Castration of male calves: Effect of different rubber ring techniques on postoperative pain

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Key words

Calf, castration, rubber ring, acute pain, chronic pain, cortisol

Aim of the study

Investigation of a new method of rubber ring castration, to reduce the long-term pain in male calves. This new designed method should also be applicable by well-trained farmers.

Material and methods

63 male calves were included in this study. Local anaesthesia was administered before manipulation of calves. The calves in group RR were castrated traditionally with one rubber ring (n=12). The same method was used in group Rcut with the difference, that in this group the dried up scrotum was cut off on day 9 (n=14). In group 3RR, calves were castrated with three rubber rings, placing one directly below the other (n=7). The group BRR was castrated by a combination of a Burdizzo forceps and one rubber ring, in which the Burdizzo forceps was applied for 30 sec across the full width of the neck of the scrotum just proximal to and immediately after application of a standard rubber ring (n=14). Results for castrated calves were compared with handled uncastrated calves (CO). Plasma cortisol was measured in blood samples taken before and during the first 6 hours after castration. Observations of behaviour were made before and immediately after castration for 6 hours and for 10 minutes each morning for 10 weeks. A clinical examination and an assessment of the castration site (lesion score) were made after each observation period. Additional, the time (castration success) needed until the scrotum became detached and the time for complete healing of the wound were recorded.

Results and significance

A total of 8 calves had to be excluded from the study, because of different diseases not related to the castrations. The group 3RR was aborted after 7 calves because of animal welfare reasons.

<u>Cortisol:</u> The cortisol response and the immediate behavioural responses showed no difference between the groups RR, Rcut, 3RR and CO on the day of castration (day 0). On day 9, differences for the groups Rcut and the control animals RR were not present.

<u>Behaviour</u>: Over the time of observations, only 3RR calves showed significantly more frequent licking at the lesion site than calves of the other treatment groups.

<u>Wound healing</u>: Rcut calves had a local swelling with a median of 0.5 cm (95% confidence interval: 0.2-0.8 cm), which was significantly lower as compared to the other groups (p<0.001). The calves of the group 3RR had the largest swellings with a median of 3.5 cm (0.2-5.6 cm). Calves of group Rcut showed the fastest wound healing with a median of 49 days (47-52 days). Wound healing lasted significantly longer in any of the 3 other castration groups (p<0.001): In the groups BRR, 3RR and RR, healing time lasted a median of 57 days (53-63 days), 70 days (62-77 days) and 70 days (54-77 days), respectively.

<u>Conclusions</u>: Due to shorter duration and smaller extent of chronic pain and faster wound healing, the castration technique Rcut seems to be preferable when compared to the other rubber ring techniques used in this study. As Rcut is well applicable by well-trained farmers, it is suggested that this technique currently be the castration technique of choice in male calves in Switzerland.

Publications and presentations

Publication planned in "The Veterinary Journal" Presentation: Novartis in St. Aubin, 2008, 2009; 6. Buiatrics Congress in München, 2009; Vets in Zürich, 2009;

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