

قسم صحة الحيوان  
كلية الطب البيطري - جامعة أسيوط  
رئيس القسم : أ.د/ عبدالمعز أحمد اسماعيل

مدى تواجد طفيل الكريبتوسبورديوم في اسهال العجول الرضيعة في مصر العليا

محمد صبيح ، صباح مصطفى\*

تم فحص مائة عينة من براز العجول الرضيعة وحديثه الولادة المصابة بالاسهال والسليمة ميكروسكوبيا لتحديد تواجد الطفيل من عدمه وقد أمكن توضيح الطفيل في عدد ٢٣ عينة من براز العجول الرضيعة المصابة بالاسهال ( ٢٨,٧٧% ) • ولم يتم توضيح الطفيل في براز العجول الرضيعة السليمة مما يوضح بأن طفيل الكريبتوسبورديوم يلعب دورا في حدوث الاسهال للعجول الرضيعة وقد ناقش البحث الطرق الوقائية والعلاجية لمنع انتشار هذا المرض خصوصا بين العجول الرضيعة •

Dept. of Animal Hygiene,  
Faculty of Vet. Med., Assiut University,  
Head of Dept. Prof. Dr. A.A. Ismail.

**INCIDENCE OF CRYPTOSORIDIUM SPECIES IN  
NEONATAL DIARRHEA OF CALVES IN UPPER EGYPT**  
(With One Table)

By  
**M. SOBIH and SABAH MOUSTAFA\***  
(Received at 16/7/1987)

**SUMMARY**

In recent years, cryptosporidium, a coccidian parasite of the intestine, has been associated with neonatal diarrhea in calves. Cryptosporidium were found in feces of 23 calves with diarrhea (28.77%), while, the parasite were not found in the feces of 20 clinically normal calves examined. Cryptosporidia were demonstrated microscopically in Modified Acid Fast stained smears of feces from infected calves. Supportive therapy and strict hygienic measures would help to control the spreading of cryptosporidiosis among young calves.

**INTRODUCTION**

Cryptosporidia are protozoa of the class Sporozoa, Subclass Coccidiasina, the order Eucoccidiorida, the suborder Eimeriorina, Family Cryptosporidiidae, genus Cryptosporidium. They occur in several host animals and are thought to be host specific, thus there are currently a number of species identified (LEVINE, 1973).

Infection with cryptosporidium generally results in an acute self-limited diarrheal illness in immunocompetent individuals, but in an immunocompromised host can cause protracted diarrhea with accompanying malabsorption, dehydration and electrolyte imbalance. Cryptosporidiosis can cause substantial economic losses and high fatality rates among young animals. (Bureau of Epidemiology, Texas Department of HEALTH, 1985).

The first description of bovin cryptosporidiosis was in 1971 in an 8 month-old heifer (PANCIERA, 1971). There have been several reports on cryptosporidiosis in calves with neonatal diarrhea (BARKER, 1974; MEUTEN, *et al.* 1974 and SCHMITZ, 1975).

MORIN, *et al.* (1976) demonstrated cryptosporidia in 11 of 55 calves with diarrhea. The disease is reported to be common in North America (BERGELAND, *et al.* 1979; POHLENZ, *et al.* 1978). Europe (NAGY, *et al.* 1979; POL, *et al.* 1982) and Australia (JERRETT and SNODGRASS, 1981).

A few recent reports have described outbreaks of diarrhea which could only attributed to cryptosporidium (ANDERSON, 1981 and TZIPORI, *et al.* 1980). The clinical picture which emerges from field reports is one mild to severe diarrhea occurring in calves aged between one and 4 weeks, with high morbidity and low mortality. The youngest calf reported to be affected with the disease was 4 days (SNODGRASS, *et al.* 1980) and the oldest was 26 days (TZIPORI, *et al.* 1980). The illness lasted between 2 and 14 days, the average being 7 days; relapses occurring after apparent recovery have also reported.

\* Research Institute of Animal Health, Assiut.



Our paper concern with the demonstration of cryptosporidium oocyst in the feces of neonatal diarrheic calves in Upper Egypt.

## MATERIAL and METHODS

In this study, a total of 100 fecal specimens were collected individually from calves of 1 to 15 days old, 80 with and 20 without diarrhea from different farms in Assiut Governorate.

The technique used for detection of cryptosporidium was according to that recommended by the California Department of Health service (1984). With this technique the fecal specimens were treated by 10% formalin. The fluid sample was centrifuged at 650 r.p.m. for two minutes, and the supernatant fluid was discarded and replaced with an equal amount of 10% formalin to the sediment. The sample was then mixed, and 0.1 to 0.2ml of the mixture was transferred to another 15 ml centrifuge tube. Then to this mixture, 1 to 2 drops of 10% formalin was added. Fecal smears for each specimen taken and stained by UCLA Acid-Fast staining technique for detection of cryptosporidium (GARCIA, *et al.* 1983). This modified acid fast technique had the advantage of reducing the chance of over decolorization. Furthermore, the color was intense enough to allow the smear to be scanned at x 400 as well as 1,000.

Table (1)  
Incidence of cryptosporidium spp. in the examined fecal samples

Animal	No. of specimens	No. of positive	%
Calves with diarrhea	80	23	28.77
Calves without diarrhea	20	non	-
Over all	100	23	23

## RESULTS

The obtained results were tabulated in Table (1).

