The study iron, zinc, copper and magnesium in hydatid cyst Fluid in Kerbala City

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Abstract

The Echinococcus granulosus parasites cause hydatidasis, this is one important disease-related on-ship to humans (zoonotic) widespread all over the world. some of the cysts are called (infertile cysts) because unable to produce protoscoleces but another one can be called (fertile cysts) which can produce protoscoleces. The hydatid cyst fluid (HCF) is very important to the fertility of the cysts, this cystic fluid plays an important role in the unicellular hydatid cyst.

In the collection 10 HCF samples were from the liver and lung to sheep then examination all the cysts, all the cysts were centrifuged at 10000xg for 15 min in 4c, and then all biochemical components were examined in the automatic analyzer. In the results, each calcium and potassium were different in cysts collected by ($P<0.001$).

Keywords: Echinococcus granulosus, hydatidasis

Introduction

The Echinococcus granulosus is a one of important zoonotic parasite which called by (tape worm) which caused by intermediate host by several species in larval stage (1). This parasites infection all domestic animals such as cattle, sheep, goats and camels, all this intermediate host which can be contact with the Dogs which final host to this parasite (2).

The adult tapeworm is living in intestine in final host (dogs), but in intermediate host causes several sized cysts in the viscular organisms (3). The human can be consider accidentally host become when ingested eggs of Echinococcus granulosus in parasite, but in all animals this disease become chronic and very effects to all type of food animals (4).

Hydatidosis is widespread in the word because the high distribution final host (dogs), this important role to diffusion the parasites (5). The tapeworm can be widespread in the countries of the world so that Echinococcosis high prevalence of morbidity and mortality so that zoonotic disease and very dingerous to public health (6).

Echinococcus granulosus can be morphology, biologically and genetically to different strains, which have been ten strains, the seven strains (G1,G2,G3,G4,G5,G6,G7 and G9)reported more pathogenic strains to the public health (7). The six strains called by common sheep strain(G1) Tasmanian sheep train (G2) horse strain (G4) cattle strain

(G5) camels strain (G6) and (E. felin) lion strain reported, then the four strain (G1,G2, G5and G6) reported infection the human and very different parts of the world (8).

Materials and Methods

This study was done Science, Kerbala University, College of Veterinary Medicine , in the Department of Parasitology Laboratory .

Animals

This study using 10 samples from liver and lung of sheep infection by Hydatidosis when diagnosis in slaughterhouse, then in Laboratory can be separated from Infected organs by using sterile knife. Using sterile plastic continer contain 10%formalin to keep some cysts then send to histopathology lab. to the histopathology examination.

Parasitological examination

After Isolation the cyst using sterile needle to each samples in the special condition, then using the centrifuged at 2000rpm from 3-5 minutes, the first pathway the upper supernatant layer fluid then stored in - 4C to the biochemical test studies, the deep layer fluid of tube using to sterile or fertile fluid cyst when shaw the protoscoleces which play important role in formation adult tapeworms when ingested by final host.

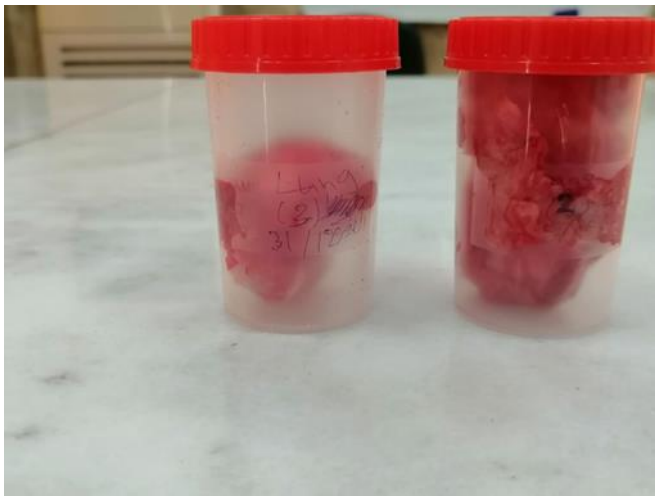
Using spectrophotometer (model. GBC933AA) to diagnosis level Mg, Cu, Zn and Fe in Hydatid Cyst Fluid by using various biochemical parameters.

