

Tropical Veterinarian

ISSN 0794-4845

Volume 38 (1) 2020

UNIVERSITY OF IBADAN LIBRARY

Contents: Volume 38 (1) 2020

	Page
Influence of sex differences on renal and hepatic responses to sub-chronic arsenic exposure in albino rats O.E Adeyi, O.A. Adeyi, D.A. Ibikunle, A.J. Salami, O.O. Dada, A.P. Ayodele and O.A. Oladimeji.....	1-16
Predisposing factors to tick infestation in indigenous Nigerian breeds of cattle A.O. Idowu, O.D. Adedipe and F.A Akande.....	17-26
Prevalence of methicilin-resistant <i>Staphylococcus aureus</i> in slaughtered donkeys and abattoir workers in Gariki abattoir, Abakiliki, Ebonyi State, Nigeria O.A. Nwenyi, G.A.T. Ogundipe, I.O. Ajayi and V.E. Adetunji.....	27-35
Haptoglobin as an indicator of on-going acute inflammation in pre-slaughter cattle in an abattoir in Abeokuta, Nigeria..... F.C. Thomas, K.O. Okeowo, M.S. André, E.S. Ajibola, B.S. Okediran, O.G. Akintunde, F.P. Egunleti and S.A. Rahman	36-46
Management of impaction colic in a donkey in Ibadan, Nigeria: A case report R.A.M. Adedokun, A.K. Olaifa, B.A. Alaba and S.C. Olaogun.....	47-57

MANAGEMENT OF IMPACTION COLIC IN A DONKEY IN IBADAN, NIGERIA: A CASE REPORT

*R.A.M Adedokun¹; A.K. Olaifa²; B.A. Alaba¹; S.C. Olaogun¹

¹Department of Veterinary Medicine, University of Ibadan, Ibadan, Nigeria.

²Department of Veterinary Surgery and Radiology, University of Ibadan, Ibadan, Nigeria.

*Corresponding author: adedokun@yahoo.com; +234-8035746806

Key words: Colic . Donkey . Management . Prevention.

Abstract

A 13 year old male donkey (jack), weighing 171 kg was presented with history of frequent prolonged recumbency and eliciting sand bath action. The donkey was dehydrated, anorexic, inactive, refused to drink and no defecation. Rolling, bloating, uneasiness, distress were also observed, grunting sound was also heard whenever the animal attempted to rise from recumbency. Rectal temperature was 36.6°C, pulse and respiratory rates were 60 and 30 per minute, respectively. Mucous membrane initially appeared normal but later became congested with generalised bruises on the body of the donkey especially at the bony prominences. Colic was clinically diagnosed and treatment immediately instituted. Animal was drenched with 1 litre of liquid paraffin; 2 litres of lactated Ringer's solution was given intravenously, I/V; Intramuscular (I/M) injections of 8 mls (2.25mg/Kg) of vitamin B complex and 3.8 mls of 50mg/ml (1.1 mg/Kg) Flunixin Meglumine were also administered. The patient was treated for five consecutive days with significant improvement on the third day. The rolling, bloating, distress and uneasiness were relieved after day four of treatment and the donkey was discharged on the fifth day. This report highlighted the causes, type and nature of this particular case, management procedures and preventives strategy of colic in donkey.

Introduction

One of the most important working animals in the world is the domestic donkey. Donkeys are known to have descended from African wild asses that evolved to survive in semi-arid environments with only poor quality, sparse vegetation. There are 45.8 million donkeys worldwide (FAO 2020). The majority of these donkeys are found in the developing countries of the

world, where they are mostly used for traction in agricultural purposes or as pack animals. Nigeria is one of the countries with an estimated 800,000 population of donkeys (Mabayoje and Ademiluyi, 2004). Colic is defined as any gastrointestinal pain which is an important and often complicated emergency in equine populations in general, posing serious detrimental effect on morbidity and welfare of the affected animal

