A Study of Human Hydatidosis: Demographically and Clinically In Hilla City

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Abstract:

This study was carried out on 61 patients whom were suffering from acute and chronic hydatidosis, patients were attended to the Hilla Teaching Hospital; three Private Hospitals and private Clinics, study patients were outpatients, inpatients and follow-up patients whom were confirmed radiology as a hydrated cysts-infested individuals.

The study patients were chosen randomly, from both sexes and from different age groups too. During the period of nine consequent months (from mid of September 2011 until end of June 2012) .Their age groups were ranged from (15 – ≥ 64) years old, (12 males and 49 females). A questionnaire paper was performed to each patient including the information: age, sex, residence, clinical symptoms and case history.

From the obtained results, it’s revealed that the age group (35 – 44 years) was presented high hydatidosis parasitic infestation which was 32%, whereas, the age group (15-24) was presented low parasitic infection which was 8%. There are 20% of patients were males and 80% were females. Fifty patients were lived in rural area (82%). Also, 87% of patients were owning and contacting with animals. The clinical findings that associated most patients 74% were varied, and represented by high percentage value from those patients whom were suffered from abdominal pains 66%, and in low percentage value from those whom were tachypneal ones 11%

Key word: Hydatidosis, Radiology, clinical symptoms, Surgical department, Hilla Teaching Hospital. Private Hospitals and Clinics.

Introduction:

Human cystic echinococcosis (HCE) is a major world zoonosis affecting humans as well as domestic animals caused by infection with the taeniidae metacestode (protoscolices) as larval stage of Echinococcus granulosus (Thompson,1995; Teggi and Divico, 2002; Mathis et al.,2005). Tapeworm eggs are passed with the feces of infected carnivores and may subsequently infect humans who inadvertently ingest them (Schantz,1991; Andersen, 1997).

The life cycle of Echinococcus is indirect and involves two hosts, one definitive carnivore (cannis) host and the other intermediate herbivore host and human
The problem arises when humans act as an accidental intermediate host and ingest viable oncosphere-containing eggs, which have been shed in the faeces of the dogs (McManus et al., 2003; Zhang et al., 2008). The oncospheres invade the penetrates, enter the vasculature and develop into hydatid cysts in any organ or tissue, where a variety of symptoms can be produced. However, the liver acts as the first filter for hydatid larvae, making it the most commonly affected organ followed by lung (Kir and Baran, 1995; Kismet et al., 2008).

Epidemiological data on the distribution of hydration shows that its prevalence remained at nearly the same level during the last several decades. Moreover, the appearance of the disease within recent years in communities previously free of it, has produced an entirely new global situation (Satoh et al., 2005).

Hydatid disease is endemic in some countries, particularly where sheep and cattle are raised, such as Australia, New Zealand, the Mediterranean countries, the Middle East, and South America (Andersen et al., 1991; Gottstein and Reichen, 2003; McManus et al., 2003). In Iraq, where the prevalence of hydatid disease is reported in several studies (AL-Dabagh and AL-Janabi, 1990; Baban, 1990; Aldulaimi et al., 1992; Al-Timimi, 1993; Taha, 1999; Mentes et al., 2000; Elissondo et al., 2002). The disease particularly common in the rural regions (Aldulaimi et al., 1992; Marquardt et al., 2000; Miabi et al., 2005).

Clinical manifestation of hydatidosis is characterized by tumor-like growths that occur mostly in the liver and lungs, with varying degrees of infection of other organs (Abdel-Hafez and Al-Yaman, 1989; Farmer et al., 1990). These growths are usually filled with a watery fluid known as 'hydatid cyst fluid. Because of the slow progression of the disease, it may initially be asymptomatic or show very slight manifestations (Lyagoubi et al., 1997). However, serious clinical symptoms may eventually develop, which vary, depending on the extent of infestation, the site of infection, and the size of the hydatid cyst (Shambesh, 1997).

