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STUDIES ON FISTULOUS WITHERS IN DONKEYS

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ABSTRACT

Thirty five donkeys suffering from fistulous withers were admitted to the clinic of the Faculty of Vet. Med., Zagazig University from March 1989 to April 1992. These animals were subjected to Clinical and Laboratory examinations in a trial to study different aetiological agents of this condition.

Radiography for the thoracic region revealed swellings and proliferative changes of the spinous processes. Rose Bengal plate test (RBPT), plate agglutination test (PAT) and tube agglutination test (TAT) were applied to detect antibody to Brucella abortus. An effort to gather further confirmatory evidence of a relationship between Br. abortus infection and fistulous withers was made by attempting to culture the organism from suspected lesions. Microfilariae were detected in blood circulation of 14 out of 35 (40%) cases.

Onchocerca infection predisposed by brucella infection may be considered the main cause of fistulous withers. Moreover trauma is incriminated as a predisposing factor also.

INTRODUCTION

Fistulous withers are important affections among donkeys causing different complications in the wither region and surrounding tissues.

Different aetiological factors responsible for producing such disease were reported by several authors. *Ackert and Oneal (1930)* found filarial worms in the tendon sheath of the horse, *Diasing (1941)* described the worm found in the suspensory flexor tendon and in the ligamentum nuchae as *onchocerca reticulata* and *onchocerca cervicalis* respectively, *Pillar (1951)* found a worm and pieces of worms surrounded by cellular reaction and calcified nodules in sections from ligamentum nuchae from fistulous withers cases. *Steward (1946)* and *Boehm and Supperer (1952)* have described different clinical cases of fistulous withers in equines in which the filaria *onchocerca* were incriminated as a main aetiological factor for causing the disease. *Helmy et al (1967)* regarded filaria as one of the main cause of bursitis in equine in Egypt.

On other hand *Wright (1946)* and *Dietz (1960)* reported that *Brucella abortus* and *salmonella abortus equi* as some factors causing fistulous withers in equine. *Denny (1972)* showed that a high percentage of horses with fistulous withers had significant titres to brucella and was able to isolate brucella from these lesions. *Fahmy and Salem (1974)* isolated *Brucella* from equines suffering from fistulous withers. Moreover, *Salem et al. (1975)* stated that they did not meet generalized Brucellosis in equine but only localized lesions in the form of fistulous withers, hog spavin arthritis and orchitis. *Sullivan (1981)* reported that inflammation of supraspinous bursa (fistulous withers) have been associated with *Br. abortus* and sometime *Actinomyces bovis*.

Also *Sisson (1965)*, *Silbersiepe and Berge (1958)* and *Bolz (1959)* mentioned that traumatization is the main cause which devitalize the tissues of the bursa and the surrounding structures giving chance to invaders to complicate the condition.

El-Mezyan (1987) reported that most back affections were recorded in the caudal withers and mid. back regions that may be due to congenital or infectious factors and most traumatic origins were due to hard

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Radiography for the thoracic region revealed swellings and proliferative changes of the spinous processes. Rose Bengal plate test (RBPT), plate agglutination test (PAT) and tube agglutination test (TAT) were applied to detect antibody to Brucella abortus. An effort to gather further confirmatory evidence of a relationship between Br. abortus infection and fistulous withers was made by attempting to culture the organism from suspected lesions. Microfilariae were detected in blood circulation of 14 out of 35 (40%) cases.

Onchocerca infection predisposed by brucella infection may be considered the main cause of fistulous withers. Moreover trauma is incriminated as a predisposing factor also.

INTRODUCTION

Fistulous withers are important affections among donkeys causing different complications in the wither region and surrounding tissues.

working nature of donkeys together with the continuous frumatzation and friction induced by the badly situated saddle.

Therefore, this study was conducted to investigate different etiological factors responsible for this fistulous withers in donkeys.

MATERIAL AND METHODS

Over 3 years period 35 donkeys were admitted to the clinic of the Faculty of Vet. Medicine, Zagazig University suffering from fistulous withers from March 1989 to April 1992, Out of these donkeys 28 were males and 7 were females.

These animals were subjected to full clinical examinations. Radiography of the withers region was performed on 15 donkeys, with an exposure factor of 70 K.V. 100 MA., 0.15 Sec. using Fisher mobile X-ray machine.

Blood samples as well as blood films were taken from perepheral blood vessels searching for circulating microfilarae. Knott's Method , filarial concentration technique (*Knott, 1939*) , was done. Fresh blood films and thick blood films were made, fixed and stained with Giemsa stain.

