



The Occurrence of *H. Pylori* in Hydatid Liver Disease

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ABSTRACT

Hydatid liver disease is a parasitic disease caused by Echinococcus granulosus. The disease is transmitted through direct contact with infected feces and ingesting viable parasite eggs with food. Hydatid cysts are observed endemically in Iraq as an important health problem. And Helicobacter pylori is a type of bacteria that responsible for the majority of gastritis and peptic ulcers. Aim to detect the prevalence of H. pylori in hydatid liver disease. This study done for 58 patient (group A) with hydatid liver attending in two hospital (AL-Sader in Al-Najaf and Al-Basrah teaching hospital), from February to August 2008. 120 1st degree relative patient (group B) and normal 20 person 10 male 10 female (group C) as control for presence of H.pylori infection in general population. Chest X-ray done for above groups to exclude lung hydrated cyst. The relation were screened by ultrasound to obtain intra abdominal hydrated cyst and ELISA test for presence of H.pylori infection

From 58 patient (group A) with 30 male (51.7%) and 28 female (48.3%) to detect presence of H.pylori in hydatid liver disease. We found that 62.2% of patient gave positive result of serum IGG anti body. Total of 28 from group A hydatid liver disease in percentage (48.27%) have H.pylori in hydatid liver disease patient, 19 (63.3%), are male and 9 (32.1%) are female. From group B and C we found there are no any positive result to diagnosis of hydatid liver disease and H.pylori infection. We screened and evaluated of hydatid liver disease in patient especially clinical and demographical properties of hydatid cyst in Al-Najaf and Al-Basrah peoples who attending to Al-Sader teaching hospital. Also we found that 28 from 58 hydatid liver disease patients in percentage (48.27%) have H.pylori in hydatid liver diseased patients (32.75%) are males and (15.51%) are females depend on specialized diagnostic test as the first study interested in relation between hydatid liver disease and presence of H.pylori.

INTRODUCTION

Echinococcosis is a parasitic disease caused by *Echinococcus granulosus*. The adult form of the parasite is not seen in humans. Its larvae induce the disease in humans, cows, sheep, and other domestic animals [1]. Hydatid cysts are mostly localized in the liver (50-80%). The second most common site for hydatid cyst is the lungs (5-30%). Cysts have also been detected in the spleen, kidney, heart, bones, the central nervous system, and other organs, but with less frequency [2].

Hydatid cysts are observed endemically in Mediterranean, Middle Eastern, and South American countries and in New Zealand and Turkey, where people are in close contact with sheep and dogs. Hydatidosis is an important health problem in these countries [3].

Echinococcus granulosus, *E. multilocularis*, and *E. vogeli* are tapeworms (found primarily in dogs, but also wolves, foxes, sheep, goats, and camels). The disease is transmitted through direct contact with infected feces and ingesting viable parasite eggs with food. Eggs remain viable in the feces of tapeworm infected canines for weeks allowing transmission to individuals with no direct contact with the vector animal. Once in the intestine of humans the eggs hatch to form embryos or oncospheres that penetrate the mucosa and enter the circulation. Oncospheres then encyst in host viscera and develop in the target organs into mature larval cysts [4].

Helicobacter pylori (*H. pylori*) is a type of bacteria. Researchers believe that *H. pylori* is responsible for the majority of peptic ulcers [5].

H. pylori infection is common in the United States. About 20 percent of people under 40 years old and half of those over 60 years have it. Most infected people, however, do not develop ulcers. Why *H. pylori* does not cause ulcers in every infected person is not known. Most likely, infection depends on characteristics of the infected person, the type of *H. pylori*, and other factors yet to be discovered [6].

H. pylori weakens the protective mucous coating of the stomach and duodenum, which allows acid to get through to the sensitive lining beneath. Both the acid and the bacteria irritate the lining and cause a sore, or ulcer [7].