The diagnosis of CE is based on the patient's history, clinical findings, haematological and serum biochemical profiles, and serological testing, which may be negative in 10% to 20% of cases (Bartholomot et al., 2002). Also, the diagnosis of CE in individual patients is based on identification of cyst structures by imaging techniques, predominantly ultrasonography, computed tomography, X-ray examinations, and confirmation by detection of specific serum antibodies by immunodiagnostic tests (Grimm et al., 1998; Teggi and Divico, 2002).

Patients and methods:

Patients:

The present study was carried out in Hilla City for the period from mid of September / 2011 until end of June 2012. The study included 76 individuals: 61 radiology confirmed hydatid cyst-infected individual.

The admitted hospital-based study was carried out in: Government Hilla Teaching Hospital; Private Hospitals (Al-Hayaat, Al-Sheifaa, Al-Faihah) and private Clinics, on all outpatients with inpatients and follow-up patients whom were confirmed as a hydrated cysts-infested individuals. All hydatid cyst infected individuals in the field of present study were chosen randomly (by chance) from both sexes and from different ages too.

Data collection:
Data concerning each confirmed hydatid cyst infected individual in the field of present study were obtained and registered in specialized, previously performed, questionnaire paper that occupied with the following informations as shown in the following table.

**Table-1: Questionnaire paper concerns the confirmed hydatid cyst infected individuals.**

<table>
<thead>
<tr>
<th>Patients Criteria</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name :</td>
<td>*</td>
</tr>
<tr>
<td>Age :</td>
<td>*</td>
</tr>
<tr>
<td>Sex :</td>
<td>*</td>
</tr>
<tr>
<td>Residence :</td>
<td>*</td>
</tr>
<tr>
<td>Animal ownership :</td>
<td>*</td>
</tr>
<tr>
<td>Site of infection :</td>
<td>*</td>
</tr>
<tr>
<td>Infection frequency :</td>
<td>*</td>
</tr>
<tr>
<td>Infection nature (solitary or multiorgans) :</td>
<td>*</td>
</tr>
<tr>
<td>Administered medicines:</td>
<td>*</td>
</tr>
<tr>
<td>Clinical symptoms and signs:</td>
<td>*</td>
</tr>
<tr>
<td>Diagnostic report:</td>
<td>*</td>
</tr>
</tbody>
</table>

* It is noteworthy, all listed above informations (in a questionnaire paper) were obtained from targeted patients themselves, their medical and diagnostic reports, and finally from specialist doctors consultation (surgeons, radiologist) for obtaining more accuracy of data.

**Specimens collection:**

**Hydatid cyst samples.**

Human hydatid cysts were obtained from infected individuals by the aid of surgical physician, and transported immediately to laboratories for preparing and preserving processes for intended purposes, (figure-1).
Examinations

1-Parasitic examination:
Most of the studied patients whom confirmed(radiology) with hydatidosis , in the field of present study ,were investigated to show the parasitic organism in their infected organs .The hydatid cyst samples of the larval stage of *Echinococcus* parasite were collected and handled with all appropriate precautions .In the collection of samples , a combination of syringing and dissection tools was used to remove parasitic organism especially protoscoleces .Then the collected samples were painted in 70% ethanol and transported to the parasitic laboratory for intended purposes.

2-Clinico-symptomatical examinations:
They were revealed unilobular and bilobularear liver-hydatid cysts , hepatomegaly, chollangitis, and larval stages of parasite (hydatid cysts) which scattered on/in many other physiological organs(kidney, spleen, pleural cavity, ovary) . Furthermore, with the aid of CT scan ”in some cases”, x-ray “in most cases”and MRI “in special cases”. It was revealed that some patients were had obvious lung discharge(as in hemoptysis), with pleural ascite.

