Retrospective Epidemiological Study of Hydatid Cyst Disease in Babylon Governorate, Iraq.

Abstract

Background: Hydatid disease, often known as cystic echinococcosis (CE), is a neglected zoonotic parasitic infection caused mostly by the larval stage of Echinococcus granulosus sensu lato. In endemic areas, like as the Middle East, where rural exposure and close contact with domestic animals can further assist transmission, it continues to be a serious public health concern

.**Objectives:** To outline the morphological, scientific, sociodemographic, and epidemiological features of hydatid cyst disease in patients assessed at Hilla Teaching Hospital in the Babylon Governorate of Iraq.

Materials and Methods: From January 2025 to January 2026, a retrospective epidemiological investigation was conducted at Hilla Teaching Hospital. 218 individuals' medical records were examined. Anatomical, medical, social, and demographic factors were taken out. IBM SPSS Statistics model 24.Zero was used to analyze the data. Pearson's chi-square test was used to assess categorical data, and Student's t-test was employed where appropriate for continuous variables. A P-value of less than 0.05 was deemed statistically significant.

Results: In 26 out of 218 studied cases (11.93%), hydatid cyst disease was identified. There were sixty-nine females.23% of fantastic instances compared to 30.77% of adult men; nevertheless, the correlation with sexual activity was no longer statistically significant (P=0.410). The greatest number of cases occurred in people between the ages of 21 and 30. The most common location of involvement was the liver (73.08%), followed by the lung (11.54%). The majority of patients (88.46%) were first-time illnesses, whereas eleven instances had recurrences.54%. The most common clinical symptom (50.00%) was abdominal pain.

Conclusion: In the Babylon Governorate, hydatid cyst disease continues to be a serious clinical and epidemiological problem. The prevalence of stomach symptoms and hepatic involvement highlights the importance of early detection and appropriate diagnostic evaluation. It is necessary to implement integrated One Health preventative methods, public education, and increased surveillance.

Keywords: hydatid cyst, epidemiology, echinococcus granulosus, echinococcosis, liver, Iraq.

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Introduction

A little-known zoonotic infection, cystic echinococcosis (CE), also known as hydatid disease, is mostly caused by the larval stage of Echinococcus granulosus sensu lato. The parasite is found all over the world and is sustained via a life cycle between intermediate bovine animals, particularly sheep and other ungulates, and carnivorous definitive hosts, primarily domestic dogs. As unintentional intermediate hosts, humans become infected when they consume parasite eggs that contaminate food, water, soil, or palms. Because of its long course, prolonged asymptomatic duration, potential for significant organ involvement, and significant clinical and financial consequences, CE continues to be a significant public health concern.[1-3] Recent international criticisms continue to highlight the disease's continued relevance in

pastoral and rural communities, where close human-animal contact facilitates transmission. [4,5]

The use of environmental, social, occupational, and cultural variables substantially encourages the epidemiology of CE. The parasite is sustained when infected pups get access to raw, inflammatory offal from cattle, which permits the development of adult worms inside the dog's gut and the release of eggs into the environment. Inadvertent consumption of these eggs ultimately results in human infection. As a result, canine ownership, cow rearing, agricultural jobs, poor hand hygiene, contaminated water sources, unsuitable slaughtering methods, and sporadic scholastic achievement have all been identified as relevant epidemiological concerns.[6, 7] Significant correlations between human echinococcosis and rural location, low academic level, jobs connected to agriculture or livestock, dog ownership, water resources, and poor hand hygiene were found in a recent comprehensive review and meta-evaluation including over a million people. [7]

Regardless of improvements in analysis and treatment, the worldwide burden of CE remains significant. Continuous transmission throughout numerous countries and regions has been tested by analyzes mostly based on data from the Global Burden of Disease, with particularly high burdens in areas with poorer socioeconomic development and mounted cattle-canine transmission cycles. [8,9] According to a recent 32-year analysis of 204 countries, CE continues to cause widespread prevalence and impairment, and predictions suggest that the condition will likely continue to be a public health concern for the next 10 years.[9] The burden of chronic illness and significant regional variation in frequency, mortality, and incapacity-adjusted life years have also been demonstrated by recent analyzes of Central Asian foreign locales.[10] These results confirm the continued necessity of epidemiological monitoring, particularly in endemic areas where population-based screening and routine notification may be scarce.CE often has a continuous clinical orientation. Oncospheres pierce the intestinal wall and reach the liver through the portal flow following the consumption of Echinococcus eggs. Some larvae reach the lungs or, much less frequently, other organs by avoiding the hepatic circulation. Additionally, hydatid cysts may develop slowly and show no symptoms for years. The position, length, range, biological degree, and existence of headaches—such as contamination, rupture, biliary conversation, blockage, or secondary dissemination—all play a significant role in the scientific symptoms..[3,11] Hepatic illness frequently manifests as abdominal pain, stomach discomfort, hepatomegaly, and stomach mass, whereas pulmonary disorders can also cause cough, chest pain, dyspnea, or other respiratory symptoms. [11,12]

