The Libyan International Medical University

Faculty of Basic Medical Science

Incidence Of Hydatid Cyst Disease In Benghazi, Libya

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Abstract:

Hydatid disease, also called hydatidosis or echinococcosis, is a cyst-forming disease resulting from an infection with the metacestode, or larval form, of parasitic dog tapeworms from the genus Echinococcus. To date, five species of Echinococcus have been characterized. The vast majority of human diseases are from Echinococcus granulosus and Echinococcus multioccularis which cause cystic echinococcosis and alveolar echinococcosis, respectively. Millions of people worldwide are affected by human hydatid disease. This report will cover the treatment of this disease, its incidence in Libya preceded by the life cycle of the causative agent.

Introduction:

Echinococcosis or hydatid cyst (HC) is considered one of the major parasitic infections in Libya that causes many health problems and economic losses in communities[(1)]. Hydatidosis is one of the most prevalent zoonotic diseases in the world causing major economical and healthy problems. The agent of the disease is E granulosus, a parasite of cestodes, having its final host as dog and a variety of hosts including human as intermediate hosts[(1)].

The complete life cycle of Echinococcus granulosus requires two hosts. Domestic dogs act as the primary definitive host of the mature adult worms and a single infected dog may accommodate millions of adult worms within its intestines. Intermediate hosts become infected with the larval form of the parasite and include a wide range of herbivorous animals primarily sheep, goats, and horses. The life cycle is completed by the ingestion of one or more cysts and its contents by the canine host through the consumption of infected viscera of sheep and and/or other livestock. Protoscoleces released in the small intestine attach to the intestinal wall and within two months mature into adult worms capable of producing infective eggs.

Humans may become infected though the ingestion of food and/or water contaminated with infective eggs released in the feces of dogs harboring the adult tapeworm(s). Once ingested, the eggs release oncospheres capable of actively penetrating the intestinal mucosa. These oncospheres gain access to the blood stream via the hepatic portal vein and migrate to various internal organs where they develop into cysts. Hydatid cysts most often localize within the liver and the lungs[(2)].

This disease is highly endemic in most countries of the Mediterranean basin including North Af rica and the Middle East. It has been reported as an important public health problem in Jordan, Egypt, Morocco, Tunisia. Thus, Libya is surrounded by countries endemic for CE, and several publications have recognized the existence of human CE cases among Libya. Echinococcosis or hydatid cyst (HC) is considered one of the major parasitic infections in Libya that causes many health problems and economic losses in communities. In Libya, echinococcosis is a real sheep-man problem. In Libya, hydatidosis is a very old and still an extending problem in Libya. The disease was described as hyperendemic. The disease within the Libyan population was > 1 per 100,000[(1)]. In Libya, the disease is more common in females

than males and more common in villagers and people who contact with animals like cows and sheeps.

Materials and methods:

This study was conducted on hospitalized patients diagnosed with hydated cyst disease at three different hospitals: El-Jalaa, El-Tarek and Benghazi Medical Center in Benghazi, Libya. A number of 30 patients were evaluated in this study. Data were collected from the medical records of patients in the archives and analyzed in terms of age, and gender.

Result:

The total number of cystic echinococcosis patients recorded in the three hospitals in 2019 was 30 patients. The youngest diagnosed patient was 16 years old and the oldest was 56 years old. Hydatidosis apparently affected females more frequently than males, since 21 (70%) of the patients were females while only 9 (30%) of them were males (figure 1).

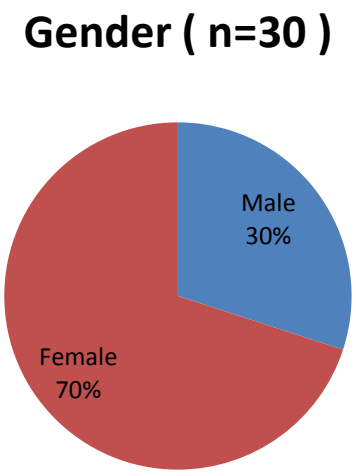

Figure 1: Patient's gender

Hospital	Female	Male	Total	Age range
Al-jalla Hospital	14	6	20 (66.6%)	16-56
Benghazi medical center	5	2	7 (23.3%)	20-40
Al-Tariq Hospital	2	1	3(10%)	22-35

Table 1: Summary of data of patients in each hospital (*n=30)*

Discussion:

The previous table and statistics have proven that females infection rate is higher than males in 2019, The reason why females are more affected than males is that females may be responsible for variations in behavior and lifestyle, socio-economic and cultural status from country to country, A large percentage of females have some activities related to animal husbandry or agriculture, On the contrary, males were documented to be more exposed to the infection than females in Kyrgyzstan Between two years (1990 _2000)[(1)].

The number of injured people on the outskirts of the city was more than Benghazi by (19: 11) The results showed a high infection rate in patients living outside Benghazi compared with those living in Benghazi, these findings are in line with those in Iran by Rafieietal. (2007) As confirmed by more than one source such as Al-Asmari University in Zintan, western Libya in (2018)[(3)]

Infection is caused by dogs in rural areas Abandoned areas and dogs in urban and semi-urban urban areas , The present results could therefore be linked to the free movement of dogs and the high number of stray dogs seen in and around the city at various times of day and night[(1)]. And that the most infected organ is the liver and then the lung by (27 : 3) The higher rate of hepatic infection can be attributed to the fact that the liver serves as the human body's primary filter and the lung is often considered to be the second filter[(1)].

In Benghazi, diagnosis is made by imaging (CT , ultrasound, MRI) or serological test (enzyme immunoassay, immunofluorescent assay) (6) , But in two other sources,

ultrasound diagnosis was made in the first source at the University of Asmari 2018 (from January 2017 to January 2018 more than 1,000 patients were referred for ultrasound review to our department at Zliten Hospital. Memory 504 patients and 561 female patients were patients aged between 3 months and 95 years[3], Second Source: Tropical Medicine (2014) An ELISA test was performed and received 69.4 percent sensitivity in this study, but two previous reports of serological serological diagnosis using protoscolysis showed a high diagnosis[4].

Conclusion:

Echinococcosis or hydatid cyst (HC) is considered one of the major parasitic infections in Libya that causes many health problems and economic losses in communities. And it is caused by a parasite (Echinococcus granulosus) of cestodes, having a variety of herbivorous animals as definitive hosts and may have humans as an intermediate host to complete its life cycle. It causes formation of cysts in different organs like the liver, lungs, bones…etc.

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