Blood serum was tested for brucella antibodies by Rose Bengal plate (REPT) , plate agglutination (PAT) and tube agglutination (TAT) testes according to *Morgan et al. (1969)*.

Aspirated fluid from closed fistulous withers and swabs from open lesions were cultured on blood agar, Mac Conky agar, Albini brucella agar and serum dextrose agar, then incubated at 37°C and in jars containg 10% CO₂ tension up to 4 weeks for brucellosis according to *Alton and Jones (1967)*. Other growth on blood agar or Mac Conky agar were identified according to *Merchant and Packer (1969)*.

RESULTS

Results of clinical investigations:

Lesions usually either unilateral or bilateral oedematous swelling on the region of withers, the age of the affected donkeys ranged from 4 to 16 years, with mean age 10 years. Out of these 28 were males and 7 were females, the duration of the clinical signs mostly ranged from 7 weeks to 6 months. An initiating cause was not reported except in 3 donkeys in which the withers region had been lacerated 1 week before clinical signs of fistulous withers appeared, 8 donkeys were febrile 39.5-40.2°C. Out of the 35 cases 11 showed homogenous closed swelling of varying size (Fig. 1) containing serous fluid usually tinged with blood, 24 cases showed open swellings discharging purulent materials from different orifices (Fig. 2,3). Pain response could be elicited from all donkeys by palpation of the involved area. Sometimes the animal was dull partially anorexic and easily fatigued under exercise.

Radiographic Findings:

In all cases radiography revealed soft tissue swellings in the withers area and in 3 donkeys showed proliferative and lytic changes, Periostitis and osteomyelitis of the spinous processes of one or more of the vertebrae in the withers region were recorded (Fig. 4).

Parasitological Findings:

Microfilarae were detected in the peripheral blood of 14 donkeys out of 35, (40%). The microfilarae were seen as non sheathed elongated bodies 150-220 micron in long filled with violet-stained nuclei and having straight tail end. (Fig. 5).

Bacteriological findings:

Materials for culturing brucella and other aerobic bacteria were available from only 15 donkeys, the results showed in Table (1).

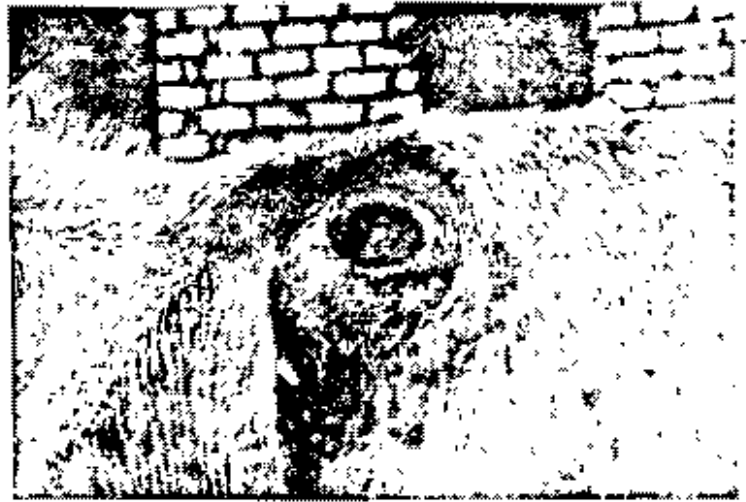


Fig. (3): Complicated fistulous withers in a donkey aged 13 years.

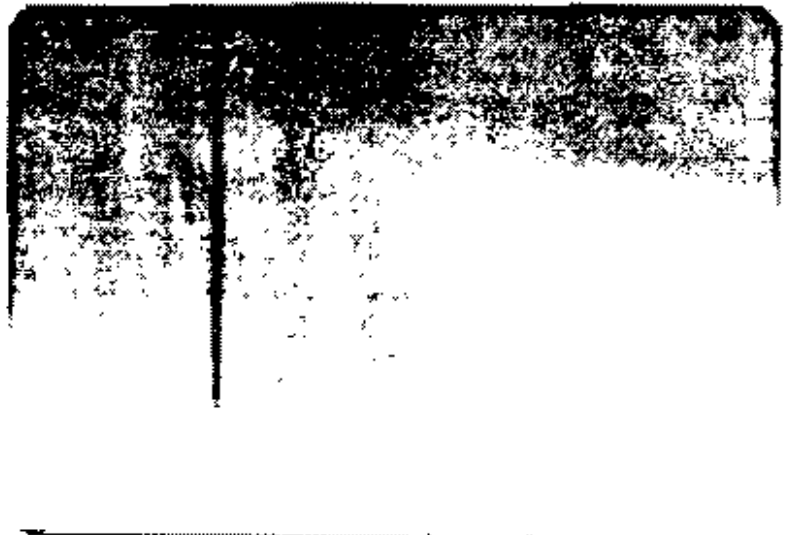


Fig. (4): Lateral radiography for the thoracic spine in 4 years donkey revealed areas of periosteal irregularity, focal areas of radiolucency and periosteal roughening

working nature of donkeys together with the continuous traumatization and friction induced by the badly situated saddle.