The liver, as seen via the lungs, is the central page of human CE. Hepatic involvement accounted for 72.58% of cases in a molecular and medical analysis from the Kurdistan Region of Iraq, while pulmonary involvement accounted for 19.35%; women made up 66%.The most common age group was 21–30 years old, accounting for 13% of the total.[13] Because the current research is conducted in the Babylon Governorate and other Iraqi regions where agricultural practices and human-animal interactions may possibly contribute to long-term transmission, these findings are

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especially pertinent to the current analysis.CE can occur in practically any organ, even though hepatic and pulmonary involvement account for nearly all infections. The spleen, kidney, reproductive organs, critical nervous system, heart, thyroid, and other tissues are examples of unusual sites.[14–16] Because the medical symptoms may mirror many cystic, inflammatory, or neoplastic disorders, such localization may also make the prognosis more difficult. The diagnostic challenges associated with atypical anatomical locations have been highlighted by recent comprehensive reviews of urogenital, cardiac, and intracranialCE.[14–16].As a result, CE has to be included in the differential diagnosis of appropriate cystic lesions in patients who come from or live in endemic regions.

Overall imaging is necessary for accurate analysis. Because ultrasonography can identify function cyst form and permit categorization according to the WHO-IWGE staging mechanism, it continues to be the preferred first-line imaging modality for hepatic and other belly CE.[17, 18] The most significant medical significance of classifying CE into active, transitional, and inactive stages is that treatment choices should be made based on the organic activity and form of the cyst rather than just its existence. While computed tomography and magnetic resonance imaging offer complementary statistics in certain anatomical areas or complex diseases, recent research suggests that ultrasound is still essential for every analysis and staging.[17,18]

While the prognosis is unclear, serological testing can supplement imaging. However, the location and level of the cyst help to increase its diagnostic sensitivity. Serological sensitivity tends to be lower in inactive CE4 and CE5 cysts and greater in energetic hepatic cysts, namely CE2 and CE3, according to a comprehensive review and meta-evaluation.[19] According to more recent scientific studies, endemicity, cyst area, eosinophilia, imaging features, and treatment history all influence serological overall performance.[20] As a result, poor serology may not necessarily rule out CE, particularly in patients with extrahepatic conditions or dormant cysts.

The management of CE has progressively moved from a mostly surgical approach to a customized, level-specific treatment. Surgical therapy, percutaneous procedures such as PAIR, antiparasitic medication with benzimidazoles, active surveillance, and a "watch-and-wait" strategy for selected dormant cysts are among the available alternatives.[4,21] Evidence from comprehensive reviews suggests that percutaneous treatment can provide outcomes comparable to surgery for well chosen hepatic cysts while undoubtedly reducing headaches and hospital stays.[21] The 2024 Cochrane review on clear-cut hepatic CE also emphasized the need of matching treatment to cyst characteristics and available data.[22] The 2025 WHO guiding concept, particularly for simple inactive cysts, places a strong emphasis on level-specific care and avoiding needless intrusive techniques.[23]

After therapy, recurrence is still a serious medical issue. Spillage of potential protoscolices, an inadequate treatment, subsequent spread, or the formation of additional cysts might be the final cause. The necessity of long-term monitoring and comprehensive treatment of recurrent CE is still emphasized in recent research.[24]

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This issue is especially relevant in endemic locations where long-term surveillance may be difficult and patients may also enjoy frequent publicity.

The need for long-term research is further supported by the epidemiological situation in Iraq. Human CE in the Kurdistan Region has been confirmed by recent Iraqi research, along with the molecular identity of E. Granulosus sensu lato and a predominance of hepatic disorders.[13] In addition, an epidemiological investigation in Sulaimani Province evaluated CE amongst sheep, goats, and cattle, demonstrating continuous transmission of the parasite among important intermediary hosts.[25] These results suggest that transmission remains elevated at the human-animal interface in Iraq. Comparable epidemiological information from Babylon Governorate remains rather constrained, in particular addressing the demographic and clinical features of human cases.

