

Department of Medicine and Surgery.  
College of Vet. Med. and Animal Production, Khartoum Sudan

## INVESTIGATION OF MAJOR DISEASE AFFECTING DONKEYS (*EQUUS ASINUS*) IN KHARTOUM STATE-SUDAN

(With two Fig.)

By

SIHAM, E. S.; ABDALLA, M. A.; AMEL, O. B.; RABAB, M. A.

استقصاء أهم الأمراض الرئيسية التي تصيب الحمير في ولاية الخرطوم - السودان

سهام اليباس سليمان محمد، محمد عبد السلام عبد الله، أمل عمر بخيت ورياب محمد أحمد

أهم الأمراض الرئيسية التي تصيب الحمير في وسط السودان في ولاية الخرطوم (منطقة حلة كوكو) تم تشخيصها في الفترة من يناير ٢٠٠٢ وحتى ديسمبر ٢٠٠٥. هذه الأمراض: الديدان المتطفلة داخلياً (٢١,٤٩%)، التهاب الرئوى (١٦,٠٢%)، التهاب المفصل (١٥,٠٢%)، الاسنان الحادة (١٢,٨٨%)، احتباس البول (٩,٠١%)، النفاخ المعوى (٨,٥٨%)، التهاب الجلد (٨,١٥%) المغص (٤,٢٩%)، الباييزيا (٤,٢٩%) والتهاب الملتحمة (٣,٠%). بالنسبة للديدان المتطفلة داخلياً الاصابة بالديدان الاسطوانية شكلت نسبة عالية (٤٤%) واكثر الديدان نسبة كانت (*Strongylus Spp*). الحالات التي احتاجت الى تدخل جراحى هي: تقرحات السرج (٦٧,٠٦%)، العرج (٥,٣%)، الكسور (٤,٩%)، الخراج (٥,٣٠%)، الاورام (١١,١٠%)، تدلى المستقيم (٢,٧٠%) وتعسر الولادة (٣,١٠%)

### SUMMARY

The major diseases of donkeys in Central Sudan-Khartoum state-Hillat kuku area were diagnosed between January 2002 and December 2005. These diseases were helminth endoparasites (21.49%), pneumonia (17.02%), arthritis (15.02%), sharp teeth (12.88%), urine retention (9.01%), intestinal tympany (8.58%), dermatitis (8.15%), colic (4.29%), babesiosis (4.29%), and conjunctivitis (3.0%). Among the endoparasites, nematodal infection represented high percentage (44%) and the most common worms were *Strongylus spp.* the conditions which needed surgical interference were saddle sore (67.6%), lameness (5.30%), fracture (4.90%), abscess (5.30%), tumour (11.10%), rectal prolapsed (2.70%), and dystocia (3.10%).

## INTRODUCTION

The donkey (true-ass) is derived from the Nubian wild ass of the family equidae species (*Equus asinus*) (Payne, 1990). It is an important draft animal in many parts of the world (Pearson *et al.*, 1999). In underdeveloped countries equine and particularly donkeys play an essential role in the agricultural economies, but these animals have not yet been given sufficient care and they are subjected to many diseases which affect their viability and lower their ability to work (Khalifa *et al.*, 1988). Despite their importance, several constraints are hinder for improvement including nutrition a free-range management system, lack of suitable donkey implements, farmer attitudes wondering diseases and poor health (Agananga and Maphorisa, 1994). The knowledge of disease of donkeys is scanty and their ability to thrive in harsh environment is derived from their immunity to certain disease (Coetzer and Erasmus, 1994; Conner 1994). Their susceptibility to disease may be different from horses and may be close to that of zebras (Segwagwe *et al.*, 1999).

This investigation was carried out to throw some light on major diseases of working donkeys in Hillat-Kuku, Khartoum state, Sudan.

## MATERIALS AND METHODS

This investigation was carried out in Hillat-Kuku, Khartoum state, Central Sudan. The number of diseased donkeys included in this study was 458. The animals were subjected to thorough clinical examination according to Kelly (1984). Blood samples were collected from the jugular vein and thick and thin smears were stained and examined for the presence of blood parasites (Soulsby, 1982, Coles, 1986). Faecal samples were collected and analysed by appropriate method for diagnosis of gastrointestinal parasites and lung worms.