Figure(1): Hydatid cysts in lung of a sheep

Figure (2): The fluid Hydatid cysts

Histopathological examination

Directly when Isolation of cysts from liver and lung infected and collected in sterile containers which contain 10% formalin to histopathology lab. by using hematoxiline and eosine stain to stained the lesion**.**



Figure(3): The cysts isolation in 10% formalin to Histopath examination

Results and Discussion

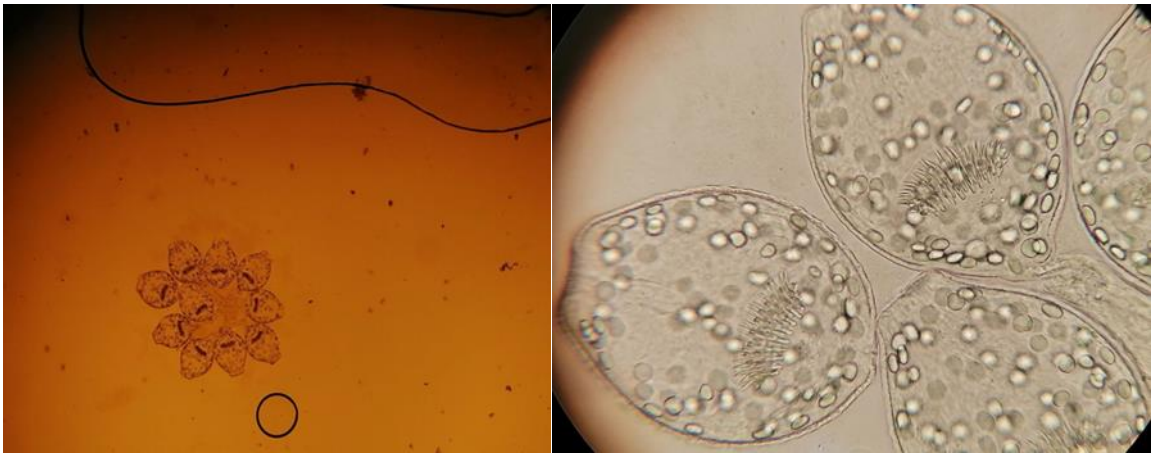
In liver sheep the average hydatid cysts fluid the level of Ca had significant difference (11.56 ± 1.71mg/dl) , K (7.18 ± 1.37), NA(122.8 ± 11.91), P(0.74 ± 0.03) and MG(8.96 ± 0.96). No significant difference was found with regard to the average HCF level of Ca in lungs of sheep (4.13 ± 0.703), K (6.47 ± 1.49), NA(108 ± 10.36), P(0.51 ± 0.06) and MG(10.78 ± 1.48). and these differences were statistically non-significant (P> 0.01) in liver and lung tissues

Table (1): The average serum level of electrolytes profiles, i.e. Ca, K, Mg, Na, P in hydatid cyst fluids of sheep

ANIMAL.	ORGANS	SG (PH 7)	CA (MG/DL)	K (MEQ/L)	NA (MEQ/L	P (MG/DL)	MG (MG/DL)
Sheep	Liver	1.33 ± 0.19	11.56 ± 1.71	7.18 ± 1.37	122.8 ± 11.91	0.74 ± 0.03	8.96 ± 0.96
	Lung	1.33 ± 0.12	4.13 ± 0.703	6.47 ± 1.49	108 ± 10.36	0.51 ± 0.06	10.78 ± 1.48

Histopathological examination

The important pathological changes which accur in liver cannot be sections only but also showed the fibrosis and found also necrotic hepatic cells which found near the cyst and also found the Scolex is dead . Grossly important the pathological changes can be showed which also can be caused by the hydatid cyst . In lung also can be shaw all the Fluid Infected filled the cysts and mass like atumor which can be surrounded by a layer of fibrous wall, these lung cysts different in size and ranging from 1 to 22cm in diameter (Figure1).