3-Pathological examination:
After consultation the specialist doctor (surgeon, radiologist) and the inspection of the admitted patients medical and diagnostic reports, it was revealed that the pathogenicity and dysfunction of the infected organs was with high vulnerable and dampenable effects.
4- Surgical examinations:
By the aid of surgical microscope and under general anesthesia prior to surgical operation, patients whom selected for surgical excise were those who had untolerated- and enlarged -hydatid cyst for remove and deciding the origin of pathology and those who had sclerosed and granulation tissues. In the note of worth, the application of local and systemic recommended antibiotics was done for all patients before and during surgical intervention, and most of patients when follow-up conservative and/with surgical intervention during study’s months, seemed asymptomatic and healthy.

Results:
The obtained results were analyzed and depicted in the following tables:

Table-2: Demographic features of 61 confirmed hydatid cystic patients

<table>
<thead>
<tr>
<th>Age-group (in years)</th>
<th>Infected number</th>
<th>%</th>
<th>sex</th>
<th>Residence</th>
<th>Animal ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>male %</td>
<td>female %</td>
<td>Urban %</td>
</tr>
<tr>
<td>15-24</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>25-34</td>
<td>16</td>
<td>26</td>
<td>3</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td>35-44</td>
<td>20</td>
<td>32</td>
<td>4</td>
<td>33</td>
<td>16</td>
</tr>
<tr>
<td>45-54</td>
<td>12</td>
<td>19</td>
<td>2</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>55-64</td>
<td>8</td>
<td>13</td>
<td>1</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>100</td>
<td>12</td>
<td>20</td>
<td>49</td>
</tr>
</tbody>
</table>

Table-3: Clinical symptoms and signs in 61 confirmed hydatid cyst infested individuals.

<table>
<thead>
<tr>
<th>Symptoms and signs</th>
<th>Number of hydatid cystic individuals</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic</td>
<td>16</td>
<td>26</td>
</tr>
<tr>
<td>Symptomatic</td>
<td>45</td>
<td>74</td>
</tr>
<tr>
<td>Fever</td>
<td>14</td>
<td>31</td>
</tr>
<tr>
<td>Anorexia</td>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td>Nausea</td>
<td>15</td>
<td>33</td>
</tr>
<tr>
<td>Jaundice</td>
<td>13</td>
<td>28</td>
</tr>
<tr>
<td>Hepatomegaly</td>
<td>21</td>
<td>46</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>30</td>
<td>66</td>
</tr>
<tr>
<td>Weight loss</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Perspiration/Night sweat</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>Vomiting</td>
<td>17</td>
<td>37</td>
</tr>
<tr>
<td>Chills</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Cough</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Tachypnea</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Chest pain</td>
<td>15</td>
<td>33</td>
</tr>
<tr>
<td>Hemoptysis</td>
<td>7</td>
<td>15</td>
</tr>
</tbody>
</table>
*Each clinico-symptomatical studied patient might be suffered from more than one clinical symptom during the same time of investigation.

**Discussion:**
Our finding lines according to:

1- Parasitic organisms causing hydatidosis:

Hydatid cyst disease is an extensive problematical disease with fated occurrence in developing countries like Iraq, particularly in the cattle- and sheep-raising areas (AL- Autabbi, 2002). Studying of the hospital records is one of the most reliable incidences for disease, because incorrect diagnosis in surgical cases of hydatid disease is rare (Horton,1989). In the present study, exactly 61 confirmed cases of human hydatid disease (selected randomly), were investigated and analyzed in some terms of demographically and symptomatology.

2- For age distribution.

In regarding to the age distribution of hydatid disease it was found the highest prevalence was between the age of 25-54 years old. Many workers (Molan and Baban, 1988; Molan and Zangana, 1989 ) also reported the same finding. On the other hand our study found that the majority of cases were between the age group 35-44 years old, it is similar to the studies done by Mahmoud and Al-Janabi (1983). While Molan and Baban (1989), observed that the children and young patients under 21 years old had highest rate of infection. The high rate of infection among patients aging from (25-34) and (35-54) years old in this study, reflects that all groups are susceptible to infection with hydatid cyst. Molan and Baban (1988), found the high rate of infection among 20-50 years old. Molan and Zangana (1989), referred the infection in patients admitted to hospitals in Iraq between the age 25-40 years, while El- Boulagi and Taguri (1980), in Lybia were found the high rate of infection between the age 20-30 years, while Al- Samarrae and Al- Samarrae (1998) observed that the majority of patients of hydatid cysts are young adult 30-40 years old.

