Pathological and Biochemical Study of Cysts in Anin Diwania/ Iraq

Khairy A. Dawood - Alaa M. Abdulrazaq
College of Vet. Medicine / Al-Qadisyia Uni.

Abstract

Gross pathological study for the cysts in cattle and sheep Reveald th many different forms of cysts were noticed in the organs of sheep , goa camels . The most wide istributed form was milky in colour , different size ranged from few millimeters till the several centimeers . Some of thes were located superficialy while others were embedded in paranchyma c and lungs.These cysts were two types unilocular and multiloculor cysts. and stirility of these cysts were studied . In sheep , these cysts were highl 65% while in cattle these cysts were highly sterile 73%, There are anoth of cyst attached to the livers of sheep superficialy , delicate thin wa different sizes also, these cysts were the larval stage of *Taenia hydatige* cyst was isolated from thigh of cow . Size of this cyst 15 X 12 cm semitranslusent and patched wallBiochemical analysis of hydatid fluid of t cysts evealed that protein was the highest quantity (2.176)mg/dl wh lowest was urea (1.125) mg/ dl.

Introduction

Echinococcosis or hydatid disease is the larval or intermediate s *Echinococcus granulosa* and *Echinococcus multilocularis* . Gen eosinophlia occurred during
hydatidosis and this sign is the pathognomic evidence(Islam , A.1980 and wild carnivores serve as the principle definitive hosts for these pa but Foxes consider as a definitivehost for the adults of *Echin multilocularis* .The hydatid of *Echinococcus granulosa* is uniloculor , co of a thick laminated, outer membrane enclosed the germinal layer , ea contain about 40 scolices . The hydatids of *Echinococcus multilocularis* multiloculular hydatids with external daughter cysts . The effect on t depends upon the localization of the cysts (Jones ,T. C.et al 1996) .
The damage produced by the hydatid of *E.granulosa* mainly mec .Hydatid of the is invariabl lung Microscopically the cyst was surrou infilteration of inflammatory cells such as macrophages , eos lymphocytes and neutrophils (Beaver , P. C. et al 1984) .Belding Radfar and Iranyar (2004) worked on biochemical analysis of hydatid flu lung cysts and isolated (Protein , Magnesium , Calicum , Sodium , P and Iron) ,while Cameron (1964) recorded the mean of quantity of p the fluid of hydatid cysts (53.99 – 91.18 mg /dl) . Sheriff et al (1989) lipidsfrom the hydatid fluid of lung and liver cysts of sheep and man .Bea (1984) write on fertility and vitality of the hydatid cysts and noticed percent of fertile cyst Higher in the cyst of sheep more than in cattle.Y K. and Heath D.(1979) studied the antibodies in sera of sheep infec *E.granulosa , Taenia hydatigenaAnd Taenia ovis* , while el Tahi et al diagnosed theHydatid cysts in the liver by using ultrasound and c Tomography .

Materials and Methods

Through out regular visiting to the slaughter house of Diwania weekly . Infecte organs (liver and lung) of sheep and cattle examined directly grossly and b palpation . Then transported by cooled container to the laboratory o parasitology inVet. Med. College . Cysts were injected by 10%formalin befor opening for killing the scolices , only that cysts used for examining the vitality o the scolices .The vitality of scoloscies examined by using eosin stain 0.1%, b shaking with heat of perner for rapid solving the stain .

Mixing two equil sizes on the slide of hydatid fluid with eosin solution , revealed that dead scolices appeared red in colour while the living scolices green i colour .When some cysts opened , the brood capsules (daughter cysts) wit scolices were noticed , while others without .So the cyst with scolices (Fertil cysts) and those withoutwere (Sterile) .istopathological study (sectioning) wa carried out on some samples of infected organs .iochemical analysis were don in laboratory of Biochemstry by using spectrophotometer .