For long-term CE management, a One Health approach is therefore essential. Because the parasite cycle is maintained by inflamed pups and cattle, human therapy alone cannot stop transmission. Coordinated interventions pertaining to routine canine deworming, enhanced slaughtering procedures, proper disposal of diseased offal, livestock surveillance, network education, advanced cleanliness, and veterinary–medical cooperation are necessary for effective manipulation.[26–28] In contrast to standalone treatments focused on character sufferers, integrated monitoring and preventive techniques are more likely to achieve long-term reductions in transmission, according to recent international evidence.[26,27]

Thus, the current retrospective analysis was created to elucidate the medical and epidemiological characteristics of hydatid cyst illness among individuals whose scientific data were examined at Hilla Teaching Hospital, Babylon Governorate, Iraq, from January 2025 to January 2026. In order to provide you a local epidemiological profile of CE, special consideration was paid to demographic traits, socioeconomic determinants, anatomical distribution, recurrence, and clinical signs.

Materials and methods

Study design

This retrospective epidemiological study was conducted between January 2025 and January 2026 at Hilla Teaching Hospital in the Babil Governorate of Iraq. A retrospective analysis of the medical records of 218 patients with hydatid cyst illness was conducted. Age, sexual activity, home location, education level, occupation, monthly family income, domestic animal ownership, personal hygiene habits, family history of hydatid cyst disease, anatomical site of cyst involvement, imparting signs, type of cysts, and whether the contamination was classified as primary or secondary were all included in the variables. Incomplete, duplicate, or insufficient records for the variables needed for the analysis have all resulted in the exclusion of records. The final review has only addressed qualifying statistics with sufficient medical and epidemiological information.

Statistical analysis:

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IBM SPSS Statistics, model 24.0, has been used for data entry, coding, and statistical analysis. While categorical variables have been provided as frequencies and possibilities, continuous variables have been described using relevant descriptive facts, approach, and general deviations. Pearson's chi-rectangular (χ^2) test has been used to evaluate associations between express variables. When comparing continuous variables across agencies, the Student's t-test is used as long as the underlying assumptions are met. A P-value of ≤ 0.05 was deemed statistically significant, and all statistical evaluations were -sided.

Ethical aspects

The experiment accomplished according to the Declaration of Helsinki and approved by the Scientific Research Ethics Committees of the University of..., College of..., Iraq, and the Babil Directorate of Health/Training and Development Center (Document No...., dated / /, 2024). Since this study is mostly based on retrospective records, there was no direct interaction with impacted individuals. Every record was examined in a private, anonymous manner without any personally identifying information, in my opinion.

Results

The retrospective analysis was reachable at Al-Hilla Teaching Hospital, Babylon Governorate, Iraq, between January 2025 and January 2026, a total of 218 people were safeguarded. Eleven of the examined members exhibited an ordinary prevalence of hydatid cyst illness, with 26 having received a diagnosis.At the same time, 192 members (88.07%) and 93% were impoverished (Table 1).

Table 1. Distribution of Examined Participants According to Hydatid Cyst Disease Status

Hydatid cyst disease status	Frequency (n)	Percentage (%)
Positive	26	11.93
Negative	192	88.07

Female participants constituted 136 (62.39%) of the examined population, compared with 82 (37.61%) males. Hydatid cyst disease was identified in 18 females (13.24%) and 8 males (9.76%). The difference in the distribution of infection according to sex was not statistically significant (P = 0.410).

Table 2. Distribution of Examined Participants and Hydatid Cyst Cases According to Sex

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Sex	Examined (n)	Positive (n)	Negative (n)	Prevalence (%)
Male	82	8	74	9.76
Female	136	18	118	13.24

The age of the examined participants ranged from 1 to 70 years. The highest number of hydatid cyst cases was observed among participants aged 21–30 years (8 cases), followed by those aged 41–50 years (5 cases). The lowest number of cases was recorded in the 1–10- and 11–20-year age groups, with one case in each group. The association between age group and hydatid cyst status was not statistically significant (P = 0.685).

