A history of castrating 2,000 equines

THERE has been a very large debate on the equine forum on the use of antibiotics pre- and post-castration.

I hesitate to add my findings to the debate where so many equine specialists have aired their views. However, I hope the readers may find this article interesting.

Unfortunately, I doubt if my findings would stand the test of rigorous statistical analysis but I was extremely anti the use of antibiotics not only because I did not think they would be effective but also because I felt their use would encourage antibiotic resistance.

I now have changed my views and would like at least to offer my apology to my five younger colleagues.

The caseload

The caseload reviewed is 2,000 equines which I have castrated between 5th May 1976 and 26th March 2013. This does not include any colts found to be at risk at the time of surgery or reported to be at risk by the owner before surgery.

Type of equine

Often I have had to guess the type of equine as, although when I castrated foals I normally saw their dams, their sires were often not known and so the distinction between pony and horse was an educated guess.

Some of the Shetlands were miniature Shetlands and some were Falabellas. However they were all classified in one group.

The types are:

- heavy horse 109
- thoroughbred racehorse 0
- standardbred (all in Western Australia) 15
- riding horse 673
- riding pony 841
- shetland pony 221
- mule 2
- donkey 139

Age of animal

If I had relied on either the owner’s guess of the animal’s age or the age recorded in its passport, the figures would not have been worthwhile. So I just recorded the three categories as shown here:

- foal 708
- yearling 901
- adult 391

Place of surgery

Only 72 castrations were carried out in our knockdown box. The rest were carried out in paddocks, fields, etc.; 28 were carried out in totally unsuitable locations.

In these instances I carefully cautioned the owners but in fact although I had some dramas no horse or human suffered any adverse effects. However, stories in North Norfolk become less credible each time they are repeated.

Anaesthetics

All the castrations were carried out under a general anaesthetic given intravenously. The vast majority (1,891) received romifidine followed in three to five minutes by ketamine.

The 15 standardbreds castrated in Western Australia received acepromazine (ACP) and detomidine followed by a mixture of guaifenesin and thiopentone; 72 animals in the late 1970s received Large Animal Immobilon intravenously. When that was banned, 22 animals were given ACP followed by thiopentone sodium until I moved on to romifidine and ketamine.

Problems associated with anaesthesia and recovery included: one animal developed a goose egg size lump at the site of the intravenous injection of thiopentone sodium; and 10 animals had recrying problems with LA Immobilon – nine of these were donkeys and one was a yearling pony. There were no deaths associated with anaesthesia.

Surgical technique

All the animals regardless of vaccination status were given a full dose of tetanus antitoxin (TAT). Exactly 1,905 were castrated with a standard open technique with two large incisions to allow drainage. Acriflavin was poured into the surgical wound. Certain preparations were extremely viscous and these were diluted with liquid paraffin.

Surgical sterility was not good. At best the procedure might be termed aseptic with washing of the hands and scrotum with chlorhexidine scrub. Gloves were not worn. The emasculators were boiled and efforts were made not to touch any part of the cord which was to return into the abdomen with anything other than the emasculators.

The 15 animals castrated in Western Australia were castrated with a much cleaner semi-closed technique, i.e. the testicle was left in its tunics and then a transfixing ligature was placed around the cord proximal to the emasculators. The scrotum was not stitched. It should be pointed out to readers that any standardbred which is castrated with an open method is not covered by the Australian indemnity insurance.

The first 78 donkeys and two mules were castrated with a standard open technique with ligatures of cat-gut tied on the vascular and on the non-vascular portions of the cord. This was because of the erroneous belief by the author that donkeys were liable to haemorrhage more than horses.

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The only explanation might be that the animal was running with its mother and a month-old foal. The owners were out at work so there was no way of knowing what might have happened.

In some ways I regret not suturing and packing the scrotum but in reality the haemorrhage was obviously coming from the cord in the abdomen and so I doubt if such a procedure would have saved the horse. It would of course have kept the blood inside the horse!

Antibiotic usage and post-castration infection

The first 1,015 castrations did not receive any pre-operative antibiotics; 47 (5%) showed a post-operative infection which was reported by the owner: 43 of these infections were not serious. The animals made a speedy recovery with five days of oral trimethoprim sulphate (TMS).