## DISCUSSION

Cryptosporidia were found microscopically in feces of 23 calves with diarrhea (28.77%) (Table 1). In contrast, cryptosporidia were not found in the feces of 20 clinically normal calves examined. The data reported here, agreed with those of (MORIN, *et al.* 1976; POWELL, 1976, and SOBIEH, *et al.* 1986) and are interpreted to indicate that enteric infection with cryptosporidia are common in neonatal calves with diarrhea. Infected animals serve as a reservoir of infection which is then spread to other animal through contamination of feed and water with the cryptosporidia laden-droppings. Adequate treatment of cryptosporidiosis has not been described (MOON, *et al.* 1982). In most animal species the disease is self limiting, Mortality is usually low, unless the animals are colostrum deprived, have some other immuno-deficiency or are exposed to other enteric pathogens. (ANDERSON, 1982). Improvement of environmental health conditions through meticulous observance of sanitary procedures, segregation of infected animals, hygienic disposal of infected manure. Neonatal calves should receive colostrum as soon as possible after birth, crowding should be avoided an given supportive therapy, all of these may help to reduce the occurrence of the infection in the calf population.



## CRYPTOSORIDIUM SPP. IN CALVES

## REFERENCES

- Anderson B.C. (1982): Cryptosporidiosis in Idaho Lambs natural and experimental infections. *J. Am. Vet. Med. Assoc.* 18: 151-153.
- Anderson B.C. and M.S. Bulgin (1981): Enteritis caused by cryptosporidium in calves. *Vet. Med. Small. Anim. Clin.* 76: 865-868.
- Barker, J.K. and Carbonell, P.L. (1974): *Cryptosporidium agni* sp. n. from lambs. and *cryptosporidium bovis* sp. n. from a calf with observations on the oocyst. *Z. Parasitenkd.* 44: 289-298.
- Bergeland, M.E.; D.D. Johnson, and H. Shave (1979): Bovine Cryptosporidiosis in the North-central United States, P. 131-138. In 22nd Annual Proceedings. American Association of Veterinary Laboratory Diagnosticians.
- Bureau of Epidemiology, Texas Department of Health (1985): Cryptosporidiosis. *Border Epidemiological Bulletin.* XIII. No. 4. p. 1-3.
- California Department of Health Services (1984): Cryptosporidiosis: a newly recognized diarrheal illness in a day care center-calif. *Marb. Wkly Report.* 41: 1.
- Garcia, L.S.; Bruckner, D.A. Brewer, T.C. and Shimzy, R.Y. (1983): Techniques for the recovery and identification of cryptosporidium oocysts from stool specimens. *J. Clin. Micro* 18: 185-190.
- Jerrett, I.V. and D.R. Snodgrass (1981): Cryptosporidia associated with outbreaks of neonatal calf diarrhea. *Aust. Vet. J.* 57: 434-435.
- Levine N.D. (1973): Protozoan Parasite of Domestic Animals and of Man, ed 2 Minneapolis, Burgess Publishing Co, P. 406.
- Meuten, D.J.; Van Kruiningen, H.J. and Lein, D.H. (1974): Cryptosporidiosis in a calf. *JAVMA* 165: 414-417.
- Morin, M.; Lariviere, S. and Lallier, R. (1976): Pathological and microbiological observation made on spontaneous of acute neonatal calf diarrhea. *Can. J. Comp. Med.* 40: 228-240.
- Moon, H.W.; Woode, G.N. and Ahrens, F.A. (1982): Attempted chemoprophylaxis of cryptosporidiosis in calves. *Vet. Rec.* 110-181.
- Nagy, B.; A. Antal, and F. Ratz (1979): Occurrence of bovine cryptosporidiosis in Hungary. *A Magyar. Allatrov Lapja* 34: 585-588.
- Pancieria, R.J.; Thomassen, R.W. and Garner, F.M. (1971): Cryptosporidial infection in a calf *Vet. Path.* 8: 479-484.
- Pohlenz, J.; W.J. Bemrick; H.W. Moon and N.F. Cheville (1978): Cryptosporidiosis as a probable factor in neonatal diarrhea of calves. *J. Am. Vet. Med. Associ.* 172: 452-457.
- Pol, J.M.A.; B.E.C. Schreuder; G.J. Kok and P.W. deLeeuw (1982): Cryptosporidium: a new factor in the aetiology of neonatal diarrhoea in calves. *Tijdschr. Diergeneesk.* 107: 503-510.
- Powell H.S.; Holscher, M.A.; Heath, J.E. and Beasley, F.F. (1976): Bovine cryptosporidiosis (a case report) *Vet. Med. Sm. Ani. Clin.* 71: 205-207.
- Schmitz, J.A. and Smith, D.H. (1975): Cryptosporidium infection in a calf. *JAVMA* 167: 731-732.
- Snodgrass, D.R.; K.W. Angus; E.W. Gray; W.A. Keir and L.W. Clerihew (1980): Cryptosporidia associated with rotavirus and an *Escherichia coli* in an outbreak of calf scour. *Vet. Rec.* 106: 458-459.
- Sobieh, M.; J.V. Tacal; Burton, W.; Wilcke, J.; William Lawrence and Amer El-Abraf (1986): Investigation of cryptosporidia infection in calves in San Bernardino, California, and its public health significance paper presented during the XIV Annual Meeting of the U.S. Mexico Border Health Association. April 28-30.
- Tzipori, S.; I. Campbell; D. Sherwood; D.R. Snodgrass, and A. White law. (1980): An outbreak of calf diarrhea attributed to cryptosporidial infection *Vet. Rec.* 107: 579-580.