Table 3. Distribution of Participants According to Age Group and Hydatid Cyst Status

Age group (years)	Examined (n)	Positive (n)	Negative (n)	Prevalence (%)
1–10	18	1	17	5.56
11–20	20	1	19	5.00
21–30	53	8	45	15.09
31–40	35	4	31	11.43
41–50	32	5	27	15.63
51–60	28	3	25	10.71
61–70	32	4	28	12.50

A slightly higher proportion of participants were from rural areas (52.75%) than urban areas (47.25%). Nearly half of the participants had primary-level education (49.54%), while 16.06% were illiterate. Most participants were unemployed or housewives (69.27%). Regarding family income, 43.58% reported low income, whereas 14.68% reported high income.

Table 4. Distribution of Hydatid Cyst Cases According to Residence and Socioeconomic Characteristics

Variable	Category	Frequency (n)	Percentage (%)
Residence	Urban	103	47.25
	Rural	115	52.75
Educational level	Illiterate	35	16.06
	Primary school	108	49.54
	Secondary school	54	24.77
	University/Diploma	21	9.63
Occupational status	Government employee	24	11.01

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Variable	Category	Frequency (n)	Percentage (%)
	Self-employed	43	19.72
	Unemployed/Housewife	151	69.27
Family income	Low	95	43.58
	Moderate/Adequate	91	41.74
	High	32	14.68

The liver was the most frequently affected organ, accounting for 19 cases (73.08%), followed by the lung with 3 cases (11.54%). Ovarian and vaginal involvement accounted for one case each (3.85%), while two cases (7.69%) involved other organs. The distribution of hydatid cysts according to the affected organ did not demonstrate a statistically significant difference when the organ categories were compared ($p < 0.001$). This result primarily reflects the markedly different observed frequencies across anatomical sites and should therefore be interpreted descriptively.

Table 5. Distribution of Hydatid Cyst Cases According to Affected Organ

Affected organ	Frequency (n)	Percentage (%)
Liver	19	73.08
Lung	3	11.54
Ovary	1	3.85
Vagina	1	3.85
Other organs	2	7.69

Most patients were diagnosed with hydatid cyst disease for the first time (88.46%). Recurrent disease was documented in three patients (11.54%), including two patients with previous hepatic involvement and one with previous splenic involvement.

Table 6. Distribution of Hydatid Cyst Cases According to Family History and Recurrence

Family history/clinical history	Frequency (n)	Percentage (%)
First-time infection	23	88.46
Recurrent infection – previous liver involvement	2	7.69
Recurrent infection – previous splenic involvement	1	3.85
Total	**26**	**100.00**

Abdominal pain was the most frequently reported clinical manifestation, occurring in 13 patients (50.00%), followed by abdominal mass in 5 patients (19.23%) and the combined presentation of abdominal pain and mass in 4 patients (15.38%). Other

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manifestations, including shortness of breath, leg pain, abdominal pain with dysuria, and abdominal mass with dysuria, were each reported in one patient (3.85%).

Figure 1. below summarize table (5,7) and explain the distribution of cases according to impacted organs (A) and providing manifestations (B) is depicted in the figure. Although an abdominal mass and stomach pain were common symptoms, the illness affected several organs. Each category's proportion is represented by the information points, whose values show both the frequency (n) and the proportion (%).

