

# A Summary Of Hydatid Disease In Thailand

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## Abstract

**Context:** Hydatid disease is a zoonosis caused by the tapeworm of *Echinococcus* spp. In Southeast Asia, the human hydatid disease is rare.

**Objective:** The author performed a literature review on the reports of hydatid diseases in Thailand in order to summarize the characteristics of this infection among those patients.

**Design:** This study was designed as a descriptive retrospective study. A literature review of the papers concerning hydatid diseases in Thailand was performed.

**Results:** According to this study, there have been at least 10 reports in the literature of hydatid diseases, with 2 lethal cases. Of these 10 cases, 6 were males and 4 were females. Of 9 cases that documented patients' age, the ages ranged from 16 years to 58 years. Lung cyst is the most common manifestation (6 cases), following by liver cyst (2 cases), kidney cyst (1 case) and peritoneal cyst (1 case), orderly. All cases were accidentally detected from histological examination of surgical or autopsy specimens. Most (90%) were identified as *E. granulosus* infection; however, there was 1 case with *E. multilocularis* infection. Surgical removals were performed in all except 1 case. Antiparasitic drugs were prescribed in 5 cases: albendazole in 3 cases and albendazole with praziquantel in 2 case. Concerning the two lethal cases, one had neither surgical removal nor antiparasitic drug, the other had both surgical removal and antiparasitic drug but there was accidental rupture of the cyst during surgery.

**Conclusion:** In conclusion, the hydatid disease is a rare cestode infection that is sporadically reported in Thailand. The surgical removal seems to be still an effective method for treatment.

## INTRODUCTION

Hydatid disease is a zoonosis caused by the tapeworm of *Echinococcus* spp. Those species include *E. granulosus*, *E. multilocularis*, *E. vogeli* or *E. oligarthrus* [1,2,3,4,5]. Its lifecycle is as follows: the tapeworm's eggs are passed in the definitive host (dog and fox)'s feces, and the intermediate hosts, sheep, cattle, goats, horses, camels as well as humans are infected when they eat the eggs. In human, after ingestion of eggs, embryos are released and penetrate the intestinal mucosa, enter the portal circulation, and disseminate throughout various organs, causing cystic lesions, particularly the liver and lungs [1,2,3,4,5].

The hydatid disease is prevalence where livestock is raised in association with dogs. Those endemic areas include Australia, Latin America, Europe, Africa and the Middle East. In Southeast Asia, the human hydatid disease is rare. In Thailand, the first case report of hydatid disease was published in 1936. Since the first case report, there have been sporadic case reports of hydatid diseases in Thailand. Here, the author performed a literature review of the reports of hydatid diseases in Thailand in order to summarize the

characteristics of this infection among Thai patients.

## MATERIALS AND METHODS

This study was designed as a descriptive retrospective study. A literature review of the papers concerning hydatid disease in Thailand was performed, using the database of published works cited in the Index Medicus and Science Citation Index. The author also reviewed the published works in all 256 local Thai journals, which are not included in the international citation index. The literature review focused on the years 1936 - 2004.

According to the literature review, reports were recruited for further study. The details of clinical presentations of the patients (such as clinical manifestation, diagnosis, treatment, and discharge status) in all included reports were studied. The demographic data of all cases including age, sex, and location were reviewed as well. Descriptive statistics, including range and percentage, were used in analyzing the patient characteristics and laboratory parameters for each group. All the statistical analyses in this study were made using SPSS 7.0 for Windows.

## RESULTS

According to this study, there have been at least 10 reports [6,7,8,9,10,11,12,13,14, 15] in the literature of cases of hydatid disease infection in the Thai population, of which 2 case was lethal (Table 1). Of these 10 cases, 6 were males and 4 were females. However, some cases were lacking data on age in the original reports (1 of 10 did not have age listed). Of the 9 cases that documented age, the ages ranged from 16 years to 58 years. Only 2 of 10 cases had the history of traveling to the endemic countries. The other 8 cases are believed to get the infection in Thailand, from different regions. Only 1 case was the sheep farmer [9], the others had the non-agricultural related occupations and had no history of contact with dogs, cattle or sheep.

### Figure 1

Table 1: Details of previous cases with hydatid diseases in Thailand.

| No  | Author                         | Sex    | Age (yr) | Manifestation        | History of travelling to endemic countries | Treatment   | Outcome |
|-----|--------------------------------|--------|----------|----------------------|--|---|---------|
| 1.  | Kneeder, 1936 [6]              | Male   | 52       | Peritoneum infection | No   | Paracentesis  | Die     |
| 2.  | Chitrapatima et al, 1952 [7]   | Male   | 16       | Lung infection       | Yes (India)                                | Pneumonectomy   | Alive   |
| 3.  | Na-songkla, 1980 [8]           | Female | 56       | Lung infection       | No   | Cystectomy  | N/A     |
| 4.  | Vatanatumrak et al, 1980 [9]   | Female | 32       | Lung infection       | No   | Cystectomy  | Alive   |
| 5.  | Koanantakool et al, 1991 [10]  | Male   | 32       | Lung infection       | No   | Cystectomy, Albendazole                                       | Alive   |
| 6.  | Koanantakool et al, 1992 [11]  | Male   | 32       | Lung infection       | No   | Cystectomy, Albendazole                                       | Alive   |
| 7.  | Subhannachart et al, 1992 [12] | Male   | 32       | Lung infection       | No   | Cystectomy, Albendazole                                       | Alive   |
| 8.  | Thamprasert, 1993 [13]         | Female | 39       | Kidney infection     | No   | Partial removal, marsupialization                             | Alive   |
| 9.  | Krailadsiri, 1996 [14]         | Male   | N/A      | Liver infection      | Yes (Middle East)                          | Albendazole, Praziquantel                                     | Alive   |
| 10. | Riengchan et al, 2004 [15]     | Female | 58       | Liver infection      | No   | Cystectomy with accidental rupture, Albendazole, Praziquantel | Die     |

\* N/A means data not available

\*\* All except the case No 1 had E. granulosus infection. The case No 1 had E. multilocularis infection

Lung cyst is the most common manifestation (6 cases), following by liver cyst (2 cases), kidney cyst (1 case) and peritoneal cyst (1 case), orderly. All cases were accidentally detected from histological examination of surgical or autopsy [6] specimens. Most (90%) were identified as E. granulosus infection; however, there was 1 case with E. multilocularis infection [6]. Surgical removals were performed in all except 1 case [6]. Antiparasitic drugs were prescribed in 5 cases: albendazole in 3 cases and albendazole with praziquantel in 2 case. Concerning the two lethal cases, one had neither surgical removal nor antiparasitic drug [6], the other had both surgical removal and antiparasitic drug but there was accidental rupture of the cyst during surgery [15].

## DISCUSSION

Hydatid disease is one of the world's most well known geographically widespread parasitic zoonoses, with transmission occurring in tropical, temperate and arctic biomes [1,2,3,4, 5]. The incidence of hydatid disease varies among different geographical areas with the high incidence in Australia, Latin America, Eastern Europe, the middle East and Africa [1,2,3,4, 5]. Most human infections are due to E. granulosus transmitted between domestic dogs and livestock while the other species with significant zoonotic potential is E. multilocularis that occurs naturally in fox definitive hosts and small mammal intermediate hosts [5]. These two species cause human cystic or alveolar echinococcosis respectively, which may be considered serious public health problems in several regions including developed countries in the endemic area [5]. The South Asia, especially India, has been documented as a highly endemic area of hydatid disease [16]. In 1983, Parija et al reported an analysis of hospital and laboratory records for the period of 1971-1979 of 45 confirmed cases of hydatid disease in Pondicherry and said that the majority were young adult (21-30 years) laborers [17]. Luckily, Southeast Asia is rarely mentioned as the endemic area for this disease [1,2,3,4,5]. Here, the author summaries the previous cases with hydatid diseases in Thailand.