(Archer and Proudman, 2006). Colic is a frequent and important cause of death in these species of animals. The aetiological agents of this clinical syndrome are many including disease based on system that classify the cause of colic as obstructive, displacement, gas, parasite, and enteritis (Radostits *et al.*, 2007). Also, there are several risk factors such as breed, age and management factors (feed type, changes in management practices, lack of access to water or pasture) that increase the prevalence of equine colic (Temesgen Bihonegn and Fasika Bekele, 2018). Obstructive colic can be the most commonly occurring type of colic in some equine populations (Brosnahan and Paradis, 2003b, Senior *et al.*, 2006). Obstructive colic is caused by lodgment of food material (water, grass, hay, grain, sand and stone) when the animal is on box rest and/or consumes large quantity of concentrated feed, or the animal has dental disease and unable to masticate properly. Season, age and dental disease have been described as risks factors of colic in donkeys (Cox *et al.*, 2007).

Clinical signs of colic include animal frequently lying down and rising which may be violent when the colic is serious, rolling when not followed by shaking after standing which may become violent when the colic is severe, increased body temperature which is most commonly associated with medically managed colic such as enteritis, colitis, peritonitis, and intestinal rupture. Other signs include elevated heart rate, raised respiratory rate, increased capillary refill time, and pale mucous membrane

(Larson and Erica, 2014). There may also be changes in the degree of gut sounds on auscultation, pawing, increased attention toward the abdomen which include flank watching (turning of the head to look at the side of abdomen and/or hind quarters where the pain is felt), nipping, biting, or kicking (Bentz and Bradford, 2014). Sweating, lethargy, pacing, or a constant shifting of weight when standing, reduced faecal output or change in faecal consistency, groaning, excessive salivation (Ptyalism), anorexia, poor coat or weight loss due to chronic colic have also been described (Lyons and Carey, 2014).

Colic can generally be diagnosed through history taking, rectal palpation, physical examination, fecal examination, ultrasonography and abdominal auscultation (Temesgen Bihonegn and Fasika Bekele, 2018). Diagnosis of colic in donkeys can be more difficult than in horses because donkeys show few overt signs of abdominal pain and colic may not be identified until the donkey is in the terminal stages of the disease (Duffield *et al.*, 2002).

Treatment of colic can either be medically or surgically or a combination of medical or surgical interventions (Hillyer *et al.*, 2008). Cases of mild colic can be relieved even without or with minimal medical care (Bryan *et al.*, 2009). Impaction colic generally responds well to medical treatment, usually requiring a few days of fluids and laxatives such as mineral oil (Lyons and Carey, 2014).

• Colic can be reduced by limiting access to simple carbohydrates (White, 2006) which include sugars from feeds with

excessive molasses, by providing clean feed and drinking water, by preventing the intake of dirt or sand by using an elevated manger, a regular feeding schedule, regular deworming, regular dental care, a regular diet that does not change substantially in content or proportion, and prevention of heatstroke.

Economic importance of colic generally in animals cannot be over emphasized; though colic is less frequently encountered in donkeys than in horses the devastating effect in donkey is of great welfare and economic importance to donkey owners in Nigeria. There has been little or no previous report of colic in donkeys in Nigeria especially colic that were medically managed successfully without surgical intervention. We therefore sought to investigate the risk factors of this particular case and report the management approach adopted in successfully managed colic in donkey in Ibadan Nigeria.

Case history and diagnosis

A 13 year old male donkey (Jack), weighing 171 kg was presented to the University of Ibadan Veterinary Teaching Hospital, Ibadan, Nigeria with history of frequent and prolonged lateral recumbency. It elicited sand bath actions even where there was no sand (false sand bath). The donkey was observed to be dehydrated, anorexic (figure 1), inactive and refused to drink. Rolling, bloating (figure 2), uneasiness, distress were also observed, grunting sound (borborygi) was also loud when the animal attempted to rise up from

recumbency. Constipation of three days duration was also reported and observed.