Therefore, this study was conducted to investigate different etiological factors responsible for this fistulous withers in donkeys.

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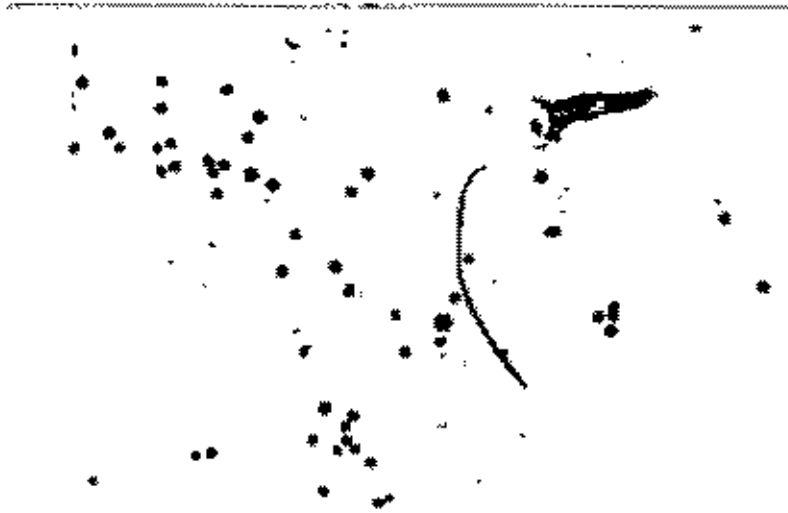


Fig. (5): Microfilaria in blood of donkey (Knott's method).

Staphylococcus species were isolated from 2 closed and 7 opened fistulous withers while Haemolytic streptococci were isolated from one closed and 3 opened lesions.

Streptococcus Zooepidemicus isolated only from open lesion of one donkey.

Brucella organism could not be isolated from any sample.

Serological Findings:

19 out of 35 (54.2%) donkeys were seropositive for RBT while 17 cases (48.5%) were seropositive for FAT. Out of those animals 12 had TAT titres 1/40 and 7 had titres 1/80 as shown in Table (2).

The results showed that 11 cases showing microfilarae in their blood were also seropositive for brucellosis.

DISCUSSION

Fistulous withers remain a current problem although some difference still exist from traditional description of the disease.

It has been noticed that fistulous withers are prevalent among donkeys, this may be due to the fact that donkeys are mainly used for working animals and are more exposed to trauma applied either by harness or saddle, these findings and other clinical signs reported in this study are similar to those described by *Helmy et al. (1967)* and *Earl et al. (1988)*.

Radiographs of the withers showed periostitis and osteomyelitis of the spinous process of one or more of the vertebrae, these results as that obtained by *Knottenbelt et al. (1989)* who showed subperiosteal and periosteal new bone formation and focal areas of osteolysis of the upper

half of the dorsal spine of an adjacent thoracic vertebrae.

The presence of microfilarae in the peripheral circulation of 14 donkeys (40%) attracts our attention to the possibility of filarial infestation as a factor causing this condition. Similar findings regarding filaria as one of the main causes of fistulous withers in equines, as reported by *Helmy et al. (1967)*.

However the material received for culture was often less than optimum and also it was sometimes taken from treated animals, the isolated staphylococci and other organisms shown in Table (1) were thought to be doubtful significances and these organisms may be contaminants from the environment.

† Serologic testing for brucella species revealed that 54.2% of the affected donkeys were seropositive, with titres 1/40 or higher, while *Earl et al. (1988)* recorded that out of 34 horses with fistulous withers 82.3% of them showed brucella antibody, these may indicate certain correlation between fistulous withers and Brucellosis in donkeys, as reported by *Salem et al. (1975)*.

From the results of the studies, also isolation of brucella organisms from animals was failed, yet the presence of brucella antibodies in blood serum of these animals leads to a conclusion that brucella infection combined with filarial infestation were considered the main causative factors for this condition, However traumatization was considered a predisposing factor which devitalize the tissues of the bursa and its surrounding structure which give a chance to the invaders to develop and complicate the condition, this is supported by the finding of *Silbersiep and Berge (1958)*, *Dietz (1960)* and *Sisson (1965)*.

Table (1): Results of bacteriological examinations of fistulous withers of donkeys.

