Hydatid Cyst Among Patients Attending Al-Jamhoory Teaching Hospital in Mosul, Epidemiology and Clinical Profile

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ABSTRACT

Background: Hydatid disease is a zoonosis induced by Echinococcus tapeworms. Humans are infected by ingestion of Echinococcus eggs by eating contaminated food.

Objective: To Investigate the epidemiology of hydatid cyst first and final diagnosis in patients find out its clinical profile.

Method: The current study is a Case-series retrospective study for the patients attending Al-jamhoory Teaching Hospital between January 1, 2019, and July 1, 2021. The information was gathered from medical records. The data were analyzed using the frequency index, relative frequency and SPSS (Statistical Package for the Social Sciences).

Results: One-hundred eleven patients underwent during the study period. Sixty-three percent of them were males. unemployment state was 81.98%. The commonest ages of infection were 41-50 years as constitute 38.73%. About Fifty-nine percent of the patients were affected in the liver and about four percent of the patients were injured in the lungs. Villagers made up 57.65% of the patients. We found a total of (65.76%) patients had cats or dogs at home. The diagnosis of hydatid infection by Ultrasound of abdomen, Chest X-ray, and CT of the chest were (47.74%), (42.34%) and (9.9%) respectively. About Ninety percent of patients eat at restaurants on a regular basis. About Twenty-eight percent of patients have a hydatid cyst in their family.

Conclusion: The study indicate that diagnostic instruments are fundamental in diagnosis of hydatid as its diagnosis through clinical or preclinical are uncertain. Further education program is recommended to decrease its occurrence in Mosul city.

Keywords: Infection, Hydatid Cyst, Epidemiology, Parasites, Surgery.

داء المشوكات بين مرضى مستشفى الجمهوري التعليمي في الموصل ، الوبائيات والملف السريري

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الخلاصة

الخلفية : مرض العداري هو مرض حيواني المنشأ تسببه الديدان الشريطية المشوكة. يصاب البشر عن طريق تناول بيض المشوكة عن طريق تناول طعام ملوث.

الهدف : للتحقيق في وبائيات التشخيص الأول والنهائي للكيس العدارية في المرضى ، اكتشف ملفه السريري.

الطريقة : الدراسة الحالية عبارة عن دراسة بأثر رجعي لسلسلة حالات للمرضى الذين حضروا إلى مستشفى الجمهورية التعليمي بين ١ يناير ٢٠١٩ و ١ يوليو ٢٠٢١. تم جمع المعلومات من السجلات الطبية. تم تحليل البيانات باستخدام دليل التردد والتكرار النسبي و SPSS (Statistical Package for the Social Sciences).

النتائج : خضع مائة أحد عشر مريضا خلال فترة الدراسة. ٦٣٪ منهم من الذكور. كانت حالة البطالة ٨١.٩٨٪. كانت أكثر الأعمار شيوعًا للإصابة هي ٤١-٥٠ سنة حيث شكلت ٣٨.٧٣٪. حوالي تسعة وخمسين في المئة من المرضى أصيبوا في الكبد

وحوالي أربعة في المئة من المرضى أصيبوا في الرئتين. شكل القرويون ٥٧.٦٥٪ من المرضى. وجدنا ما مجموعه (٦٥.٧٦٪) من المرضى لديهم قطط أو كلاب في المنزل. تم تشخيص عدوى العداري بالموجات فوق الصوتية للبطن وأشعة الصدر والأشعة المقطعية للصدر بنسبة (٤٧.٧٤٪) و (٤٢.٣٤٪) و (٩.٩٪) على التوالي. حوالي تسعين بالمائة من المرضى يأكلون في المطاعم بشكل منتظم. حوالي ثمانية وعشرين في المئة من المرضى لديهم كيس عداري في عائلاتهم.

الاستنتاج : تشير الدراسة إلى أن أدوات التشخيص أساسية في تشخيص العداري لأن تشخيصه من خلال السريرية أو قبل السريرية غير مؤكد. يوصى ببرنامج التعليم الإضافي لتقليل حدوثه في مدينة الموصل.

الكلمات المفتاحية : العدوى، داء المشوكات ، علم الأوبئة ، الطفيليات ، الجراحة.

