

CLINICAL AND THERAPEUTICAL STUDIES ON NERVOUS MANIFESTATION IN SHEEP OF PARASITIC ORIGIN

N. M. Bakeer

Animal Health Res. Inst., Damanhour Branch

ABSTRACT

This field study was carried - out on 3200 Barky sheep of different farm and of age ranged from four month to five years age . These farms has a history of nervous manifestation such as hyperexcitability, hyperesthesia , nystagmus, unilateral blinding and deviation of the head either to left or to right, in coordination, ataxia and depression and other respiratory signs as snoring, Rhinitis and sneezing.

On P.M lesions was done after death and after slaughtering found thin walled cysts up to 5 m present in the brain especially on external surface of the cerebral hemisphere and other cyst present in cerebrum under horn and containe white fluid and cassation, the tissue surrounding the cysts was necrotic and pusiated , in other sheep found Larvae in frontal sinus and may in brain with abscess formation .

Treatment of diseased sheep occur by given 30 sheep paraziruantil 25 mg / kg for week (Albendazol - Pharmasweedees - Ltd , Egypt) 4 casees only was cured but the rest not responded also give ivermectin 1 m / 50 kg B.WT. in 20 cases, Butox 0.5% drop in nose in 10 cases , Nitroxynil 1 cm / 25 kg s/c in 10 cases and cure rate ware 3,8 and 2 respectively so the control of nervous manifestation in sheep of parasitic origin must depend on protection of sheep during summer season, fly insect proof stable , repellent on muzzle , fly insect proof stable and control of stray dogs, Administration of Ivermectin 1 ml /50 kg BWT every three month.

INTRODUCTION

Coenurosis (gid or sturdy) is a fatal disease of sheep caused by the larval stage of *Taenia multiceps*. The cystic larvae (coenurus cerebrealis) develop in brain and spinal cord of sheep , goat and sometimes in cattle and have also been reported in man and horses (**Doherty et al 1989 and Fraser, 1991**) .

Antimortum diagnosis of coenurosis is difficult because the clinical picture is variable as it depends on cyst location in the brain

and may confuse with other nervous diseases (**Ahmed and Ali, 1972 and Herbat,1980**) .

Achenef et al (1999) discussed the occurrence of the disease among Ethiopian high land sheePg **Ozman et al (2005)** found that the coenorus cysts were commonly localised in the parietal and frontal lobes of the brain and in the cerebellum .

Radostitis et al., (2000) stated that the treatment of coenurosis is not satisfactory

specially when parasites are localised in the nervous system but the life cycle can be interrupted in animals which did not manifest neurological signs. The authors added that the only satisfactory strategy for control of coenurosis was done by the control of tape worm infestation in dogs and preventing them from contact with sheep carcasses.

Estrus ovis (Nasal myiasis) is an infectious disease of ruminant animals especially sheep caused by Larvae of estrus ovis and characterized by sneezing, rhinitis and sinusitis (**Radostitis, O. M. et al., 2002**).

MATERIAL AND METHODS

[1] Animals and history of the herd :

The present study was carried out on a private sheep station with a complain of different neurological signs, anorexia, recumbency and Respiratory signs as sneezing, snoring, Rhinitis. The farm consisted at three thousands and two hundred heads of different sexes and ages of barky sheep and on open grazing and located in Behera Governorate .

Sheep managements : All sheep were vaccinated twice a year with covexin vaccine (Coopers animal health LTD,UK) against clostridial infection. Besides, they were drenched with triclabendazol at 12 mg / kg body weight (Fasinex 10% ciba Geigy, LTD, and Switzerland) against fascioliasis. They were regularly administered by albendazol, at 2 ml/ 10 kg body weight (Albendazol, pharma Swede, LTD, Egypt) against nematodes the farm move from place to other for grazing allowing entrance of stray dogs and possible contamination of sheep food with dog's faces.

The sheep under investigation was regularly administered by ivermectin 1% in a dose of 1 cm / 50 kg body weight (for treatment of external parasites and Nematodes).

The sheep was vaccinated annually with killed vaccine of foot and mouth disease and Ridd vally fever (Abassia research institute) .