Results

The hydatid cysts of unilocular room milky in colour which were consist of a thic oncentrically laminated outer membrane encasing a germinal membrane recognized by its large size , some times reach to 15 cm Fig.(1) . percent c these cysts 56% and its the larval stage of *Echinococcus granulosa* There wer other types ,different sizes , irregular in shape connected together internall Fig.(2) .As well as some of these cysts were projected from the surfase of th liver and the organ is cut longitudinally or transferse it appeared . These cyst were the intermediate stage of *E. multilocularis* ,Other cysts were notice attached superficially to the liver ,Mesentry and Omentum of sheep and goat These cysts were delicate and thin wall , different sizes . The biggest one wa 3X5 cm while the smallest one was 0.5x1 cm . These cysts were *Cysticercu tenicolis* , the larval stage of a tape worm of dogs and other carnivores *Taeni hydatigena* Fig(3)

One special cyst was noticed between the muscles of thigh of cow in slaughte house . This cyst removed carefully , its size 13X10 cm and its wall thi semitransluscent with patches red and cloudy colouration , It was *Coenurus* which is the larval stage of *Taenia multiceps* isolated from voluntary muscles Fig(4) .Hydatid cysts were lacking scolices called sterile cyst while the cysts wit scolices called fertile Fig(5) . High percent of sterile cyst in liver and lung c cattle 65% while the fertile cysts were 35% , but in sheep vise versa ,hig percents fro fertile 73% while the sterile cysts were 27% . differentiate betwee dead and alive scolices stained by 10% Eosin , therefor greenish scolices alive)Fig (5), whilered (dead) .Microscopical study for some fertile cyst b microtom sectioning the protoscolices noticed developed at the invagenated a the lumen of the cyst Fig. (6) . Very rare free brood capsules noticed in th cysts of animals.Biochemical analysis :hydatid fluid was analyzed biochemicall . Ten cysts isolated from different lungs of sheep . The mean quantity of protei was the highest (99mg/dl)while uric Acid was the lowest quantity (2.19mg/dl table (1) .he mean quantity of protein of the hydatid fluid of the liver cysts i sheep was (163 mg/dl) ,as well as quantity of uric acid was the lowest 1.2mg/dl) , table (2).

Fig.(1)Multilocular Cysts in the liver of sheep.

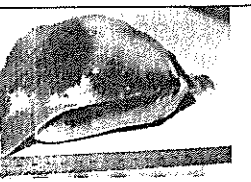

Fig.(2) Unilocular Cysts in the liver of cow .

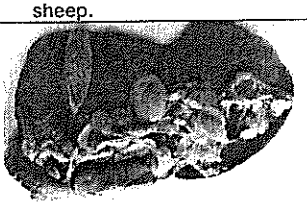

Fig.(3) *Cysticercus teniacolis* ,larval stage of *Taenia hydatigena* in the liver of sheep.

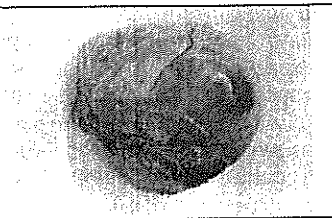

Fig.(4) *Coenurosis , the larval stage of Taenia Multiceps .*

Table(1) Biochemical analysis for hydatid fluid content of lung cysts

No of case	Suger mg/dl	Urea mg/dl	Cholestrol mg/dl	U.A mg/dl *	Protein mg/dl	Calicum mg/dl	Pho c m
1	35	35	48.3	2.9	107	7.8	
2	37.8	29	47.5	1.9	102	5.3	
3	30.2	28.2	47.3	2.2	100	8.7	
4	29.9	27.9	40	2.4	104	5.0	
5	35	28.1	38.5	2.1	103	4.7	
6	28.7	20.2	37.2	1.8	90	5.2	
7	30.1	22	40.1	2.3	105	6.9	
8	26.2	39.1	35.7	2.0	108	6.2	
9	26.1	22.1	40.2	2.1	80	7.3	
10	28.8	28.9	38.2	2.2	90	8.1	
Mean	30.78	28.05	41.3	2.19	99	6.52	

U.A=Uric Acid

Table(2) Biochemical analysis for hydatid fluid of the liver cysts

No of case	Suger mg/dl	Urea mg/dl	Cholestrol mg/dl	U.A mg/dl	Protein Mg/dl	Calicum mg/dl	Pl
1	15.5	18	1.4	89	155	9	
2	14	17	1.1	92	140	7.9	
3	14.5	21	1.0	90	168	7	
4	13.8	19	1.2	88	180	6.8	
5	14.2	21	1.3	87.9	170	7.1	
Mean	14.4	19.2	1.2	89.38	162.6	7.56	

Discussion

About 70% 0f oncospher infiterated in the liver (Kocamon et al 1999). While Eckert et al (2001)recorded that the lung infected with hydated cystswhen the oncospher pass through liver and lodge inthe lungs because it have huge number of capllaries .