INTRODUCTION

Hydatid cyst is a zoonotic parasitic illness caused by Echinococcus granulosus larval development [1,2] . The mature worm of this parasite resides in the intestines of dogs and canines as ultimate hosts, with herbivores serving as major mediator hosts [3] . Humans, as intermediary hosts, become infected by mistake, either by drinking contaminated water, eating contaminated vegetables, or coming into direct contact with dogs [4] . The clinical and epidemiological symptoms of hydatid cyst infection vary depending on the degree of infection, size, and location of hydatid cyst development [5] . Infection of humans with this illness has been documented in several parts of Iraq [6] . Hydatid cyst illness is extremely important; it affects vital organs in humans, particularly the liver and lungs, and it causes considerable economic losses in animals [7] . Furthermore, despite the availability of novel therapeutic options, surgery remains the most prevalent treatment option for this condition, resulting in significant economic and health consequences for nations [8]. Hydatid cysts, according to certain research, have distinct clinical-radiological features and treatment approaches. As a result, clinicians frequently struggle to make a solid diagnosis for this condition [9] . As a result, getting an appropriate diagnosis is critical for treating this condition and avoiding its consequences. Given the annual rate of this disease, relapse cases, and the serious consequences of an incorrect diagnosis, the current study aimed to investigate the epidemiology of hydatid cyst first and final diagnosis in patients admitted to the surgery unit of Al-jamhoory teaching hospital in Mosul from January 1, 2019 to July 1, 2021 with its clinical profile.

Hydatid disease is diagnosed using a variety of serological testing. Indirect hemagglutination (IHA) and Immunoelectrophoresis are two common tests (IEP). IHA has a 60 % sensitivity in calcified or lung lesions and an 88 % sensitivity in peritoneal or liver disease, with a 90-95 %specificity [1,2] . Although IEP is considered a very specific test, cross-reactivity with other illnesses such as Taenia Solium (Cysticercosis) or, in rare cases, liver cirrhosis or malignancy, may occur (cross-reactivity with P1 antigen).

Treatment of HC of the liver can include medical therapy, percutaneous drainage, or surgical intervention (via a conventional or laparoscopic approach). [7]

MATERIALS AND METHODS

The current study is a Case-series retrospective study. The study's statistical population included all hydatid cyst patients who admitted to Al-jamhoory Teaching Hospital and had surgery between January 1, 2019 and July 1, 2021. The information for this study gathered by consulting the patients' medical records. They then documented in the checklists that had been created specifically for this reason. Demographic information (gender, age, occupation, residence, and nationality), information about hydatid cysts (infected organ and number of cysts), and questions about symptoms, clinical symptoms, date of referral, date of discharge, length of stay in hospitals, primary diagnosis, serological tests performed, test results, infected area, and final diagnosis are all included. The data analyzed using the frequency index, relative frequency, and SPSS (Statistical Package for the Social Sciences).

RESULTS

About Sixty-three percent of the 111 patients with hydatid cysts admitted at Al-jamhoory teaching hospital and undergoing surgery from January 1 to July 1, 2021, where (%36.93) were female. Thirty-eight percent of Infections was found in the age group 41-50 (Table 1). Unemployed people infected at a rate of 81.98 %; this was a very high prevalence of infection when compared to employees (Table 2). In terms of the affected organ, (%59.45) of study patients were infected in the liver, (%4.5) patients were infected in the lungs, and (% 36.03) patients were infected in both the liver and the lungs. Villagers made up (%57.65) of the patients, whereas townsfolk made

up (% 42.34). A total of (%65.76) of the patients had cats or dogs at home. Patients with hydatid cysts had (%67.56) cases of stomachaches, (%8.1) cases of coughing and chest discomfort, and (%24.32) of cases ~~of~~ complaining from fever and loss of appetite in addition to the aforementioned symptoms Table 3 . The following procedures were used to diagnose a liver hydatid cyst: (% 47.74) patients had a medical ultrasound, (% 9) patients had a CT scan, and (% 42.34) patients had a chest x-ray (Table 2). Hundred and one patients eat at restaurants on a regular basis~~.~~ Twenty-eight of the patients had a hydatid cyst in their family Table 4 .

Table 1: Socio demographic characteristics of study participants

Gender		Male No. (%)	Female No. (%)	Total No. (%)	P-value
Age	20 - 30	8 (11.42%)	3 (7.31%)	11 (9.9%)	0.09
	31 - 40	13 (18.57%)	5 (12.19%)	18 (16.21%)	
	41 - 50	27 (43.57%)	16 (39.02%)	43 (38.73%)	
	51 - 60	19 (30.14%)	11 (26.82%)	30 (27.02%)	
	61 - above	3 (9.28%)	6 (14.63%)	9 (8.1%)	
Job	Employee	12 (17.14%)	8 (19.51%)	20 (18.01 %)	0.05
	Unemployed	58 (82.85%)	33 (80.48%)	91 (81.98%)	

Table 2: Frequency of diagnostic tests used for patients with hydatid cyst.