Three animals were ill with raised rectal temperatures. They were given daily intravenous injections of

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penicillin and gentamicin for three days and made a swift recovery. One horse was seen five days after castration with an infected piece of cord hanging from the scrotal wound.

This animal was sedated and the piece of cord was removed. It received daily intravenous injections of penicillin and gentamicin followed by five days of intramuscular cefotiofur. That horse also recovered uneventfully.

For the following 985 castrations I was persuaded to give a single injection of penicillin and streptomycin intramuscularly at the time of surgery. I am aware that streptomycin is of doubtful value in the horse and that procaine penicillin has a useful life of only 24 hours.

Only five (0.5%) animals were reported to be infected post-operatively. These were all treated with oral TMS daily for five days and recovered without problems.

Evisceration problems

Case 1

A three year old Cleveland Bay colt was castrated in our paddock at the surgery in the afternoon using our standard open method and GA. Two other colts were castrated at the same time. The following morning the owner reported an inquinal prolapse. The animal was given a second GA.

Two feet of omentum which was hanging from one scrotal incision was resected. An attempt was made to close the inquinal ring with Vicryl and the scrotum was also closed with Vicryl. The animal was given five further days of intramuscular penicillin and streptomycin. It made an uneventful recovery and now pulls a landau on Great Yarmouth seafront.

Conclusions

Castration in horses is not without risk. Two animals died directly as a result of the surgery. Romifidine/ketamine GA appears to be a very safe anaesthetic with no deaths recorded.

Post-surgical sepsis is a problem but it would appear from the figures that a single injection of intramuscular penicillin and streptomycin does reduce the risk of infection. However, it may well be that because this is a series recorded over 37 years that the age of the surgeon is having an effect.

The author is not claiming that he is becoming more proficient. In fact the reverse is the case as nowadays in most cases he has to kneel down and often relies on the help of a veterinary student and I would like to use this opportunity to thank the many students who have helped me so willingly.

The author reflects that it may be his grey hair which is a factor. Nowadays I stress very vehemently that: (a) castration may be a routine operation but it is a very serious piece of surgery; (b) they all will become swollen and infected; (c) they all will bleed; and (d) they must be turned out 24/7 and on no account be allowed to lie down in a stable or field shelter for 10 days.

I think it is the fact that the owners expect them to become infected and that they know they have received antibiotics that they do not report any problems and so minor infections clear up on their own and go unreported.

My results may also be biased compared to others by the large number of tough ponies castrated. A large number of the riding horses recorded were actually tough gypsy cobs.

Also, I am convinced that castration of foals, although technically more difficult as the testicles in many cases are extremely small, is much less traumatic than castration of adult horses.

One of my younger colleagues leaves the emasculators on the vascular part of the chord for the same number of minutes as the age of the horse. There certainly is value in this approach. I had to castrate a 13-year-old stallion recently. Using her advice I would have to change my anaesthetic technique!

Equine surgeons should remember that 200 years ago military surgeons in the Napoleonic wars were removing legs at the thigh without a GA or antibiotics and at least some of their patients survived. I would like to stress that was before my era!

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Two-day workshop on clinical governance this month

A CLINICAL Governance Workshop is to be held at Oakham Veterinary Hospital in Oakham, Leics., on 18th and 19th July.

Sponsored by Zoetis, the purpose is to enable practices to conduct effective clinical audit that can be used to improve clinical standards and outcomes. Included is an afternoon of team-building activity to allow delegates “to let off steam about their perceptions of audit”.

The first day will look at the reasons for and benefits of clinical audit, drawing on experiences from the clinical audit support centre in Leicester as well as from the RCVS practice standards scheme. The second day will concentrate on the practicalities of clinical audit and will be delivered by those with experience of audit and governance in equine practice. Finally, a workshop will demonstrate tools that are available to facilitate audit in practice, so that those attending can establish audit within their practices.

The course organiser is Dr Mark Bowen; speakers will be: Stephen Ashmore, Dr John Barford, Dr Tim Mair, Pam Mosedale and Tracy Ruthven.

The price for members of BEVA and the VPMA is £375 and for non-members £750 and the fee includes the lectures, activities, food and overnight accommodation. For details contact the BEVA office (david.hicks@beva.co.uk) or see www.beva.org.uk.