Proceedings of the
9th International Congress of World Equine Veterinary Association

Jan. 22 - 26, 2006 - Marrakech, Morocco
EPIDEMIOLOGY OF IMPACTION COLIC IN DONKEYS IN THE UK

Pinchbeck, G.L.*1; Cox, R.1 and Proudman C.J.1
1 Department of Veterinary Clinical Science, University of Liverpool, Leahurst, Neston, UK.

Previous descriptive data has identified that impaction colic is responsible for over half the colic episodes seen in UK donkeys at the Donkey Sanctuary (Duffield et al. 2002a & b) and that the survival rate for this type of colic is poor. In an aged population of equidae, which only included a very small number of donkeys (1%), colic was the most common gastrointestinal tract abnormality seen and large colon impaction was the second commonest specific cause of colic (Brosnahan et al. 2003).

The objectives of this study were to describe the epidemiology of colic, and specifically impaction colic, and identify risk factors for colic, in a population of donkeys at The Donkey Sanctuary, housed in several locations in the South West of the UK.

Materials and methods

Records of all donkeys that had been entered into a specifically designed database from 1st January 2000 to 31st March 2005 were reviewed. All cases of colic were identified both by examining all categories of colic in an examinations table and by searching for text words associated with the colic in transcribed text entered by the veterinarian at the time of examination (e.g. colic, abdomen, impacted, impaction). In addition all post mortem results were searched in a similar way to identify donkeys that died/were euthanized due to colic. Post-mortem results of all the donkeys (both colic and non colic deaths) were also reviewed to identify the frequency of dental disease or pathology.

Cases of colic were defined as any donkey showing clinical signs of colic as diagnosed by one of the resident veterinary surgeons at the Donkey Sanctuary. Impaction colic cases were cases where an impaction was diagnosed as the cause of colic either by rectal or post mortem examination. Colic's were classed as individual episodes of colic when the donkey had been free from colic for the previous 14 days.

Denominator data were obtained by summing the number of donkey months over the 63 month period. Mules and ponies were excluded and donkeys not housed on Sanctuary premises were also excluded from both the numerator and denominator data. The number and types of colic were summed and incidence and monthly prevalence data calculated.

A matched case control study of all impaction colic cases diagnosed from January 2003 to March 2005 was performed with 2 controls per case selected from all donkeys present within the same month that the case was diagnosed. Variables examined in the analyses included age, sex, farm location, dental disease or pathology, the presence of other medical conditions, history of previous colic, history of routine treatments such as teeth rasping and worming, and feeding including extra rations.

In the case control study conditional logistic regression methods using maximum likelihood estimation were used for both univariable and multivariable analyses.

Results

A total of 805 (Table 1) colic episodes in 703 individual donkeys were identified during the study period from a total population of 4596 donkeys indicating that 15.3% of donkeys had at least one episode of colic during the study period. The incidence of all colic types was 5.9 colic episodes per 100 donkeys per year and the incidence of impaction colic was 3.2 per 100 donkeys per year. Over half (51.3%) the colic episodes resulted in death/euthanasia. Impaction colic was responsible for 54.5% of the colic episodes. Analysis of post-mortem results showed that dental disease or pathology was reported on post mortem examination significantly more times (P<0.001) in donkeys that died or were euthanized from
coli than in donkeys that died from other causes and was also reported more often (p<0.05) in donkey's that had impaction colic compared to donkeys that had other types of colic.

In the case control study the age of donkeys with impaction colic (mean 30.5 years) was significantly (P<0.001) higher than the age of the selected controls (mean 25.0 years).

<table>
<thead>
<tr>
<th>Impaction colic (including those impactions requiring surgery)</th>
<th>Recovered</th>
<th>Died</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>211</td>
<td>228</td>
<td>439</td>
</tr>
<tr>
<td>Other colic (including surgical, spasmodic and undiagnosed)</td>
<td>181</td>
<td>185</td>
<td>366</td>
</tr>
</tbody>
</table>

Table 1. Colic types and numbers from retrospective analysis of data on 4602 donkeys from The Donkey Sanctuary, UK Jan 2000 -March 2005.

**Discussion**

To our knowledge this is the first reported incidence of colic in donkeys and appears similar to the incidence of colic in horses which has been reported to range from 3.5-10.6 episodes per 100 horses per year. However the proportion of impactions diagnosed in this donkey population is higher than is commonly quoted for horses, although in geriatric horses a high frequency of large colon impaction has been reported. In addition, the case fatality rate of 51% is considerably higher than the fatality rates reported in horses. However, this is an aged population of donkeys (mean age of current population approximately 25 years) and the decision for euthanasia may often involve factors relating to the health of other body systems. The increased frequency of dental disease reported in donkeys that died or were euthanased due to colic supports the hypothesis that dental disease may be a risk factor for impaction colic. Dental disease may contribute to a decrease in digestibility of nutrients and may result in long fibres entering the large colon. Further prospective studies are now needed to confirm this hypothesis and identify other risk factors for colic, and particularly impaction colic in donkeys.