المجلة الطبية البيطرية العراقية 35 (1): 190 – 194 ، 2011

التحري عن Cryptosporidiosois في العجول والأطفال في مدينة الديوانية

آلاء محمد عبد الرزاق الخفاج* غيداء عباس جاسم**
*وحدة الأمراض المشتركة **فرع الأحياء المجهرية كلية الطب البيطري – جامعة القادسية

قبل للنشر في كانون الثاني 2011

الخلاصة

شملت الدراسة فحص 200 عينة براز جمعت من أبقار مختلفة الأعمار من المستشفى البيطري والمجزرة في مدينة الديوانية , فحصت العينات بطريقة زيل نلسن المحورة .

كشفت الدراسة عن وجود إصابة بطفيلي *Cryptosporidium parum* للأعمار البالغة من الأبقار بنسبة مئوية 44% في المجموعة التي تعاني من الإسهال و12% من المجموعة التي لا تعاني إسهال واختلفت النسبة المئوية في مجاميع الأعمار الصغيرة المختلفة أما بالنسبة للإصابة بالطفيلي في الأطفال فكانت بنسبة 17.5% في المجموعة التي تعاني من الإسهال بعمر 2-4 سنة و8.4% من المجموعة التي لا تعاني من الإسهال . واختلفت النسبة المئوية في مجاميع الأعمار المختلفة طبقاً لمكان العيش (ريف أو مدينة) نتج من هذه الدراسة أن للعمر وحالة وجود أو عدم وجود الإسهال تأثير معنوي على شدة الإصابة بطفيلي *Cryptosporidium parum* .

Prevalence Of Cryptosporidiosis In Calves And Child In Al Diwania City

Alaa mohammed abdul razak** * Ghaidaa abas Jasm**
*Unite of Zoontic disease – **Depart.Microbiology Al- Qadisiya University - Iraq .

Summary

The aim of study to investigate of *Cryptosporidium parum* Parasite 200 faecal samples were collected from cattle in different age from abattoir and hospital of veterinary and infants in children and maternity of Al–Diwania Governorate and examined by Modified acid fast staining .The prevalence and intensity of cryptosporidiosis was found more in adult calves (44%) in diarrheic group and 12% in non diarrheic group and the percentage was different from the other age group. While in Infant 17.5% were positive from diarrheic group and 8.3% in nondiarrheic group in 2-4 years old and the percentage was different from the other age group according the site of live in rural and urban community . This study was conclude that the age and present or absence of diarrhea significant differences in severity of infection with *Cryptosporidium parum* .

Key word : Cryptosporidiosis , calve , child . Email : supervisore2@yahoo.com; Mobile No. 07809615042

Introduction

Cryptosporidium parum is a coccidian and one of many genera of the protozoan phylum , Apicomplexa (class - sporozoa , subclass coccidia) . Six species are currently recognized on the basis of differences in host specificity , oocyst morphology and site of infection (C . parvum , C . muris , C . meleagridis , C . baileyi . C . serpentis and C . nasorum) ; only C . parvum causes diseases in human . (1,2) . Common sources of infection are adult animals that are asymptomatic parasite carriers , feed and water contaminated with oocysts , feed containers , pins and personal clothes and tools contaminated with faeces (3) . In USA , several water borne epidemics of cryptosporidiosis have been reported in humans (4) .

The majority of adult cattle can be described as excretors of C . Parum oocysts when highly sensitive detection method are used . Never the less , their importance in the transmission of disease remain question able , since oocyst excretion by adult cattle was similar in herds with serious problems of cryptosporidial neonate diarrhea and in those without (5) . So far , in cattle , no increased output of C . parvum oocysts around parturition has been observed (6) . The parasite completes its entire life cycle within a single host , The common feature in this species is the presence of four naked sporozoites , which are contained within a thick walled oocyst without sporocysts . Transmission is mainly by ingestion of sporulated oocyst through contaminated feed and water , Cross infection occur between domestic and laboratory animals and man (7). Human cryptosporidiosis is now widely recognized as an endemic enteric pathogen with a world wide distribution . Infection rates are highest in developing countvies and amongst children under 5 years of age in developed countries . the majority of human infections are due to Cryptosporidium hominis and Cryptosporidium parvu C . hominis is probably specific to humans , so transmission is via direct person to person contact or via faecal contamination (9) . Because we have reported incidence of *Cryptosporidium parum* infection among infants in children and maternity of Al – Diwania Governorate Hospital , This study aimed to know the prevalence of C . parum in calves in abattoir and veterinary hospital relation that with infection of infants .

Materials and Methods

To study the prevalence of cryptosporidiosis faecal samples of bovines were collected from abattoir and veterinary hospital of Al – Diwania city and from child which suffer from diarrhea and non diarrhea in children and maternity of Al – Diwania hospital in a period of 6 months (7) .