H. pylori is able to survive in stomach acid because it secretes enzymes that neutralize the acid. This mechanism allows *H. pylori* to make its way to the "safe" area—the protective mucous lining. Once there, the bacterium's spiral shape helps it burrow through the lining [8].

PATIENTS AND METHODS

The period of coruscation study was carried out from February to august 2008 total of 58 patient attending to the surgery unit of al-sadder teaching hospital in al-Najaf and Al-Basrah governorate for elective surgery for patient with hydatid liver disease . patient age from 18-65 years old (30 male 51.7%) and 28 female (48.3%) (group A) total of 120 patient relative first degree that live in same environmental house (group B) were investigate by chest X-ray and ultra sound and *H.pylori* test to detect *H.pylori* infection.

Controlling healthy group

A total of 20 healthy persons (10 for each males and females) were introduced in this study as a control group to compare with the results of Hydatidosis and gastritis. They have no previous history of any complains of gastrointestinal tract (GIT) diseases and clinically no signs, and gave no smoking or no alcohol history and not receiving any medications.

RESULTS

Fifty eight patient group A with hydatid liver disease 30 male (51.7%)and 28 female (48.3%) are screened for presence of *H.pylori* infection by using ELISA test ,we found 28 patient from group A have positive ELISA test in 19 male (32.75%) and 9 female (15.51%) these result is illustrated in table 1 ($p < 0.01$).

One hindered twenty person group B and 20 % group C we found there are no any positive result in detect hydatid liver disease and also negative ELISA for *H.pylori* infection, chest x-ray and ultra sound. This illustrated in table 2 ($p < 0.05$).

Table -1 : Presence of *H.pylori* in hydatid liver disease

| Illness | Male No (%) | Female No (%) |
|---|---------------------|--------------------|
| Hydatid liver disease patients | 30 (51.7 %) ** | 28 (48.3) |
| <i>H.pylori</i> in hydatid liver disease patient | 19 (63.3) | 9 (32.1) |
| % from total | (32.75) | 15.51 |
| Total of hydatid liver disease patient | 58 | |
| Total of <i>H.pylori</i> in hydatid liver disease | 28 | |
| % of presence | (48.27) % | |

* *: there are highly statistical differences in presence ratio of *H.pylori* in hydatid liver disease patients.($p < 0.01$)

Table.2 : Group B and C ,presence of *H.pylori* in hydatid liver disease

| Diagnostic techniques | No of patient +ve | GROUP B | GROUP C |
|--|----------------------|---------|---------|
| X- ray | 0* | 120 | 20 |
| Ultrasound (sonar) | 0 | 120 | 20 |
| Serum IgG anti- <i>H.pylori</i> antibodies | 0 | 120 | 20 |
| Clinical findings | 0 | 120 | 20 |

• there are statistical differences between results of diagnosis ($p < 0.05$).

Table (3): Properties of hydatid cyst present in patients with *H.pylori* .

| Site of hydatid cysts | No of patient with <i>H.pylori</i> | % | No of patient without <i>H.pylori</i> | % |
|-------------------------|------------------------------------|-------------|---------------------------------------|-------------|
| Liver | 26*** | 92.86 | 24 | 80 |
| Others | 2 | 7.14 | 6 | 20 |
| Total | 28 | 100% | 30 | 100% |
| Number of hydatid cysts | No of patient with <i>H.pylori</i> | % | No of patient without <i>H.pylori</i> | % |
| One single | 18*** | 64.29 | 17 | 56.67 |
| Multiple | 10 | 35.71 | 13 | 43.33 |
| Total | 28 | 100% | 30 | 100% |

** *There are very highly statistical differences in sites and numbers of hydatid cysts . ($p < 0.001$)

DISCUSSION

Various factors influence the prevalence of *Echinococcus spp* in their hosts . these include degree of specificity , intensity of predator – prey interaction , numerical densities of carnivore hosts , species diversity of mammalian faunas, short- term or long- term fluctuations in density of numbers of herbivores , and others [9].

