

ECHINOCOCCOSIS: A 15-YEAR EPIDEMIOLOGICAL, CLINICAL AND OUTCOME OVERVIEW



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OBJETIVES

Hydatidosis or cystic echinococcosis (CE) is a parasitic zoonosis caused mainly by *Echinococcus granulosus*. It has a life cycle that involves dogs, sheep and other animals, in which the eggs of the parasite are excreted in their feces and later ingested by humans. CE has a worldwide distribution, with greater prevalence in temperate zones. Risk factors for acquisition include low socioeconomic level, residing in rural areas and contact with dogs, which are in turn in contact with livestock or offal of other carnivores.

Clinical signs and symptoms may be related to the mass effect of the cyst, its superinfection or hypersensitivity reaction secondary to its rupture. Because of its slow growth, diagnosis is usually made in adulthood. The World Health Organization (WHO) has proposed a classification based on ultrasound images of the cyst for diagnosis, prognosis and treatment. Serology provides good results in combination with imaging techniques. Treatment is based on three pillars: medical treatment (mainly albendazole), surgery, and percutaneous drainage.

The aim of this study was to describe the epidemiological and clinical characteristics of CE diagnosed in the twenty-first century in Cantabria, an autonomous region of northern Spain, as well as to compare the outcome of patients according to whether they received treatment or not.

METHODS

From 1997 to 2011, the medical records of all patients diagnosed with CE during their admission to the Hospital Universitario Marqués de Valdecilla (a tertiary, 1,000-bed teaching hospital, and the reference center for infectious diseases of the Region of Cantabria) were reviewed.

Clinical and epidemiological variables were collected. Follow-up time of patients after discharge was at least 1 year. Presence or absence of recurrence, complications and mortality were recorded.

Patient diagnoses were classified into the 3 WHO categories: **a)** Possible case: any patient with a compatible clinical or epidemiological history, and image findings or serology positive for CE; **b)** Probable case: any patient with a compatible clinical and epidemiological history, and imaging findings and positive serology on two tests, and **c)** Confirmed case: in addition, confirmation by microscopy or molecular biology techniques of the presence of the parasite or its components in surgical or percutaneous samples, or changes in WHO staging of the cyst, either spontaneous or after treatment.

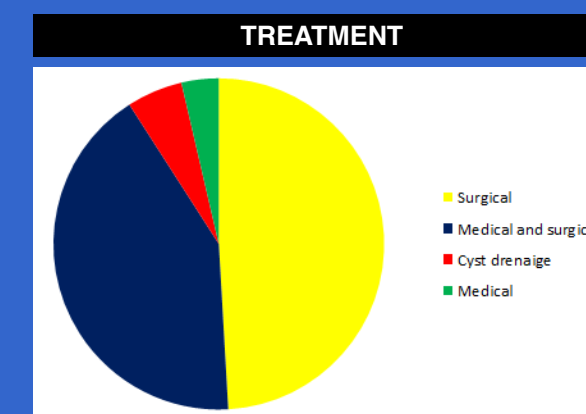
All data were included in the SPSS statistical software package. Quantitative data were expressed as mean \pm standard deviation (SD) or absolute value (percentage). Student's t-test or the Mann-Whitney U test were used to detect differences between two groups of quantitative variables and Chi-square (χ^2) test was used to compare qualitative variables. A logistic regression analysis was performed, considering "death" as the dependent variable and including the variables showing statistical significance between the two groups (treated vs. untreated) in the univariate analysis.

Table 1. Characteristics of patients with hydatidosis according to whether they received specific treatment or not

	TREATMENT n = 55	NO TREATMENT n = 21	p
Age (years, SD)	51 (17)	76 (11)	<0.0001
Sex (male [%])	29 (53%)	15 (71%)	0.140
Prior hydatidosis, n (%)	5 (9%)	1 (5%)	1.000
Asymptomatic patients, n (%)	32 (58%)	5 (24%)	0.007
Liver cysts, n (%)	51 (93%)	20 (95%)	0.576
Calcified cysts, n (%)	9 (16%)	15 (71%)	< 0.0001
Positive serology, n (%)	11 (50%)	2 (25%)	0.496
Confirmed diagnosis, n (%)	49 (89%)	1 (5%)	< 0.0001
Recurrence, n (%)	8 (15%)	0 (0%)	0.09
Death, n (%)	12 (22%)	12 (57%)	0.003

RESULTS

- There were 76 cases of CE (58% men, mean age 57.8 years, 65.8% confirmed cases) during the study period. Sixty-two cases (80%) were from Cantabria.
- CE was a casual finding in 43 patients. 27 patients presented abdominal pain as initial symptom.
- Fifty-five patients (72%) received treatment. Medical treatment was performed with albendazole; the surgical technique used in all cases was pericystectomy.



OUTCOME

- During the 15 years of the study, 24 (31.2%) patients died. The main known causes were neoplasms (25%) and pneumonia (12.5%). Hydatidosis could not be determined as the cause of death in any case.
- Mortality was significantly higher in the untreated patient group ($p=0.003$). Treated patients were younger ($p<0.001$), with a higher percentage of symptomatic cases ($p=0.007$) and with a predominance of men ($p=0.140$) (Table 1).
- Absence of treatment was correlated to mortality (Table 2). However, after adjustment by age, gender, recurrence, degree of diagnostic confirmation and calcification, the differences were not significant (OR: 0.83; IC: 0.09-7.50; $p=0.867$).

Table 2. Factors associated with mortality

Variable	OR (CI)	P value
Age	1.06 (1.02-1.10)	0.002
Male gender	2.25 (0.80-6.33)	0.125
Symptomatic patients	0.51 (0.19-1.38)	0.188
Confirmed diagnosis	0.28 (0.10-0.78)	0.015
Calcified cysts	3.33 (1.20-9.31)	0.022
Recurrence	0.70 (0.13-3.74)	0.637
Hydatidosis treatment	0.21 (0.07-0.61)	0.004

OR: Odds Ratio; CI: Confidence Interval

CONCLUSIONS

- Patients studied were predominantly from our country, and from urban areas.
- Diagnoses were usually made in the context of examinations done for other reasons.
- Surgery was the most used treatment of hydatidosis.
- The mortality of patients in our series was high, but not directly related to hydatidosis.