Variables		No. (%)	P-value
Diagnostic test	Ultrasound of abdomen	53 (47.74%)	0.11
	Chest X-ray	47 (42.34%)	
	CT of the chest	11 (9.9%)	

Table 3: distribution of sites of injury and apparent symptoms on the patient

Variables		No. (%)	P-value
Infected Site	liver	66 (59.45%)	0.06
	liver & lung	40 (36.03%)	
	lung	5 (4.5%)	
Main Sign & symptom	stomachaches	75 (67.56%)	0.18
	coughing and chest pain	9 (8.1%)	
	fever and lack of appetite	27 (24.32%)	

Table 4: Frequency of some Risk factors for developing hydatid cyst among study population

Variables		No. (%)	P-value
Patients Eat Frequently At Restaurants	Present	101 (90.99%)	0.02
	Absent	10 (9%)	
Family History	Present	32 (28.82%)	0.13
	Absent	79 (71.17%)	
patients have cat & dogs at home	Present	73 (65.76%)	0.04
	Absent	38 (34.23%)	

DISCUSSION:

one hundred eleven individuals were hospitalized with hydatid cyst from January 1, 2019, to July 1, 2021. (63.06%) more than half of cases were males have hydatid cyst infection; the study population Similar from a study done by khamees et al 2020 [9] . More male infection cases have been observed in a research done by Al-Ani et al 2020 [10] . As a result of direct contact with the soil during agriculture, animal husbandry, and employment outside the house, males are more prone to develop hydatid cysts. All of the participants in this research had had surgery for a hydatid cyst. There was no statistically significant difference regarding age distribution were P-value (0.09), The prevalent age group were between 41-50 age group, followed by the age group 51-60. the infection has the potential to impose a significant impact on the villagers' home economics by lowering working hours and the amount of labor done. The results of this study are in line with those of previous study done by Bhatt et al 2019, and Akkapulu et al 2018 [4,7] .

who mentioned that although the age distribution of the current study is consistent with that of many other studies such study done by Al-Ani et al 2020 [10] , it differs from that of Abdulhameed et al 2018 in Basrah; the main reason for this could be the age gap between more active classes of stockmen and stockbreeders in this province in their fourth and fifth decades of life [11] . Medical ultrasonography (47.74 %) and chest X-rays (42.34 %) were the most often utilized diagnostic tests in this study. CT scans, on the other hand (% 9.9). The findings of this study are congruent with those of Fallah et al 2019 [12] . when it comes to CT scans and medical ultrasounds as the most widely utilized techniques of detecting abdominal hydatid cyst. When the sonographer suggests it, a CT scan is requested. Maharjan et al 2018 found that Elisa and indirect hemagglutination were the most reliable serological tests for illness initial diagnosis and recurrence in a study of 22 patients who had had hydatid cyst surgery. We did not find any statistically significant differences in our results, where the value of P-value (0.11) . Moreover, compared to other serological techniques, the dot-Elisa test has a higher level of sensitivity. Khamis' study reports the dot ELISA test to detect hydatid cyst in people as a rapid, low-cost, and 100% sensitive diagnosis [9] . It was difficult to use this test due to the lack of permanent and sufficient materials needed for this test. Because of the differential diagnosis and understanding of the cyst setting state, physicians prefer ultrasound testing over serological tests. A chest X-ray is the most commonly used method for diagnosing a hydatid cyst in the lung. According to Ahmed's 2019 research, chest x-ray sensitivity of individuals with hydatid cyst was more effective [8].

Patients from country side constitute more than half of the study population. Where we found significant statistically correlation P-value (0.05). The reason for this Because individuals in rural areas have greater direct interaction with animals than city dwellers, as Parkoohi et al 2018 discovered in his research [13] . They also ate a lot of food at restaurants (90.99%) where we found significant statistically coloration P-value (0.02) , which might be due to a lack of attention to hygiene and pollution in restaurants, which has resulted in a rise in the prevalence of illness. These findings are in line with the findings of Sarawagi et al 2018 [5] . The patients that owned an animal in the house constituted (65.76%) as we found a significant statistically difference P-value indicating a higher infection value (0.02) among them as a consequence of direct contact with such animals, especially if there is no health knowledge and care for animal health and regular trips to the veterinarian. This finding is in line with the findings of several researches such as study done by Fallah et al 2019 [12] . Including research into Joshi et al 2020 and Al-Ani et al 2020 as well as other studies [6,10] . The liver was the location of damage in 59.45 % of cases, followed by the liver and lung in 36.03 % of cases, and the lung in 4.5 % of cases. This finding is in line with the findings Al-Ani et al 2020 in their research, who reported a variety of signs and symptoms, including delusions, pallor, stomach discomfort, enlarged liver, and coughing, and shortness of breath in some cases. This is similar to the findings of Abuhajar et al 2018 and Abebe et al 2017 in their research [10,14,15].

CONCLUSION

The study indicate that diagnostic instruments are fundamental in diagnosis of hydatid as its diagnosis through clinical or preclinical are uncertain. Further education program is recommended to decrease its occurrence in Mosul city.

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