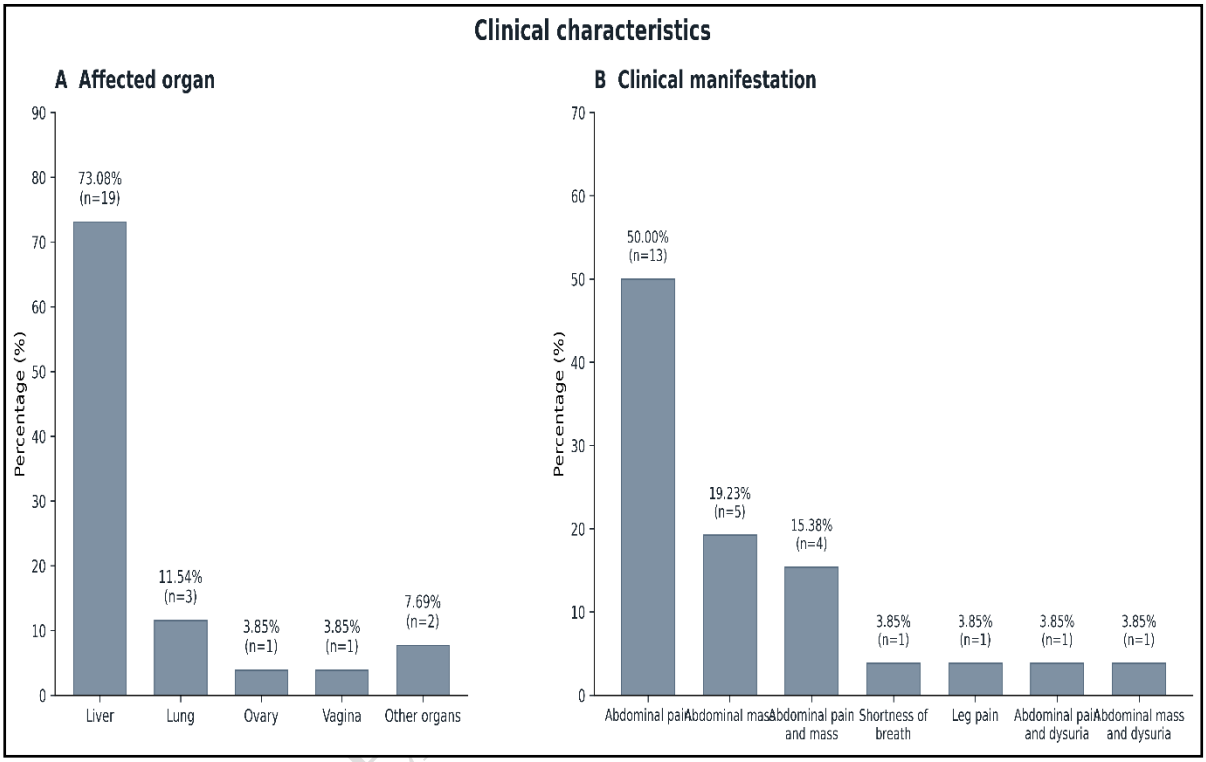


Figure 1. shows the distribution of impacted organs and scientific signs found during the examination.

Table 7. Distribution of Hydatid Cyst Cases According to Clinical Manifestations

Clinical manifestation	Frequency (n)	Percentage (%)
Abdominal pain	13	50.00
Abdominal mass	5	19.23
Abdominal pain and mass	4	15.38
Shortness of breath	1	3.85
Leg pain	1	3.85
Abdominal pain and dysuria	1	3.85
Abdominal mass and dysuria	1	3.85
Total	**26**	**100.00**

Figure 2. show how research topics are distributed mostly according to their clinical contamination history; original infection cases make up the largest portion, whereas recurring cases linked to previous hepatic or splenic involvement make up a minor portion. Each class's percentage is shown by the dots, and the corresponding numbers display the frequency (n) and percent (%).