Respiratory rate was established by counting the inward and outward movement of the donkey's nostril for 60 seconds. Rectal temperature was measured using a digitalized clinical thermometer while the heart rate was measured using a large animal Littmann® stethoscope. Clinical findings showed that the rectal temperature was 36.6°C, Heart rate was 64 beats per minute, pulse rate was 60 beats per minute and respiratory rate was 30 breaths per minute. Capillary refill time was less than 2 seconds. Mucous membrane appeared normal on the day of presentation but became congested on the second day. Generalised bruises or abrasion wounds on the body of the donkey at the bony prominences was also observed (figure 3). Blood sample was collected and sent to the laboratory for parasitic analysis and haematological profiling. No parasite was observed in wet mount and most haematological parameters were within the normal reference range. The rectum was empty when evacuation of faeces was attempted (figure 4). Based on observable clinical signs, physical examination and clinical findings, a tentative diagnosis of colic was made. The donkey remained dull, and inappetence persisted with voiding of little faeces coated with mucus in the evening of the day of presentation. On the second day, no faeces or urine was voided as observed in his stall, dullness and false sand bath persisted, and the mucous membranes of the gum and cornea were congested. On the third day, the animal voided little faeces but anorexia persisted (figure 5). On the



Fig 1: Picture showing the dehydrated and anorexic donkey



Fig 2:Picture showing rolling and bloated presentation



Fig 3:Picture showing generalised bruises on the bony prominences



Fig 4:Picture showing evacuation of faeces per rectum



Fig 5: Picture showing voided faeces



Fig 6: Drenching of the donkey



Fig 7: Picture showing apparently healthy donkey

fourth day, the donkey voided some formed faeces overnight and the temperature was 35.9°C, pulse, respiratory and heart rates were 48 beats 22 breaths and 48 beats, respectively. On the fifth day, the donkey was observed to be a little bit active with improved appetite for food and water. Signs of colic disappeared completely and the animal was able to graze on pasture (Figure 7). Day 5 clinical parameters were temperature 36.5°C, pulse, respiratory and heart rates 42 beats 24 breaths and 46 beats respectively.

Treatment

Treatment administered to the donkey include intramuscular (I/M) injections of 8mls of Vitamin B complex (2.25mg/Kg) and 3.8mls of 50mg/ml (1.1 mg/kg) Flunixin meglumine for the first four days and antibiotic treatment with 7mls (0.4mg/kg) of Penicillin Streptomycin I/M for five days.

For lubrication and dehydration, liquid paraffin of 1 litre and 800mls were administered (orally) on days one and two, respectively. This is followed by 3 litres of water with 15g of Allenbury's glucose D (energy source) on day three and 3 litres of sugar-salt solution on days four and five.

Also on the second day, little faeces were evacuated with latex examination gloved hand.

In view of the bruises on body, 1ml of tetanus toxoid was given I/M on the right side of the neck and 100,000 IU of tetanus antitoxin subcutaneously at the left side of the neck on the fourth day. Oxytetracycline spray was also applied onto the abrasion wounds around the bony prominences of the body.

Discussion

Equines are more prone to colic than other animals due to their unique anatomy of digestive system. Signs of colic in donkeys are usually less dramatic than those seen in horses. The type of colic observed in this patient is obstructive which is the most common type seen in equids (Dabareiner and White (1995). Colic as a result of obstruction should be treated with the aim of lubricating the gut luminal wall with a view to loosening the friction between the intestinal mucosa and obstructing mass, breaking down the obstructing mass, relieving pain and enhancing peristalsis and maintenance of normal body functions including normal water intake. The obstructive colic in this case could not have been due to endoparasitism because the donkey was regularly dewormed and coprology during the condition was negative for endoparasites, but might have been caused by pica due to starvation which was observed on the donkey over a long period. Mineral oil (liquid paraffin) given per os with