[2] Methods :

a-Clinical and neurological examination:

The routine clinical examination was done for all sheep. hundred and ten cases with neurological and respiratory signs were subjected to through clinical investigation. Position of the head (tilting, lifting and Lowering), gait of the animals (tendency to fall, roll or circle towards the right or left side). the sight of the sheep and their reaction to a threatening gesture towards each eye and behavioral changes (stumbling, ataxia and recumbency) were observed. also sneezing, snoring and coughing with protrusion of head to front and larvae may slough.

b- post mortem investigations :

- post mortem examination was done on dead sheep and on slaughtering one. The examination was performed by looking for presence of any parasitological cyst in brain tissue or presence of larvae in sinues.

The head was removed by ventral disarticulation of the atlanto - occipital joint. The bone of the skull was removed, so the brain was exposed and get out for slicing. A detailed examination was mode for changes in the brain ventricles, cerebral hemispheres, cerebellum, cerebrospinal fluid (CSF) and sinues especially frontal sinus.

c- Allergic test :

was done by taken fluid inside the cyst under complete aseptic condition and inject 0.1 ml of fluid intradermally in skin of the neck and read after 4 - 6 hours oval swelling fluctuating of 15 cm indicate positive results .

d) Laboratory investigations :

- **Parasitological examination :** Fecal samples were collected from the diseased sheep for parasitological examination according to **stoolsby (1987)** also fecal samples of stray dog was examined for the segment of *Taenia multiceps*.

- Bacteriological examination :

Bacterial swabs were taken from the nose of affected cases and brain tissue from slaughtered cases for Bacteriological examination on blood agar culture according to **farber and peterkin (1991)** .

E) Treatments :

- The cases with neurological signs was thirty cases treated with praziquantel in a dose of 25 mg/kg body weight for week beside anti-inflammatory (Dexamethasone, Finadyne, Arthridine) in a dose 0-1 mg/kg body weight intramuscular, 1 ml/50 kg body weight and 5 ml per sheep intramuscular respectively .

- The cases with respiratory signs was eighteen cases treated as fallow.

Twenty cases recived ivermectin 1% in a dose of 0.2 mg/kg body weight (Iveen, ADWIA, Egyptian co. for chemicals and pharmaceuticals, 10th of Ramadan city , Egypt).

- Ten cases received But ox 0.5 % (KD Det-

tathrine Ec 5% production by ICM) drop in nose .

- Ten cases recived Nitroxynil 1 ml/25 kg body weight s/c (Adwia Co.) .

f) Control strategies :

control measures were performed by eradication of all stray dogs from the flock , Isolation of all affected cases, the herdsmen were treated with ivermectin 0-2 mg/kg body weight every three month for one year (Iveen, ADWIA, Egyptian Co. for chemicals and pharmaceuticals) also closantel 50 mg/ml in a dose of 0.5 ml/10kg body weight by intramuscular route. (El-Nasr pharmaceutical chemicals Co.) and repeat every month for successive seven to ten months. All measures were taken to avoid contamination of sheep food with feces of stray dogs. Use of repellent on nose to avoid nasal bots.

RESULTS**- Clinical signs :**

The early clinical signs observed were that diseased sheep dragged behind the flock , or recumbent with decrease in grazing ability and loss of their body condition. The nervous examination revealed depression, complete or partial loss of vision and slower eye reflexes than normal. Moreover, sneezing, snoring, Rhinitis and cough, there were tilting of the head either to the right or left side according to the site of the lesion, head pressing, circling either to left or right were observed. Ataxia was severe and sheep were frequently falling on lateral side.

Incoordination, drowsiness or hyperexcitability, hind leg paralysis and coma were also observed, softening of the skull could not be

detected by palpation . Rectal temperature, heart and respiratory rate were increased.

- **Post mortem findings** : on examination there were one or more cysts of variable sizes (0.5 to 5 cm diameter) were seen grossly in each head, The cysts were mostly occupying the lateral ventricles of the brain and occasionally lodged in gray matter of cerebrums. The cystic fluid was watery, transparent and the volume of the fluid was depending on the size of the cyst had semi-transparent wall, distended with serous fluid, they contained many scolices (up to 15) and were seen clearly as white specks. After exvagination of the cyst from the brain, there was a marked pressure atrophy with dilatation of the ventricle and thinning of the cerebral hemispheres. Larvae was also found in frontal sinus and presence of fly on nose of sheep and seen Larval stage on earth.