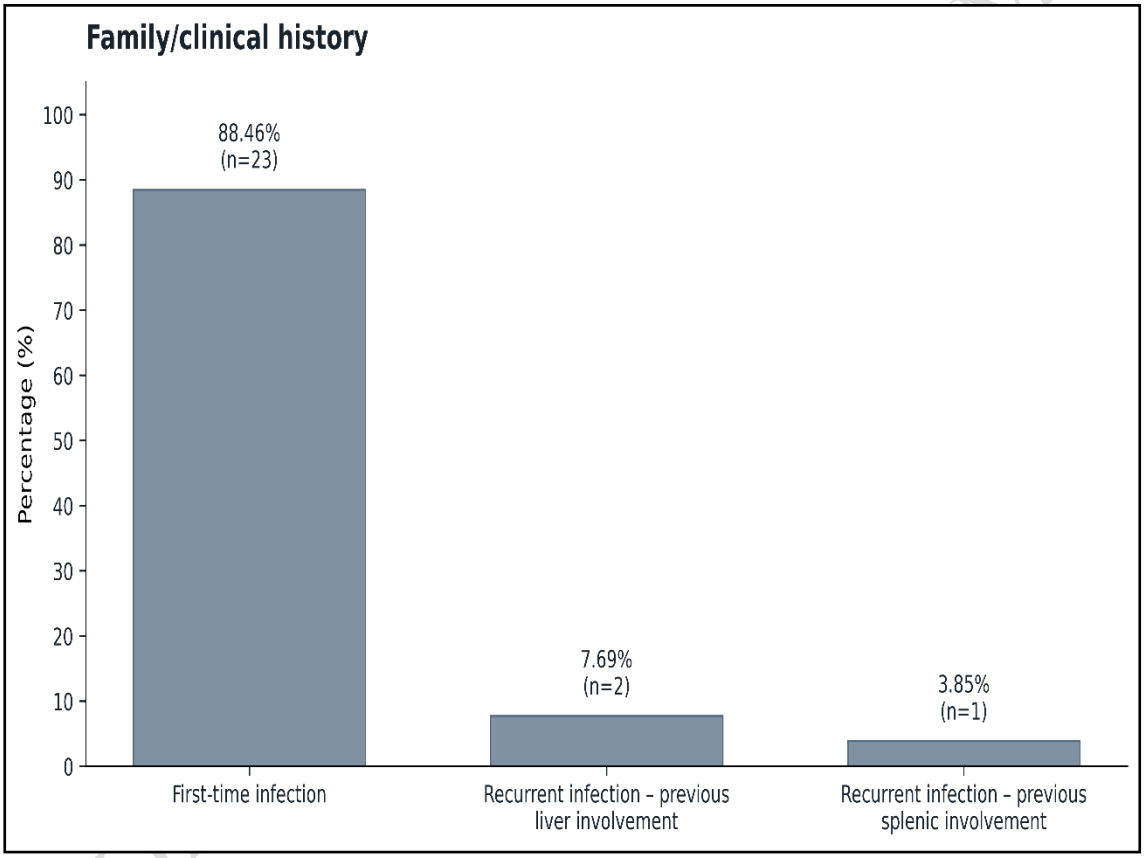


Figure 2. shows the distribution of cases according to clinical infection records.

Discussion

A clinic-based description of cystic echinococcosis in the Babylon Governorate of Iraq is presented in this retrospective research. Of the 218 clinical facts examined, hydatid cyst illness was identified in 26 people, or 11.93% of the data under evaluation. Because the research population was made up of people whose data was accessible at a coaching sanatorium rather than a population-based overall sample, this share should be evaluated cautiously. Consequently, it is not necessary to interpret the observed 11.93% as the network incidence of CE in the Babylon

Governorate. However, the results show that hydatid disease remains a clinically significant problem in the examination and is consistent with the continuing global burden reported in recent epidemiological analyses.[8,9]

The endurance of CE in endemic areas is explained by the complicated interplay among human, animal, and environmental elements. Recent worldwide research suggest that CE stays specially concentrated in areas wherein farm animals production and canine–human interactions maintain transmission.[8–10] The contemporary findings must therefore be considered inside the broader epidemiological context of Iraq, wherein recent investigations have validated both human infection and endured movement of E. Granulosus amongst cattle.[13,25] This epidemiological continuity supports the need for coordinated human and veterinary surveillance as opposed to relying solely on health facility-based treatment.

There were sixty-nine women in the current study.23% as opposed to 30 cases of hydatid cysts.77% of adult men. The correlation between sex and hydatid disease renown was no longer statistically significant (P=0.410), despite the fact that a greater proportion of women were noted. This location is quite comparable to the Iraqi study conducted in the Kurdistan Region, where 66.13% of human CE cases were female.[13] However, the lack of statistical significance in the gift analysis implies that sex should no longer be regarded as a reliable, unbiased indicator of infection based on those findings. Variations in occupational publicity, home sports, environmental touch, fitness-in-search of conduct, and the demographic makeup of the communities under investigation may also account for sex variations observed in CE populations.[7]

The age distribution revealed that cases occurred throughout a wide age range, from 1 to 70 years, with the largest number of cases occurring in the 21–30 age group. The association between hydatid illness status and age institution was no longer statistically significant (P=0.685). It's interesting to note that the prevalence of the 21–30 age bracket is consistent with data from the Kurdistan Region of Iraq, where individuals in this age range also had the highest percentage of CE cases.[13] Large multicenter investigations are necessary before reaching a broad conclusion, however this resemblance may also indicate a typical demographic sample among Iraqi clinical populations.

Because infection and medical popularity no longer usually occur at the same time, the frequency of CE across exclusive age groups is physiologically feasible. Before exhibiting any symptoms, hydatid cysts may grow slowly and show no symptoms for a long time. As a result, the age for diagnosis may also much surpass the age at which infection and publicity took place.[3, 4] This feature also makes it challenging for me to independently determine the correct incidence of CE using data from health centers.

With fifty-two rural contributions, the current study also found a somewhat higher representation of rural people than city dwellers.75% of those who were tested. The majority of rural contributions is epidemiologically significant even if the gift analysis no longer found a direct statistical correlation between housing and illness. Additionally, pets, livestock, contaminated surroundings, and traditional methods of

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killing may receive greater publicity in rural and agricultural communities. Significant correlations between echinococcosis and rural residency, jobs related to agriculture or livestock, dog ownership, low educational attainment, water supply, and poor hand hygiene have been established by a recent systematic review and meta-evaluation that included substantial evidence from the Middle East.[7] These elements offer a practical epidemiological paradigm for the persistence of CE in rural areas in Iraq.

The study population's socioeconomic and intellectual characteristics further support the importance of social variables in the spread of CE. While 16.06% of the members were illiterate, nearly half had top-level training. In addition, low household earnings were expressed using 43.58% of participants. Since the current study did not examine such causal links, these results cannot be construed as evidence that inadequate training or profitability independently caused infection. However, prior systematic evidence indicates that lower educational attainment and socioeconomic disadvantage may also increase exposure to avoidable zoonotic infections due to differences in occupational and environmental publicity, limited access to healthcare, and a lack of awareness of transmission pathways.[7]

The preponderance of hepatic involvement became the most significant clinical finding. Of the 26 cases, 19 (73.08%) involved the liver, and 3 (11.54%) involved the lung. This sample is reasonably consistent with both recent regional evidence and the established pathophysiology of CE. Duhok's molecular analysis of Iraq revealed hepatic involvement in 72 cases.pulmonary involvement in 19.35% of cases and 58% of cases.[13] According to recent assessments of hepatic CE, the liver is the most prevalent anatomical location because it serves as the primary physiological filter that parasite larvae face when they enter the portal circulation.[11,29]

The liver proportion found in the current study (73.08%) and that reported from the Kurdistan Region (72.58%) are very comparable. The consistency may reflect the underlying organic prevalence of hepatic CE within the Iraqi population, despite the fact that those investigations were conducted in unique Iraqi governorates and employed various observational methodologies. But rather than providing evidence of a geographically homogeneous incidence sample, this remark should be read as descriptive.

Eleven were associated with pulmonary involvement.54% of cases in the contemporary era. Even though pulmonary CE is far less prevalent than hepatic illness, it is nevertheless clinically important since the signs and symptoms may be different from those of hepatic infection, and treatment approaches may also be different. Although certain minor pulmonary cysts may be considered for albendazole medication below suitable situations, the WHO 2025 guideline principle states that pulmonary CE is often addressed surgically.[23] It is unable to meaningfully analyze the variations in scientific or demographic characteristics between pulmonary and hepatic illness due to the study's noticeably small diversity of lung patients.

Additionally, unusual anatomical locations have been identified. One instance had involvement of the ovaries and vagina, while other cases involved other organs. Despite the tiny numbers, the results show that CE can develop outside of the liver and lungs. Urogenital CE is a rare but clinically significant symptom that may provide

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diagnostic and treatment problems, according to recent comprehensive reviews.[14] Similar to this, cerebral and cardiac CE are rare but potentially serious symptoms that need for specialized diagnostic evaluation.Therefore, when epidemiological and imaging characteristics are well matched, unusual cystic lesions should be evaluated with CE within the differential diagnosis in endemic situations [15,16].

In the current study, abdominal pain became the most common medical symptom, occurring in 50% of patients, followed by abdominal mass (19.23%) and a combination of belly pain and mass (15.38%). Given the prevalence of hepatic disorders, this pattern of symptoms seems sense. Additionally, hepatic cysts may stay quiet until they become large enough to cause headaches other strain-related symptoms. Recent criticisms highlight that many patients remain asymptomatic for long periods of time, and that clinical symptoms are particularly dependent on cyst area, size, degree, and comorbidities.4,11,29]

The significance of imaging in the prediction of CE is further highlighted by the existence of vague symptoms. Hydatid illness cannot be caused just by abdominal discomfort or a belly mass because several hepatic and abdominal conditions can also generate similar symptoms. The preferred imaging technique for hepatic CE is still ultrasonography, which allows for the classification of cyst form and organic interest.[17, 18] This is particularly important because the treatment is increasingly based on the cyst level rather than just the existence of a hydatid cyst.

When imaging results are unclear, serology can be helpful, but it shouldn't be interpreted on its own. The sensitivity of serological testing varies significantly with cyst degree, with higher sensitivity in CE2 and CE3 and lower sensitivity in inactive CE4 and CE5 cysts, according to a systematic review and meta-analysis.[19] According to more recent data, cyst location, disease endemicity, eosinophilia, imaging features, and prior therapy all have an impact on serological overall performance.[20] Therefore, rather than relying just on an unmarried diagnostic test, the diagnosis of CE should ideally incorporate epidemiological records, clinical observations, imaging, and suitable serology.