Baban (1990) found the age group 31-40 years old was the highest infectious group, while Zangana (1994) found the high group between the age 20-30 years old in Kirkuk. The lowest rate of infection with hydatid disease in this study was between the age 15-24 years old. This is in disagreement to the finding of Al- Autabi (2002), who found the lowest rate of infection above the age of 50 years old and Hashim (1998) found the lowest infection rate between the age group 81-90 years old.

The explanation for such differences in the present study age groups might be due to rate of development of the cyst that persists for many years; or to the number of studied group whom included in present study and to the recurred infection in the same studied patient too and the behavior of targeted subject.
3- For residence distribution.

The present study issued highest rate of infection in rural area (82%) more than that in urban area(18%), which agree with studies reported by some workers(Aldulaimi et al.,1992; Al-Timimi,1993; Saeed et al.,2000; Al-Autabbi,2002).

4- For animals ownership distribution.

In regarding to animal ownership , the present study showed that individuals who were own or contact with animals having more chance to be infected than those who were not (87%) and (13%), respectively .The result of present study is agree with that recorded by other studies (Aldulaimi et al.,1992 ;Marquardt et al.,2000 ; Saeed et al.,2000 ; Miabi et al.,2005).

The explanation for such differences in both situations listed above (patients residence and animal ownership) might be due to continual shedding of eggs and the close association of human and dog create a situation in which person (or other Intermediate hosts) may occasionally ingest a few living hexacanths embryo which develop to a damaging infection (Schwable,1986 ; Molan and Said, 1989 ).

In addition, the most probable cause of infection in other patients might be contamination from uncooked foods or raw vegetables. This finding implies that risk factors associated with hydatid infection could include dog ownership, the frequency of contact with dogs and sheep, and certain occupations ( Zeibig,1997 ; Saeed et al., 2000 ; Haridy et al.,2003 ).

5- Clinico-symptomatically study.

According to clinical symptoms and sign distribution, the present study on the 61 confirmed cases of hydatid disease, depicted all clinical symptoms and signs in which that most of the present study patients were closed to or suffered from . Some patients seem to tolerate the infection for extended periods without any symptomatology, or they may suddenly show dramatic and acute symptoms . Precisely, 16 case of confirmed hydatid cystic –individuals in the field of present study were asymptomatic (26%), and the presence of such result is common able in such studied subjects .

Many studies were noted such results(Lyagoubi et al., 1997 ; Shambesh, 1997; Taylor and Langer,1997), and the explanation for this result may be attributed to small-sized of hydatid cyst, unruptured hydatid cyst, un complicated hydatid cyst, and follow-up ones. High percentage of patients were suffering from abdominal pains(66%), and low percentage of them were tachypneal (11%), and the rest of them were between the two above mentioned percentage values .

The study result is in consistent with other studies done in our countryside, in neighbor countries and in foreign countries too,(Abdel-Hafez and Al-Yaman, 1989 ; Molan and Baban,1989; Al-Timimi,1993 ; Andersen, 1997; Shambesh, 1997 ; Burgos et al.,1999 ; Jablawi, 1999 ; Taylor and Langer,1999 ; Marquardt,et al.,2000).

The explanation for such results (varied percentages of clinical symptoms and signs among studied patients) might be related to extent of infection, infected organ, size of hydatid cyst, multiplicity of hydatid cyst, accidental rupture of hydatid cyst, absence or delayed of the recommended treatments, immunological levels of targeted individuals “immune-competence or compromised ones”, and other complications too (Ormeci et al.,2002 ; Tegti and Divico, 2002 ; Smego et al.,2003 ; Satoh et
Infections with *E. granulosus* cysts in intermediate hosts (sheep, goat, cattle, horses, etc.) are typically asymptomatic, except a few cases of long-standing and heavy infections.

References:


