

ABDOMINAL HYDATID DISEASE

ESSAY

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BY

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HISTORICAL REVIEW

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HISTORICAL REVIEW

Hydatid cyst infection, or echinococcosis, is one of the oldest diseases known to man.

It was first described in the Talmud as 'Bladder full of water'. In his 55th Aphorism of Section VII, Hippocrates states that "when the liver is filled with water and burst into the epiploon, in this case the belly is filled with water and the patient dies" (Adams, F., 1946).

During the middle ages it was thought that the lesion were manifestation of some other morbid condition.

In the 17th Century, Redi, F. (1694) recognized the animal origin of hydatid cyst.

A few years later, Tyson (1650-1708) who had studied the common ascaris worm, came to suspect the parasitic nature of the disease (Dew, H. 1928), as did Hartman, P.J. 1683, according to Faust and Russel (1964).

Goezy, J.A.E. (1782) accurately described the cyst of the tapeworm and its head with suckers and hooklets, he called it *Toenia visceralis socialis granulosa*.

Batsch A. (1786) recognized under the microscope the small larva armed with a crown of hooklets.

Rudolphi, K.A. (1808) finally studied the adult worm in the intestine of the dog and published a large treatise on the parasite, giving it the name *Echinococcus*.

The word *echinococcus* is derived from the Greek $\epsilon\chi\lambda\upsilon\sigma$ meaning spine, and $\chi\omicron\chi\epsilon\omicron\varsigma$ meaning (Hedgehog) berry. Perhaps the hooklets of the worm and those of the larva as seen under the microscope, suggested to Rudolphi the spine of a hedgehog.

The many small grapelike daughter cysts of multivesicular cysts do resemble berries.

The term "granulosa" of Batsch and Goezy was retained and eventually the name *echinococcus granulosus* came.

The word 'Hydatid' comes from the latin 'Hydatis' meaning a drop of water-like fluid, to be semantically correct, the term 'Hydatid cyst' is redundant since the word 'Hydatid' conveys the same meaning as a 'cyst'.

Von Siebold, C.T.E. (1953) in a classical series of experiments infected dogs with larvae of the parasite obtained from typical hydatid cysts of sheep, thereby established conclusively the relationship between the adult worm in the dog and the cystic larval form in the sheep.

Thomas, J.D. (1885) in Australia defined man's position in the parasite's life cycle as being identical to that of sheep, by feeding larvae derived from human sources to dogs and recovering mature worm in the animal's intestine.

The life cycle of *E. granulosus* had become quite clear, therefore, by about the middle of nineteenth century. In 1855 the venerable German pathologist Virchow, R.L.C. pointed out the parasitic nature of quite another liver lesion in man which was not at all cystic appearance. He insisted that this was morphologically a variant of *E. granulosus*. This assertion created great confusion in the world of helminthologists and pathologists, and

it took another one hundred years before it was established that this particular condition was due to a separate and quite distinct species of parasite which is also capable of infecting man.

The earliest report in the medical literature of hydatid cyst in man was that of Bremser in 1821 (Romero-Torres, R. and Campbel, J.R., 1965). The clinical aspect of the disease had become clarified by the early part of the twentieth century, and this was also the beginning of many investigation on the purely parasitological feature of the condition.

South American workers in particularly from the latter part of the nineteenth century onwards, accomplished brilliant work on the subject.

History of Hydatid in Egypt:

El Kordy, M.I.C. (1946) worked on the history of hydatid disease in Egypt, he stated that it probably began about the year 1900 when Loose stated that there was a very low incidence of echinococcus granulosus infection in dogs in Egypt and in Cairo the infection was nil. Madden

(1904) stated that 1:1000 of the surgical patient was infected. Thirty years later, Khalid Bey reported an interesting case of sudden death due to a hydatid cyst in the heart of a man. After that followed the work of Azim (1938), he made a survey of the intestinal parasite of dogs to determine the rate of incidence in Cairo and Alexandria was 3% and 2% respectively, while the infection in the country dogs of upper Egypt was 10%. One year later, he carried out another survey of the intestinal worms of 150 cats collected from Cairo, but they were all free from natural infection with *E. granulosus*, although experimentally he could infect cats, he also found the adult worm in the Egyptian fox and in the mongoose, A. Ibrahim Pacha, in a paper read before the second Arabic Congress in February 1939, stated that hydatid disease is rare in Egypt. In the same year, Khalid Bey published an excellent explanation of the incidence of hydatid cyst in the different organs of the human body. Through the Ministry of Agriculture (veterinary service), there was statistics of some selected abattoirs on the incidence of hydatid cysts in the domestic animals. These statistics indicated that this disease is very rare in animals in this country.

GEOGRAPHICAL DISTRIBUTION

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GEOGRAPHICAL DISTRIBUTION

The first human case of *E. granulosus* in the North American Continent was observed by Low, J. (1808) and reported by Lyon in 1822. Sir Osler, W. (1882) reviewed 61 cases.

Tucker, H.A. (1951) reported the first autochthonous case in the United States.

Katz, A.M. and Pan, C. (1958) collected 556 cases from the United States. At present the total number of cases reported from North America is more than 700. This may give the impression that the parasite is not endemic to North America. However, the disease is readily transmitted from sheep and dogs to man whenever proper zoonotic condition prevail. The parasite is actually found in every country of the world, and distribution of the disease in man is cosmopolitan since its biological characteristics greatly favour its survival and propagation in nature.

Occurrence of the disease in man appears to be limited geographically to areas where close and continuous contact exists between domesticised carnivores such as the dog and ungulates such as cattle and sheep.

Matossian, R.M. et al. (1977) reported the occurrence of hydatid disease through the world.

- A. **Iceland:** the cyst discovered at autopsy declined from 25% (1900) to 16% (1932), 6% (1944) and 0% (1960) this is ascribed to the strict application of prophylactic method and to education of the public.

- B. **Europe:** Infection with *E. granulosus* and *multilocularis* coexist in Eastern Europe and extend all the way to the Pacific Ocean. A large zone of mixed infection also exist in Central Europe, this include Austria, the eastern region of France, the southern districts of the Federal Republic of Germany, Switzerland and Greece.

C. Asia:

I- Southwest Asia and the Mediterranean:

The high prevalence belt of hydatidosis prevailing in the Balkans spreads into Turkey and extends further into Iraq and Iran.

- Turkey, a yearly average of 300 human cases has been reported.
- Iraq, hydatid infection constitute a major health problem. Over 500 cases of human illness are recognized yearly with a wide variety of clinical manifestation. No confirmed cases of human alveolar hydatidosis have been seen.
- Iran, hydatidosis, though endemic in Iran, is confined more to the northern and western provinces of the country. Human cases have been regularly observed in Teheran, Isfahan and Shiraz although their yearly incidence is unknown.
- Syria, studies demonstrated the endemic nature of hydatidosis in Syria. Syria allows the transit of sheep, goats, cattle and camels from turkey and Iraq to Lebanon, Jordan and Saudi Arabia and these animals may spend several weeks there before they reach their destination.

- Palestine, has had a high morbidity rate of about 100 cases of human hydatidosis (5 per 100,000 population).
- Cyprus, has been considered as a high prevalence island similar to Corsica, Sardinia and Sicily.
- Kuwait, during the first half of the 20th century, the prevalence of the hydatidosis was negligible. El Gazzar, A. et al. (1962) described 51 patients of which only 5 were native Kuwaitis.
- Saudi Arabia, it's not unknown in Saudi Arabia. Occasional cases have been observed in the eastern provinces and others were seen in west coast.

II- The Indian Subcontinent:

- Afghanistan, Buck, A.A. et al. (1972) collected data about antibody level. The presence of echinococcus-like ova in dogs, of hydatid cyst in ruminants, and elevated antibody titres in human adult led to the conclusion that hydatid disease represented the most important helminth health problem in the country.
- India, studies of a village in southern India revealed that 22% of the inhabitants were reactive to the intradermal test.

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