Condition of the animals	No. of tested samples	Isolated organism				
		Staphylococcus	Monilia/strept.	Strept. Zooepidemicus	B. coli	Brucella
* Closed fistulous withers	11	2	1	0	1	0
* Open fistulous withers	24	7	3	1	3	0

0 = No isolation

Table (2): Results of serological tests for brucellosis on Sera from donkeys affected with fistulous withers

Condition of animals	No. of tested samples	RBT		PAT		TAT. titre				
		++s	-ve	+ve	-ve	1/10	1/20	1/40	1/80	1/160
* Closed fistulous withers	11	6	5	5	6	2	3	4	2	0
* Open fistulous withers	24	13	11	12	12	9	2	6	5	0
Total	35	19	16	17	18	11	5	12	7	0

RBT(Rose Bengal plate test)
 Qualitative PAT(Plate Agglutination Test)
 TAT(Tube Agglutination Test)

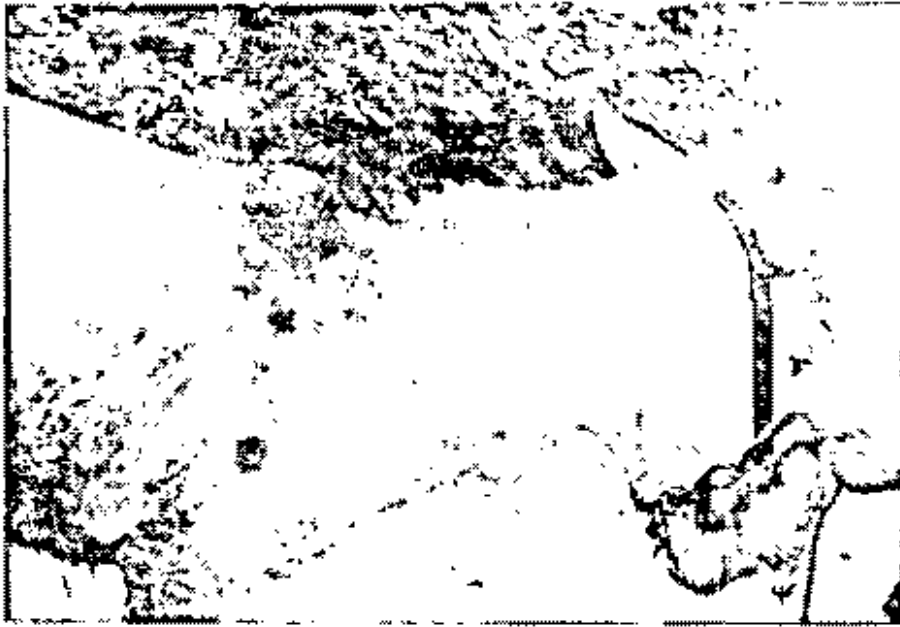


Fig. (1): Closed fistulous withers in a donkey aged 5 years.



Fig. (2): Open fistulae in area of withers in a donkey aged 7 years

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دراساته عن تايصور الكنتف في الحمير

محمد محمدي و عبد المجيد المزيح

قسم طب الحيوان والجراسه كلية الطب البيطري - جامعة الزقازيق

في هذا البحث تم فحص عدد ٣٥ حملا يماي من ناسور الكنتف من الناحية الاكلينيكية والتحاليل في محاولة التعرف على النسب او النسبات المختلفة لهذه التحاليل القريبة ومعرفة مدى الدور الذي يسه ميكروب البروسيلا في احداث هذه الأعراض وقد أوضح التصوير بالأشعة السينية المنقطة للكنتف في الحالات الضامة وجود فجوات في منطقة الكنتف مع خلل وتآكل في النمو الشوكي لبعض الفقرات الصدرية وبخاصة رقم ٣، ٤

وقد تم عزل الميكروبيلا من دم ١٤ حالة من مجموع ٣٥ (١٤) بينما لوحضت الاختبارات السيرولوجية (اختبار الريبونجبال واختبار التجميع لعسل الدم والتجميع الالبي) أن ١٨ حالة (٥١%) بها أحجام متاخره ضد ميكروب البروسيلا يمايه محتضه وتما يوسع أهميه ميكروب البروسيلا وقابل للعداها مما أن عدد ١١ حالة من الحالات التي بها ميكروبيلا كانت يمايه مع الأختبارات السيرولوجية لمرض تسوستلا

ومن ذلك يتضح أن ميكروب البروسيلا مع الفيسلاريا قد يكون لهم الدور الرئيسي في احداث هذا المرض بالاضافه الي الأهميه التي يحدنها الاحتكاك كمناسي مساعدا في احداث هذا المرض *