oral, sugar-salt solution, and parenteral, lactated Ringer's solution rehydration was to lubricate the gut mucosa and soften the ingesta and obstructing mass. The sugar-salt solution used in the management of this case consisted of one level teaspoonful (3gm) of common salt (Sodium chloride) and six level teaspoonfuls (10gm) of sugar in one litre of table water (UVA Nutrition 2018). Allenbury's glucose D® was the only available energy source that could be given to the anorexic donkey on the third day and its solution was to rehydrate the donkey and soften the obstructing mass. Pain management is important in the treatment of equine colic and it should be carefully and frequently monitored to assess the efficacy and effects of the drugs used without masking the clinical syndromes of colic. Analgesics if given in the management of impaction colic will probably ameliorate the straining and rectal contraction pain in the animal patient's attempt to void the obstructing mass. The most commonly used pain reliever is (Non-steroidal Anti-inflammatory Drug (NSAID), and flunixin meglumine is frequently used (Zimmel 2003). Flunixin meglumine is a nonsteroidal anti-inflammatory, analgesic and antipyretic drug used for various inflammatory and painful conditions in equids especially colic. Flunixin meglumine could be given per os, but it could not be readily given in the anorexic donkey more so that it is desirable to administer it in equine ration. There are

always tissue reactions at the intramuscular injection sites of flunixin meglumine: these include myositis, swelling, pain, necrosis and its sequelae. Prolonged oral administration of flunixin meglumine may also result to peptic and large colonic ulcers, while its administration rarely causes bleeding disorder and kidney damage in dehydrated equids. Flunixin meglumine should not be used with another anti-inflammatory drug, and should be cautiously used with aminoglycoside antibiotics like gentamicin (Barbara Forney, 2019). The antibiotic, penicillin-streptomycin, given was to take care of bacteraemia or septicaemia that might result from the pressure wound or contusion of the obstructing mass against the gut wall as the animal strained to void the mass, and which the gut opportunistic bacteria might take advantage of to complicate the condition. Vitamin B complex was given intramuscularly to enhance the donkey's metabolism and improve its appetite though the accompanying anorexia of this condition was probably occasioned by the intramural pressure of the gut lumen due to the impaction which made the donkey feel full and satisfied at its satiety centre. It had been in our clinical practice to treat any equine patient as unvaccinated against tetanus once it has open wound, deep or superficial, because of the high susceptibility of equids to the disease and high incidence of it in Nigeria more so that no vaccination is absolutely protective (Green, *et.al.*

1994). This was the reason tetanus toxoid and tetanus antitoxin was administered. The former was given intramuscularly at one side of the neck while tetanus antitoxin was given subcutaneously on the other side of the neck using different syringes and needles to avoid neutralization effect. Tetanus antitoxin will provide immediate, two to three hours, but short term protection of three weeks only while tetanus toxoid provides long lasting protection but it will take seven to ten days after administration for immunity to develop (Jansen and Knoetze, 1979). Although the abrasion wounds on this case were superficial, they were at the bony prominences of the joints whose joint capsules might have been traumatized and infected with possible septic synovitis and arthritis if untreated. The Oxytetracycline aerosol spray containing gentian violet was to take care of these wounds. Fluids are usually given either orally by nasogastric tube or by intravenous catheter to restore proper hydration, electrolyte balance and to help lubricate the obstruction obtained (Merck, 2014). Since dehydration is a serious condition which among other effects predisposes to and aggravates impaction colic in equids, rehydration parentally and per os was given required priority in the management procedures. The patient was treated for five consecutive days with significant improvement on the third day. The rolling, bloating, distress and uneasiness were relieved after day four of treatment

and the animal was discharged on the fifth day having completed its treatment. Impaction colic can be prevented by limiting access time for grazing and scavenging especially during the dry season. It is during these modes of feeding that many donkeys and horses ingest nylon materials, sand and other indigestible materials which aggregate in the colon to form solid mass under the internal heat and intramural pressure of the gut peristalsis. This with time may eventually block the gut lumen at any of the flexures of the large intestine to cause obstruction colic which may rupture the colon if unattended to. Grasses, is therefore encouraged to be cut and given to the animal in a raised hay rack or hay net or trough. Clean and fresh water should be given daily and *ad-libitum*. Sudden and complete changes in feed or feeding practices should be avoided. If feed must be changed it should be gradual and over time.