Unilocular cysts are less than 5 cm in diameter but may reach a diameter 20 cm and this confirmed with result of this study 15 cm the biggest cyst . Himonas et al (1987) recorded the fertile less thanSterile in cattle (8.11% , 74.9%) respectively and the rest were the calcified cysts . These results near to the present work (65 % , 35%) .

Biochemical analysis for hydatid fluid reveal that mean of quantity of protein was the highest in both liver and lung (126 – 99 mg / dl) respectivly whileSoulsby (1982) cited (21.75 mg /dl) quantity of protein in the liver and chlesterol was (29.23 mg/ dl)in comparison with oresent results 89 mg / dl for liver and 41 mg/ dl for lung .he results of calicum 5.3mg/ dl and 2.1 mg/ dl for phosphorus but comparing that with present work there are no quit big differences 6.52 mg / dl for calicum and 3.67 mg/ dl for phosphorus .

References

1- Al- Kannany , E. R. (1988). Histopathological and histochemical changes in mice experimently inected with hydatid cyst of *E.granulosis* Mscthesis . Coll. Vet. Med. Uni. Baghdad .

2- Beaver , P.C. Jung, R.C. Cupp,E.W.(1984) . Clinical Parasitology , Text book 9th edition Lea Febiger , 527- 537 .

3- Binhazim A.A. Harmon B. G. Robertson E. L.(1992) . Hydatid disease in horse.J.Am.Vet.Med.Assoc.200: 958-960

4- Cameron, T.W. (1964) .Parasitologia (Rome)2:371-38160 cited by belding , D.L. Text book of para sitology Third ed , PP. 629 .

5 – EcKert ,J. Thompson , R. Lymbery A. Pawlowski , Z.S. Gottstein , B. And Morgan , U. (1993) . Further evidence for the occurence of a districtStrain of *E.granulosus* in European pigs . parasitology Res. 79: 42- 48 .

6 – el Tahir, M. I.Omojola M.Malatani ,T.al Saigh ,A. (1992) Hydatid disease of the liver evaluation of ultraSound and computed tomography .Br.J. Radiology , 65: 390- 392.

7 – Himonas , C. Fryas ,S. and Antoniadou – Sotiriadou ,K.(1987) . The fertility of hydatid cyst in food nimals in Greece. Helminth. Zoonosis , 3 :2 – 21 .8- Islam ,AWMS (1980). *Echinococcus granulosa* in dogs in Bangladesh . Am. J. Vet. Res. 41:415-416 .

9 – Jones , T.C. Hunt, R.D.King,N.W. (1996) . Veterinary Pathology ,Text book 6th edition , Lippincott Williams and Wilkins 654- 657 .

10 – Kocaman , S. Ersabin, Y.and Matluer, S(1999).Cerebral hydatid cysts in children . J. Neurosci Nurs31: 270- 277 .

10 - Morseth D. (1997). Fine structure of the hydatid cyst and protoscolex of *E.granulosa* .J. parasitology ,53: 312- 325 .

11– Radfar , M. Iranyar , N.(2004) . Biochemical profiles of hydatid cyst fluids of *E. granulosa* of humanand animal origin in IRAN .Vet.archive 74:435- 442 .

12 – Rogan ,M.T. Craig ,P. S.Zehyle , E.Masinde, G.Wen, H. and Zhou ,P. (1997) .In vitro killing of taniid oncosphers , mediated by human sera from hydatid endemic areas .Acta , Trop.51: 291-296 .

13 - Sheriff, D.S. Fahhri , M. Kdwai ,S. (1989).Lipid in hydatid fluid collected from lung and liver of sheep and man .J. Helminthol. 63: 266- 268 .

14- Soulsby ,E.J. (1982) .Helminth , Arthropods and Protozoa of domesticated animals .7th ed : 119- 127.

15- Suilienov , D. Vinarova , M.Hassant , T.and Toselov, B . (1984). Morphologic studies in experimental Echinococcosis in sheep .Vet.Med . Mauki,21 (9) 120- 132 .

16 – Youg, W. and Heath , D. (1979) . Arc 5 antibodies in sera of sheep infected with *E.granulosa* , *T hydatigena and T. ovis* . Parasite Immunology1: 27 – 38 .