According to this study, the incidence of hydatid disease in the Thais is very low, sporadic cases have been reported. The common clinical presentation of the patients is the unexplained cystic mass with pain, swelling or pressure effect from enlarging cysts. In this study, lung cyst is the most common manifestation. This finding is not corresponding with the general findings in the endemic countries, where liver cyst is the most common manifestation [1,2,3,4, 5]. The probable explanation is that the disease might be more prevalent in Thailand, however, they were underdiagnosed.

It should be noted that most of the cases were diagnosed after year 1990. This might reflex the increase in incidence of infection or the increase in awareness of this disease by the practitioners. Concerning the history of travelling to the endemic countries, few cases demonstrated this history. Most cases had only the history of travelling within Thailand, therefore, it can be said that the disease exists in Thailand.

Riengchan et al noted that awareness is needed for the diagnosis of hydatid disease, particularly in non-endemic

regions [15]. The hydatid cyst should be inserted in the differential diagnosis of cystic lesion and histological examination of all cystic lesions should be the general rules for all surgeons. Riengchan et al also said that failure of preoperative diagnosis increased the risk of accidental intraoperative rupture and spillage leading to dissemination of infectious scolices, secondary bacterial infection or hypersensitivity reactions to the cyst's content and these could range from urticaria to life-threatening anaphylaxis [15].

Concerning the treatment, it is no doubt that both surgical removal and antiparasitic drug therapy is useful. However, in this study, the addition of antiparasitic drug or not does not affect the outcome. Praziquantel and benzimidazole compounds such as albendazole have been associated with high treatment failures [18]. The surgical removal seems to be more important factor influencing the outcome. The death cases in this series are due to the non-surgical treatment [6] or poor surgical practice [15]. Accidental rupture of the cyst and the consequently spillage of the content is a totally unwanted surgical complication [15]. The new recommendation by the World Health Organization is percutaneous puncture under sonographic guidance, aspiration of cystic fluid, injection of a protoscolicidal agent, such as saline or alcohol, and reaspiration of cyst content (PAIR) [19].

Similar to the epidemiology in the endemic countries, *E. granulosus* is the most common species in this series. Indeed, *E. granulosus* infection is prevalent in areas where livestock is raised in association with dogs [1,2,3,4, 5]. Imported case from travelling to the endemic area seems less important than in-country infection. It might imply that in Thailand the parasite may be present in dogs which are the definitive hosts, but the sporadically occurrence of the disease may be due to lack of close contact between dogs and livestock [15]. Cooking and eating habits that hinder transmission to humans as intermediate hosts is also another factor to be considered [15]. Indeed, the occurrence of the parasite in the dogs in Thailand has been recently documented [20]. In addition, there are numerous wandering abandoned dogs in Thailand that can be the source of the disease and should be considered for the possibility of hydatid disease as the new emerging disease.

To fulfill the data of the hydatid disease in Southeast Asia, the data of this disease from the other countries besides Thailand are hereby summarized and presented. Concerning

Malaysia, there are fewer case reports. According to the literature search, there are two case reports, one in 1970 [21] and the other in 1989 [22]. The very low incidence is also mentioned for Indonesia. According to the recent study of Palmieri et al, absence of *E. granulosus* in dogs in Indonesia is mentioned [23]. The possible explanation for those findings in Malaysia and Indonesia is due to the fact that dogs are the prohibited animals due to Islam. Concerning Singapore, the very low prevalence is mentioned as well. However, the possible reason might be different from other countries. Singh et al said that parasitic infections adopted a rather low profile in the highly urbanized setting in Singapore and very few food-borne parasitic infections were encountered [24]. Concerning Myanmar, Laos and Cambodia, the three Indochina countries, there is lack for the case reports from these countries. Indeed, these countries are next to Thailand and should have the similar parasitic epidemiology. However, due to the limited resource and technology, the cases might be underdiagnosed and not reported. The patterns of the hydatid diseases in Southeast Asia are of interest and warrant for further research.

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