## RESULTS

Among 458 donkeys examined, 233 animals needed only medical management, while 225 animals needed further surgical interference. As shown in Fig. (1), the most common diseases diagnosed in 233 sick donkeys were gastrointestinal parasites (50 cases, 21.49%), pneumonia (41 cases, 17.60%), arthritis (35 cases, 15.02%), sharp teeth (30 cases, 12.88%), urine retention (21 cases, 9.01%), intestinal tympany (20 cases, 8.58%), dermatitis (19 cases, 8.15%), colic (10 cases, 4.29%), babesiosis (10 cases, 4.29%), and conjunctivitis (7 cases, 3.0%).

Among endoparasites, the prevalent worm was *Strongylus* spp. (44%), loss of weight with fluctuating temperature were the main clinical signs associated with these parasites. Therapeutic management with albendazole was successful in majority of the course. Colic in donkeys during this study was manifested by kicking at the belly, looking at the flank, rolling in the ground and increase in respiration. The investigations of the aetiology of colic revealed that intestinal impaction or tympany were the main causes. The incidence of stomatitis due to sharp teeth was diagnosed in 30 cases (12.88%).

The clinical feature of pneumonia recorded in 41 donkeys (17.60%) included fever, respiratory distress and anorexia. Arthritis (35 cases) was characterized by lameness and swelling of the joints. History of anuria or pain during urination and brown discoloration of urine were the main signs of urinary tract infections in donkeys recorded during this study. Other conditions observed were dermatitis (8.15%) associated with allergy or greasy heel of pastern and fetlock. The main predisposing factor of (3.0%) observed during this investigation was that the animal fed diet deficient to green fodder, clinically, the animal showed loss of weight and lacrimation. Babesiosis (10 cases) was diagnosed in animals with manifestations of red urine, icterus, loss of weight and anorexia.

Two hundred and twenty five donkeys were presented to the clinic with conditions required surgical interference as shown in Fig. (2) these conditions were diagnosed as saddle sore (67.6%), lameness (5.3%), fracture (4.9%), tumours (11.10%), rectal prolapsed (2.70%), and dystocia (3.1%).

## DISCUSSION

The present study displayed that helminthiasis were the common condition in ill-health donkeys. These results are in accordance with findings of *Svendson (1990)*, *Katherine (1996)* and *Saul et al., (1997)*, who reported that helminthiasis were the leading cause of death among working donkeys.

Pneumonia manifested by fever, respiratory distress and anorexia may be due to viral, bacterial or parasitic infection (*Fowler, 1986; Merck, 1991*). Arthritis reported in 35 cases (15.02%), this high incidence could be due to deficiencies of minerals and vitamins together with the stress of hard work (*Katherine, 1996*). *Saul et al., (1997)* during his survey reported that 73% of the owners of the animals claimed abnormalities due to joint sprain. Most of the research work on animal arthritis was

mainly concerned on horses. Sharp teeth (12.8%), urine retention (9.0%), dermatitis (8.15%), colic (4.29%), and conjunctivitis (3.0%) were diagnosed in donkeys, although these conditions are common in horses (Radostits *et al.*, 2000), no detailed investigation on these conditions could be found in the literature. Babesiosis (10 cases, 4.29%), this disease was reported previously by Segwagwe *et al.*, (1999) and Saul *et al.*, (1997) and Hamid *et al.*, (1998).

Saddle sore was diagnosed in 153 donkeys which needed surgical removal of necrotic tissue and local systemic prophylactic treatment with antibiotic. This highest incidence could be explained by the fact donkey in the investigated area is used as a mean of transportation of people and goods from the boundary of the city to the central market places. Occurrence of saddle sore in working donkey and horses were reported previously (Pearson *et al.*, 1999). Conditions of fracture reported in the present work were mainly due to road accidents. Other conditions including lameness abscess, tumours, rectal prolapsed and dystocia are within the normal incidences when compared with horses and other animals in the area.