Ethological factors also may be involved, such as the influence of social rank in feeding by carnivores , and other behavior that has not been investigated in detail with respect to the transmission of the taeniids [10].

Helicobacter Pylori is now considered to be the most prevalent infectious disease Known to occur in human; about 50 % of the human population is estimated to be infected [11].

This bacteria caused persistent gastritis and is directly linked to the development of peptic ulcer disease as well as gastric adenocarcinoma and mucosa –associated lymphoma of the stomach [12].Individuals living in countries with low socioeconomic conditions have high prevalence rates of *H.pylori* acquired at an early age [13]. The current study found that *H.pylori* was significantly higher in studied age group (20 – 50) years. This finding was agreement with many other studies that showed a similar age incidence of *H.pylori* [14].Who found that the major it of infection occurred in young and middle age groups (25 – 50) years more than in other age groups and the factors that predispose the higher colonization rates included poor socioeconomic status and less education in addition to genetic factors.

In our study, the presence of *H.pylori* in hydatid liver disease patients was determined by ELISA serum IgG anti-*H.pylori* antibodies test 67.2 % of patients were positive in serum IgG anti-*H.pylori* antibodies test. Patient were considered to be infected with *H.pylori* if they were positive in two of the three tests [12].

The use of multiple diagnostic methods was recommended to accurately diagnose *H.pylori* gastritis [13]. These results agree with the result of [15] who found the prevalence of *H.pylori* in (65.7 %) of Iraqi patients, in comparison with the results of Al-yas [16] and AL-Dhafer [17] who found the prevalence of *H.pylori* (81.5 %) and (74.78 %) respectively in Iraqi patients. Also our result were approve with the results of [18] who found the prevalence of *H.pylori* in (61 %) of Iraqi patients.

The results of many researchers depend on one or two tests only for the diagnosis of *H.pylori* and any test that would give positive result for *H.pylori* regarding it positive for final diagnosis. But every

diagnostic method has a percentage of false positive or negative result; there for, If at least two methods for *H.pylori* give positive result at the same time .

The present study demonstrated the relation between hydatid liver disease and presence of *H.pylori* – as the first study interested in this relationship, so, no any comparative studies were found to compare our results with others. In our study we found that patient with single cyst 18 (64.29%) and positive with *H. pylori* while the patient with more than one cyst (multiple) 10 (35.71%) positive for ELISA test that mean the patient with multiple hydatid cyst are more positive because of :

1. Existence of typical agricultural / animal husbandry management system with high numbers of intermediate hosts (principally sheep and cattle) and definitive hosts (principally owned and straydogs .
2. Most inhabitants living in close proximity to their domestic animals.
3. A low level of knowledge concerning the basic life cycle and transmission routes of the parasite.
4. A prevailing life style with poor sanitation, lack of clean culinary water , etc.

In addition , the role of weekly outdoor markets (souks) in rural AlNajif governorate cannot be overlooked as an important factor in transmitting hydatid disease. Animal in all types of conditions are brought to souks for auction and slaughter . most are eventually sold and then killed that day , and meat is cut and sold on site . Viscera are also sold or dispersed as well , and any infected material is likely discarded to ever – present stray dogs - , which wander aimlessly about , even into killing areas during and after slaughtering . Although meat is inspected, condemned viscera are not always denatures before subsequent disposal [4].

CONCLUSIONS

Strong relationship between presence of *H.pylori* and harbouring hydatid liver disease for the following reasons:

- a. Similar age incidence for both infected *H.pylori* and hydatid liver disease.
- b. Negative for the *H.pylori* and hydatid liver disease with relative to same environment and condition area.
- c. Low socioeconomic status clear for both *H.pylori* and hydatid liver disease.
- d. The positive ELISA for *H.pylori* infection with hydatid liver disease .
- e. More than one of hydatid cyst are more common.

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