The faecal samples were collected directly from the rectum in plastic containers with a detailed he history about breed , sex and age and then labeled with particulars of individual infants and animals on the containers . Each sample was studied macroscopically to establish its consistency as liquid , soft or solid and presence of mucus or blood was noted later the samples were examined by modified Ziehl – Neelsen staining . Modified Ziehl – Neelsen staining . The hot and cold methods of modified Ziehl – Neelsen staining of faecal smears was used as per the procedure described by (8) . Thin smears of faecal sediment were made on a clean , grease free glass slide and air dried . Then the smears were fixed transiently over a flame . The smears were then stained with a strong carbol fuchsin solution for 5 minutes. In the hot method , after pouring the stain the slide was heated until steam appeared but boiling was avoided . Then an additional stain was poured if the slide was dried . In the cold method the slides were not heated . After staining the smears were washed in running tap water for 1 – 2 minutes . Then the slides were subsequently decolorized in 5% sulphuric acid for 30 seconds . Again the smears were washed in tap water for 1 – 2 min. and then . the smears were counterstained with 3% methylene blue for 1 minute . The smears were finally washed in tap water and air-dried . Then the smears were examined microscopically under oil immersion (100x) for *Cryptosporidium parum* oocysts .

Results

The prevalence of cryptosporidiosis was studied on the basis of the detection of oocysts in the calve feacal materials collected from abattoir and veterinary hospital located in Al – Diwania Governorate . out of 200 sample , 46 (33%) animals were found positive for cryptosporidiosis . The prevalence of it was higher in diarrheic (24.5%) samples compared to non diarrheic (15.1%) . Table (1) .

The age wise prevalence was studied under three different age groups . Among 30 calves aged between 1 – 6 months . 7 (31.8%) were positive of 70 heifers in 7 – 12 months age group, 8 calves positive 6 (10%) in Diarrheic cases and 2 (20%) from Non – diarrheic cases out of 100 dult animals 46 were positive 41(24.5%) from diarrheic cases and 5 (15.1%) from non diarrheic cases .

Table (1) Age wise Prevalence of cryptosporidiosis in Diarrheic and non Diarrheic calves .

Age group	No. animals exam.	No. positive	Diarrheic			non diarrheic		
			No. test	No. positive	Percentage No. positive	No. test	No. positive	Percentage No. postive
1-6 months	30	2	22	7	31.8% a	8	0	0.0% a
7-12 months	70	8	60	6	10% b	10	2	20% b
Adults	100	36	75	33	44% c	25	3	12% c
Total	200	46	167	41	24.5% D	33	5	15.1% D

Different letter's referred to different significant at P < 0.05 .

Table (2) Age wise prevalence of cryptosporidiosis in diarrheic and non diarrheic infants .

Age group	No. of infant.	No. positive	Diarrheic			non diarrheic		
			No. tested	No. positive	Percentage No. positive	No. tested	No. positive	Percentage No. positive
1>2years	48	6	38	6	15.7% a	10	0	0.0% a
2 - 4 years	52	8	40	7	17.5% a	12	1	8.3% b
Total	100	14	78	13	16.6% a	22	1	4.5% c

Different letter's referred to different significant at P < 0.05 .

The prevalence of cryptosporidiosis was studied on the basis of the detection of oocyst in infants feacal materials were collected from different ages from infants in children and maternity of Al – Diwania Governorate hospital out of 100 sample 14 (14%) were positive for cryptosporidiosis by modified Ziehl-Neelsen staining .

The age wise prevalence under two different age groups . Among 48 cases in (1 > 2) years age 6 (15.7%) from 38 cases from diarrheic cases and zero from 10 from non-diarrheic cases . from 52 cases of (2-4) years 8 was positive 7 (17.5%) from diarrheic cases and 1 (8.3) from 12 was tested from non diarrheic cases . nine cases which detection positive for cryptosporidiosis in Infants were diarrheic lived in rural will four cases lived in urban .

Discussions

Most commonly , *Cryptosporidium Spp* . has been associated with diarrhea in calves . in this study it was observed that the majority of the animals between 1 – 6 months of age were found to have cryptosporidiosis (31.8%) compared to those above six months and adult similar observations were also made by (10 , 11 , 12) . the study indicated that younger animals 7 – 12 months 10% were susceptible to infection with cryptosporidiosis may take the infection from adult which act as asymptomatic carriers of infection and will be a source of infection for younger animals . that similar observations were also made by (13) . We reported a higher prevalence of cryptosporidiosis in diarrheic calve compared to non diarrheic animals , the percentage prevalence of disease was higher in diarrheic animals 41% compared to non diarrheic 15 – 1 % . Occurrence of cryptosporidiosis in clinically asymptomatic animals indicated that particular age group of animals might be reservoir for the parasite (14) .