- **Laboratory investigations** : parasitological examination of faces revealed the presence of taenia multiceps segments and eggs in the faces of the stray dogs. while the bacteriological examination excluded the presence of any bacterial causes as causative agent of the disease.

- Total number of sheep under investigation was 3200, 110 (3.43%) diseased sheep were effected by cenurous cerebralis and oestrus ovis in a rate of 30 (0.93%) and 80 (2.5%) cases respectively as shown in table (1) .

- Treatment of c. cerebralis affected cases with parasiquantel result in cure of 4 (13.33%) cases from 30 cases and treatment of 80 cases affected with oestrus ovis by clo-

santel , Nitroxylnil, butox and ivermectin giving cure rate of 10 (25%), 2 (20%), 8 (80%) and 3 (15%) respectively respectively of 40.10.10 and 20 cases respectively as shown in table (2).

DISCUSSION

- coenurosis and oestrus ovis is life threatening diseases affecting mainly sheep and causes excessive losses in sheep population (**Tirgari et al, 1987; Fraser , 1991; A chenef et al, 1999**).

It is caused by the larval stage of Taenia multiceps (coenurus cerebralis) that develop in brain and spinal cord while oestrus ovis in frontal sinus mainly and extended to brain (kelly and payne-**Johnson, 1993 and Ozmen et al 2005**). The presence of stray dogs greatly suggested to contribute in the existence of the disease.

Stray dogs are routinely fed on offals, including sheep's head which are not dewormed helps maintaining the Taenia multiceps (coenurus cerebralis) cycle.

- The nervous manifestation that observed in all cases were the commonest signs in examined sheep as reported previously by (**Ozmen et al, 2005**).

- Coenurus in the brain has been documented by **Nooruddin et al, 1996**).

Acoenurotic sheep carries or lower its head to alleviate the pressure exerted by the cyst depending on location of the cyst in the brain, the direction of circling and head deviation were mentioned by (**iraser, 1991; Achenef et**

al. 1999; ozmen et al, 2005) and based on the cyst location. In coordination and hyper-excitability were noticed if the cysts located in the cerebellum. However, the hind leg paralysis was associated with presence of cysts in the spinal cord. These results agree with data of **(Ozmen et al 2005)**.

This study has shown that coenurosis is a real threat to sheep production because the treatment has no benefit in clinically diagnosed animals, The most benefit drug for treatment of oestrus ovis were Butox then closantel but of low benefit with ivermectin and Nitroxynil.

Effective control measures include public awareness of the epidemiology of the disease, disposal of offal (sheep heads), prohibition of backyard slaughters of small ruminants and avoidance of stray dogs entrance to the farms. These control measures could be effective as described by **Achenef et al (1999)**.

The rest of the flock which did not show either nervous or respiratory manifestation was treated with ivermectin 0.2mg/kg body weight s/c and repeated every three months for one year, while **Ozman et al 2005** stated that the infected sheep without neurological signs were treated with praziquantal (50 - 100 mg/kg/daily) for three days, more over, **Gulay et al (1998)** mentioned that the praziquantal is more effect than albendazole on the treatment of coenurous cerebrials in experimentally infected lambs also mentioned that Butox and closantel is more effective on oestrus ovis especially in early stage than other drugs.

I concluded that the control of nervous manifestation in sheep of parasitic origin must depend on protection of sheep during summer season, fly insect proof stable, repellent on muzzle of exposed sheep and control of stray dogs and administration of Ivermectin 1 ml/50 kg BWT. Every three month.

Table (1) : Showing number at total, number of diseased and exposed sheep .

Total number of animals	Total number of diseased animal		c.cerebralis affected sheep		Oestrus ovis affected sheep	
	No	%	No	%	No	%
3200	110	3.43	30	0.93	80	2.5

Table (2) : Treatment of c. cerebralis and oestrus avis affected sheep and live rate.

	Parsquantel	closantel	Nitroxynil	Butox	Ivermectin
c. cerebralis	30	-	-	-	-
Oestrus ovis	-	40	10	10	20
Cur rate	4	10	2	8	3
Percent age	13.33	25	20	80	15

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