Figure(4): Protoscoleces unstained. Evaginated scolices

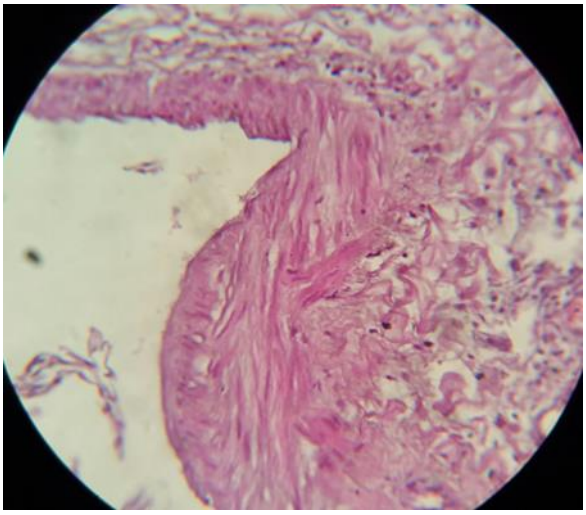


Figure (5): Liver section of liver showing the fibrosis of cyst

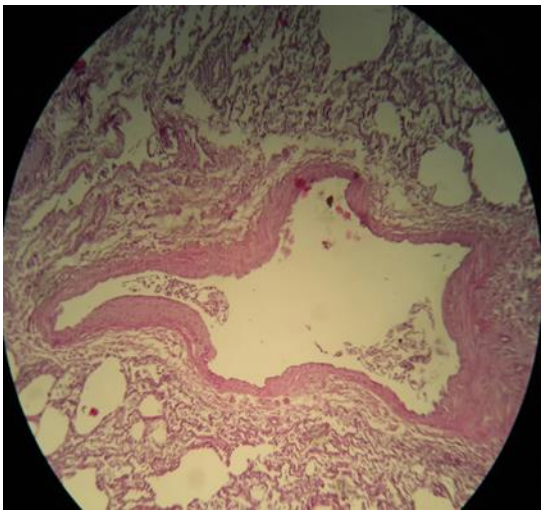


Figure (6): The large area of fibrouses with calcification outside the cysts

This parasite (hydatidasis) characterization by the more than one intermediate hosts, the metabolism to this parasite (hydatid cyst) and also the biochemical can be immediately shaw the differences may cause a different by range of changes in all species and subspecies of this parasite .Which immediately can be playing important role to the metabolism of this parasite, also the immunity and the physiology of the Echinococcus granulosus and to all metacestode which can be explain the existence of more than one strain in

In this study present can be showed the amount. To the some biochemical compounds and to each different in all mineral of elements can be differed significantly by the different of this hosts between the fertile and each infertile cysts. So that not found any different between all. Sothat fertile and nonfertile cysts can be differentiated found by the elements and all compounds. So that the results suggest to the host can play important role in determine the main composition of each hydatid cyst fluid (HCF) when may be compared to the fertility cyst. In this study to this parasite cyst, shaw can be determined the fertility by the genetics and also nothing to this parasite with environmental of this factors.

The aim of this present study was to determined the amount of Compounds and substances in all fertile and sterile cysts to determination the cause of hydatid cyst infertility.

The important role to organic Materials and minerals play an very important role to the metabolism, the physiology and also to the immunogenicity to each cysts to this parasite (hydatid cyst) (11, 12). These cysts can be compounds also by the function of the enzymes (membrane enzyme gamma glutamyl transpeptidase) , this can be plays important role(Key role) by the transport of all the amino acids and also to transport the peptides from the wall of the cell membrane (13). Also (14) referred to in the study can be difference in the a significant can be between to each of the amount to all the potassium and the calcium in different to each cysts, these amount of the sodium in all different host cysts not found any statistically to the signific

The qualitative and quantitative differences to the metabolism of fluids of hydatid cysts in different animals throughout all the world. This maybe due to complex strain through the world by differences besides of biochemical and physiological state . There are more than one strain exist in examined animals which due to information differents strains for anthelminthic drugs (8).indicated, in the biochemical tests to HCF show no significant differences in species to intermediate host (cattle, sheep, goats and camels) (11). Show the average HCF levels of (Mg,Ca, Na, and the Chlorine (Cl) level very Higher in each hydatid cyst,sonra in protoscoleces (12,13) reported the average levels hydatid cyst fluid (HCF) to the (P, Ca, Na, Mg, Na and K) were approximately very higher in sheep from the other animals when examined and the humans. The (14) also who compared noted the ions and other chemical components found a very wide variation in each the concentration of HCF and to the contents the protoscolices contents.

The(15) also reported that a high range in the percentage number to the infertile cysts is very high percentage in the liver of sheep, sothat this can be due to the high reticuloendothelial cells and to the abundant of the connective tissues which can reaction in liver by fibrous encapsulates which sorund by the cyst within afibrous wall.

The staining techniques for protoscolecesin the fertile cysts can be using staining techniques for check the activity and movement of flame cells, sothat flame cells develop inactive Protoscoleces with stained by eosin in tissues dead

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