Cryptosporidium parum continues to be a threat not only among immunocmopromised persons but also among young children in both developed and developing countries . Recent work in the United states has suggested an increasing prevalence of *Cryptosporidium parum* infection among daycare attends (15) . In this study the first group 1 - 2 years from diarrheic 15.7% higher than those nondiarrheic cases 0.0% may this age associated with persistent diarrhea in nearly half of all index cases . In 2 - 4 years group of child 17.5% were positive from diarrheic group compare with 8.3% from nondiarrheice group most of this cases recorded in rural community this year's child will be contact with animals which live near their houses and the source of the water , contaminated water sources (16,17) and infected animals (18,19) with subsequent spread to humans have been identified as sources of infection , reports of day care center out breaks (20) and sequential infection in hospitalized patients and personnel suggest that the main source of transmission is person to person (21) .

Reference

1. O'donoghue P J (1995). cryptosporidium and cryptosporidiosis in man and animals .J parasitol . 25: 139-195
2. Hoepelman IM (1996). Human cryptosporidiosis .Int JSTD and AIDS ; 7 :28-33.
3. Anusz k (1994). Cryptosporidiosis in calves . Zycie wet 69,306-309 .
4. Kasprzak W (1995). Copro – antigen detection in parasitic disease . Wiad parazyt , 41,19-24
5. Scott CAHV smith MM Mtambo A and Gibbs HA (1995). An epidemiological study of Cryptosporidium parvum in two herds of adult beef cattle . Vet Parasitol 37;277-288.
6. Atwill ERJ Harp A Janes T Jardon PW checel S and Zylstra M (1998) . Evalnation of periparturient dairy cows and contact surfaces as are servoir of cryptosporidium parvum for calf hood infection . Ame J Vet Res 59:1116-1121 .
7. RekhaHoskere KM Puttalakshmamma G Chikkachowdappa A Javare K Gowda and placid E D S (2009). Studies on the prevalence of cryptosporidiosis in bovines in organized dairy farms in and around Bangalore, south India. Veterinarski Arhiv.79(5),461-470 .
8. Henriksen SAJ and Pohlenz FL(1981). Staining of cryptosporidia by modified Ziehl – Neelsen technique. Acta Vet Scand .22,594-596 .
9. Institue of food scince and Technology (IFST).(2008) information statement . Cryptosporidium page 1 of 6 .
10. Jayabal L and D-Ray D(2005). Cryptospridial infection in cattle and buffaloes. J Vet Parasitol. 19,165 – 166 .

11.Roy SS Pramanik AK and Batabyal,S Das(2006). cryptosporidiosis an important Zoonotic disease : Areview article . Intas Polivet . 7,433-436.
12.Mehdiazami M (2007). prevalence of cryptosporidium infection in cattle in Isfahan , Iran J Euk Mierobid . 54,100 – 102 .
13.Mallinath RHK CHIKKachowdappa PG Gowda AKJ, PEDsouz A (2009) . studies on the prevalence of cryptosporidiosis in bovines in organized diary farms in and around Banglore , South India Vet . arhiv 79,461-470 .
14.Mtambo MMA Nash AS Blewett D A Wright S (1992).Comparison of staining and concentration techniques for detection Cryptosporidium oocysts in cat faecal specimen . Vet Parasitol . 45,49-57 .
15.Addiss DG Stewart JM finton RJ Wahlquist SP Williams RM Dickerson JW (1991) . Giardia Lamblia and cryptosporidium infection in child day-care centers in fulton county , Georgia. Pediatr Infect Dis J; 10:907-11.
16.Hayes EB Matte TD O'Brien TR Mckinley Tw Loysdon GS Rose JB (1989) . Large community outbreak of cryptosporidiosis due to contamination of filtered puplic water supply. NENg J Med 320 : 1372-6 .
17.Treey S(1993). Drinking water comes to aboil. Newyork Times Magazine.26 September : 42.
18.Current WI ReesNC Ernst JV Balley WS Heyman MB Weinstein WM (1983). Human cryptosporidiosis in immunocmpetent and immunodificient persons. studies of an outbreak and expermintal transmission. N EngI J Med; 308 – 1252-7 .
19.Miron D Kenes J Dagan R (1991). Calves as asource of an outbreak of cryptosporidiosis among young chikdren in an agricultural closed community . Pediatr Infect Dis J 10; 438-41 .
20.Dryjansk J Gold JW Ritchie MT Kurtz Rc Limsl Mrmstrong D (1989) . Cryptosporidiosis: case report in ahealth team worker. Am J Med. 1986: 80; 751-2.
21.Brown EA Casemore DP Gerken A Greatorex IF (1989). Cryptosporidiosis in Great Yarmouth – the investigation of an outbreak. public Health; 103: 3-9.