its usually impossible to know when the infection was acquired this may be due to the fact that cysts are usually slowly growing and the development of symptoms or the ability to diagnose the conditions may require from 6 months to several years after exposure to the infections.[7]

Fertile hydatid cysts are formed in intermediate hosts (human and herbivores) producing protoscolices, the infective form to canines, at their germinal layers. Infertile cysts are also formed, but they are unable to produce protoscolices. The molecular mechanisms involved in hydatid cysts fertility/infertility are unknown. Nevertheless, previous work has suggested that apoptosis is involved in hydatid cyst infertility and death. On the other hand, fertile hydatid cysts can resist oxidative damage due to reactive oxygen and nitrogen species. On these foundations, they have hypothesized that when oxidative damage of DNA in the germinal layers exceeds the capability of DNA repair mechanisms, apoptosis is triggered and hydatid cysts infertility occurs.

There still exists a dilemma of obtaining accurate figures on the prevalence of Hydatid disease, as in the majority of cases the disease manifests with a very few specific signs and symptoms.[8] A considerable number of cases present to clinician in an asymptomatic state and the diagnosis will be made incidentally or accidentally. As such, hydatid disease is an endemic in India. The annual incidence of hydatid disease per 1,00,000 persons varies from 1 to 2009. A descriptive study conducted over a period of 3 years i.e. from 2009-2011 at various hospitals and health care centers in 3 districts of Andhra Pradesh revealed 118 cases of hydatid disease in a strange and peculiar pattern of distribution in accordance with age, sex, occupation, with a varied and unstable clinical picture and anatomical distribution.

The differences in the reports were due to difference in socioeconomic, traditional, cultural variations in different regions in India as well as in other parts of the world. In southern part of India considerable proportion of men are actively involved in livelihood activities of farming, routine labour and animal breeding and agriculture; compared to women, thus are more prone and exposed to infections and diseases. Various animal experiments were performed to relate the distribution of sex 10. An interesting finding was male Mice were more susceptible to contact the hydatid disease than the female species. The basis propounded regarding this result was that, the female goadotrophins (estrogens) have an inhibitory action on level of parasitiszation, while male hormone (testesterone) had a little of any such effect or else, might even increase the susceptibility of the host infection.[8]

The present study had focused on burden over the society due to the illness of hydatid disease. The occupations of the individuals were taken into consideration. Majority of patients were farmers by occupation (76.7%) and some of them were house wives (13.3%) and students (10%).

Among females the maximum numbers of cases were housewives. In a similar researches done by Al Barwari et al, and Jawed Akther et al, maximum cases were females, housewives accounting around 37.90% and 39.32% respectively.[8,11] The majority of males according to Al Barwari et al, were students (23.90%).[8] Farmers and housewives are more prone to the disease as, they are more involved in household activities related to animal breeding and agriculture in South Indian rural areas.

The higher rate of hepatic infection may be attributed to the fact that liver acts as a primary filter in the human body and lung is often thought to be the second filter8. There was a predominance of single organ involvement over the multiple organ involvement, which was a similar finding in most of the research works done on hydatid cysts.[11] It is widely accepted that primary cysts are mostly solitary in nature.

Majority of cyst size were between 5 - 10 cms (56.7%) followed by more than 10 cms (33.3%) and less than 5 cms (10.0%). In contrast to study done by Alghoury et al, 12 where 94% showed cysts >5cms and only 6% showed cysts <5 cms. The proportions of patients with single cyst found were 93.3% and with multiple cyst were 6.7%. An equivalent observation was notified in a study done by Alghoury et al, where 61% of single cysts and 39% of cases showed multiple cysts.[12]

CONCLUSION

There is a huge need for health education programs, improved water sanitation and better standards of hygiene. Humans can become infected with echinococcus eggs via touching contaminated soil, animal feces and animal hair. It is also important to intervene at certain stages of the tape worm's life cycle, especially the infection of hosts (most commonly domestic dogs).

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