References

- Archer, D.C. and Proudman, C.J.: Epidemiological clues to preventing colic. *The Veterinary Journal*, 172 (1): 29-39 (2006).
- Barbara Forney: Flunixin meglumine for Veterinary use: [<http://www.wedgewoodpharmacy.com/learning/medication-information-for-pet-and-horse-owners/flunixin-meglumine-for-horse.html>].
- Bentz, D. and Bradford, K.: "When a horse colic: The physical examination". Available at: <http://www.thehorse.com>. [accessed 10 March 2017] (2014).
- Brosnahan, M.M. and Paradis, M.R.: Demographic and clinical characteristics of geriatric horses: 467 cases (1989–1999). *Journal of American Veterinary Medical Association*, 223, 93-98 (2003b).
- Bryan, H.: Investigation of acute colic in the adult horse. *Irish Veterinary Journal*, 62 (8): 541-547 (2009).
- Cox, R., Proudman, C.J., Trawford, A.F., Burden, F., and Pinchbeck, G.L.: Epidemiology of impaction colic in donkeys in the UK. *BMC Veterinary Research*, 3(1), 1 (2007).
- Dabareiner, R.M. and White, N.A.: Large colon impaction in horses: 147 cases. *Journal of American Veterinary Medical Association*, 206 (5): 679-685 (1995).
- Duffield H.F., Bell N, Henson F.M.D. The common presenting signs and causes of colic in the donkey: 11-14 September; Glasgow, UK. Edited by: BEVA. *Equine Veterinary Journal*, Ltd; 214 (2002).
- Food and Agriculture Organization of the United Nations (FAO). Statistics Division FAOStat. Available online: <http://www.fao.org/faostat/en/#data/QA> (2020)
- Green, S.L., Little C.B., Baird, J.D., Tremblay, R.R.M. and Smith-Maxie, L.L.: Tetanus in the horse: A review of 20 cases (1970 to 1990), *Journal of Veterinary Internal Medicine*, 8: 128-132 (1994).
- Hillyer, M.H: Gastric and small intestinal ileus as a cause of acute colic in post-parturient mare. *The Equine Veterinary Journal*, 40 (4):368-372 (2008).
- Jansen, B.C. and Knoetze, P.C.: The immune response of horses to tetanus toxoid. *Onderstepoort Journal of Veterinary Research*, 46: 211-216 (1979).

- Lakia, M.D. and Von Rosebeng, C.A.: Modified colotomy-Lavage technique to relieve impactions. *Equine Practice*, Ocala, Florida, pp: 13-15. (1995).
- Larson, H, and Erica, A.: "Colic in the horse: When is surgery necessary?". Available at: <http://www.thehorse.com>. [accessed 15 March 2017]. (2014).
- Lyons, D.J and Carey.B.: <http://www.thehorse.com>. [accessed 15 March 2017]. (2014)
- Mabayoje A.L, Ademiluyi Y.S.: A note on animal power and donkey utilization in Nigeria. Animal Traction Network for Eastern and Southern Africa (ATNESA) P. 2 (2004).
- Merck Veterinary Manual. Overview of equine colic (2014).
- Radostits, O.M., Gay, C.C., Blood, D.C. and Hinchcliff, K.W.: *Veterinary Medicine: A Text Book of the Diseases of Cattle, Sheep, Pigs, Goats, and Horses*. (10th edn., W.B. Saunders Co, 2007).
- Temesgen, B. and Fasika, B.: Colic in equine: A Review article. *International Journal of Advanced Research in Biological Sciences*, 5(5): 185-195 (2018).
- UVA Nutrition: A patients' Guide to Managing Short Bowel, University of Virginia Health System. (2018).
- White, N. A.: Current use of analgesics for equine colic, *Proceedings of AAEP. Annual Conversation*, 52: 109-174 (2006).
- Zimmel, D.N.: Hemostatic disorders. In: Robinson, N.E. (editor). *Current Therapy in Equine Medicine*. Vol. 5. (WB Saunders, Philadelphia, PA. p335-351, 2003).