The majority of patients in the current study were categorized as first-time cases (88.46%), although eleven had recurring disorders.54%. Three recurrent cases were found, one of which had prior splenic involvement and the other had prior hepatic involvement. Although statistical inference is limited by the small number of repeated cases, the observed recurrence share is therapeutically useful. A known problem with CE is recurrence, which can happen after cyst rupture, leakage of live protoscolices, unfinished therapy, or improvement of new cysts.[24] Recent research highlights that recurrent CE can be challenging to manage and frequently need long-term follow-up and customized multimodal treatment. [24]

The choice of treatment methods is also affected by the recurrence locating. There are more and more stage-specific and customized CE management techniques in use today. Percutaneous therapy of some hepatic cysts may also yield recurrence results equivalent to surgical procedure while lowering headaches and hospitalization in correctly chosen patients, according to a comprehensive review and meta-evaluation.[21] The need for therapeutic choices depending on cyst severity and

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scientific characteristics was also highlighted in the 2024 Cochrane review.[22] The current WHO guiding principle also advises avoiding unnecessary invasive procedures, especially in cases with minor dormant cysts when imaging follow-up may be appropriate.[23]

The current study's epidemiological ramifications go beyond the scientific treatment of individual patients. The prevalence of CE in sheep, goats, and agricultural animals in Sulaimani Province has been verified by recent veterinary evidence from Iraq.[25] Molecular characterization of human CE throughout the Kurdistan Region has also provided proof of energetic transmission involving E. Granulosus sensu lato.[13] These results demonstrate that the parasite remains entrenched inside Iraqi animal reservoirs. Reducing the human burden necessitates stopping transmission throughout the animal–human cycle since humans are inadvertent intermediate hosts.

Therefore, a One Health strategy is particularly suitable for Iraq. Strong CE manipulation necessitates concurrent attention to human health, veterinarian surveillance, butcher methods, canine therapy, animal management, and network behavior, according to recent international research.[26–28] Evidence from One Health financial modeling has also demonstrated that veterinarian monitoring and preventive measures may have significant economic advantages and that prevention can lower the costs of both human and animal health.[27] Recent assessments of control techniques also highlight the importance of coordinated interventions rather than solitary actions that focus on the most basic aspect of the transmission cycle.[26,28]

There are many restrictions on the current study. First, estimating the true community prevalence of CE is limited by the retrospective health facility-based overall layout. The eleven were determined.93% of the evaluated population had excellent information, which should not be extrapolated to the Babylon Governorate as a whole. Second, referral and choice bias may be introduced because the examination was conducted at an unmarried medical institution. Third, the number of shown examples became startlingly tiny, limiting statistical power and making robust multivariable analysis impossible. Fourth, specific data on dog ownership, livestock publicity, methods of slaughter, water supplies, hand cleanliness, and prior treatment were insufficient to enable a thorough assessment of the threat elements.

The fact that several of the 26 good examples had their anatomical distribution evaluated descriptively presents another challenge. Although the significant prevalence of hepatic involvement has biological and clinical significance, an inferential relationship between anatomical location and infection cannot be inferred from a study of organ frequencies alone. This is especially important since the large number of victims in many courses became extremely tiny.

Limitations

The gift analysis provides useful local epidemiology data from the Babylon Governorate. The preponderance of primary-time presentation, belly signs and

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symptoms, and hepatic involvement is in line with the hooked-up features of CE as well as recent data from Iraq and other endemic areas. Comparative Iraqi epidemiological study is made easier by the similarities between the age and sex patterns found on this observation and those prominent from the Kurdistan Region.

Conclusion

In the Babylon Governorate of Iraq, hydatid cyst disease continues to be a significant medical and epidemiological problem. Hydatid disease was identified in 26 out of 218 evaluated facts (11.93%) in this retrospective health center-based analysis. Stomach pain was the most prevalent contributing symptom, and hepatic involvement became prominent with the help of pulmonary disorders. While recurring occurrences were also mentioned, the majority of cases were recently diagnosed. There is no significant correlation between hydatid illness and age or sex groups.

These results highlight the necessity of integrated human-animal preventative techniques, early imaging-based analysis, epidemiological surveillance, and persistent clinical identification. To more accurately depict the prevalence and modes of transmission of cystic echinococcosis in the Babylon Governorate and Iraq, larger multicenter and network-based studies including exposure histories, standardized imaging, serology, and veterinary data are advised.

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