In conclusion, donkeys are still important in transportation despite the increase in mechanization throughout the world and some families are depended on donkey as financial source. The main problems facing donkeys are helminthiasis, pneumonia, and arthritis. Parasitism and saddle sore being the major cause of ill-health donkeys and users should have knowledge of these problems for control and prevention.

#### **Acknowledgements**

The authors are thankful to Prof. G. E. Mohammed for advice and reading of the manuscript.

#### **REFERENCES**

- Agananga, A. A.; and Maphorisa, K. (1994):* Characterization and uses of donkeys in Botswana in: Improving traction technology (eds: Starkey, E. Mwenya and L Stares), pp: 146-149. Proceedings of the 1<sup>st</sup> workshop of ATNESA.
- Coetzer, J. A.; and Erasmus, B. J. (1994):* African horse sickness. In: Infectious diseases of livestock with special reference to Southern Africa (eds. J. A. Coetzer; G. R. Thomson and R. C. Tustin) PP 460-475 Vol. 1, Oxford University Press Cape Town.

- Coles, E. H. (1986):** Veterinary Clinical Pathology. 4th ed. W. B. Saunders Company. Philadelphia.
- Conner, R. J. (1994):** African animal trypanosomiasis. In: Infectious diseases of livestock with special reference to Southern Africa (eds. J. A. Coetzer; G. R. Thomson and R. C. Tustin) PP 460-475 Vol. 1, Oxford University Press Cape Town.
- Fowler, J. N. (1986):** *Medical*. In: the professional handbook of the donkey (ed. Svendsen E. D.) 1st ed. Sovereign Printing group, England.
- Hamid, M. E.; Fadia, Y. A.; Abdulla, A. F.; and Adam, D. A. (1998):** Records of clinical cases presented to Nyala Veterinary Teaching Hospital. Sud. J. Vet. Sc. Anim. Husb. 37(1-2): 114-120.
- Katherine, E. (1996):** Occupational diseases in the working equidae of Mexico. World Veterinary Association Bulletin. 68-77.
- Kelly, W. R. (1984):** Veterinary Clinical Diagnosis. 3rd ed. Bailliere and Tindall. London.
- Khalifa, R.; Monit, M. E.; and Mandour, A. M. (1988):** A study of parasites infesting equines in Assiut Governorate. Assiut Veterinary Medical Journal. 20(41):68.
- Merck Veterinary Manual (1991):** 7th ed. Merck and Co. Inc. Rahway, N. J. USA.
- Payne, W. J. A. (1990):** Introduction to Animal Husbandry in the Tropics. 4th ed. ELBS Longman.
- Pearson, R. A.; Nengomasha, E.; Krecek, R. (1999):** The challenges in using donkeys for work in Africa. Intermediate Technology Publication. London, 326P.
- Radostits, O. M.; Gay, C. C.; Blood, D. C.; Hinchcliff, K. W. (2000):** Veterinary Medicine. 9th ed. W. B. Saunders Company Ltd. London, pp 1230.
- Saul, C.; Siefert, L.; and Opuda-Asibo, J. (1997):** Diseases and health problems of donkeys: a case study from eastern Uganda. Reader for ATNESA workshop, Debre Zeit, Ethiopia.
- Segwagwe, B. V. E.; Agananga, A. A.; and Patrick, C. (1999):** Investigation into the common diseases of donkeys (Equus

asinus) in Botswana. Proceedings of the workshop of the animal traction network for eastern and southern Africa (ATNESA).

**Soulsby, E. J. L. (1982):** Helminths, Arthropods and Protozoa of Domesticated animals. 7th ed. Bailliere and Tindall-London.

**Svendson, E. D. (1991):** Work to improve conditions of donkeys and mules world-wide. P. 181-188. In: Fielding, D. and Pearson, R. A. (eds), Donkeys mules and horses in Tropical agricultural Development. Centre for Tropical Veterinary Medicine. University of Edinburgh, Edinburgh.U.K.

