

The effect of topical anti-infective application at castration and tail docking of baby pigs versus doing nothing

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Introduction

Recent studies published in the US¹ and in Canada² have attempted to show that baby pigs do experience pain at castration. Identification or even quantification of pain is measured in vocalization, serum chemical analysis and behavior. Neither vocalization nor chemical analyses have been consistently successful in separating castrated pigs from sham castrated (held the same except the blade handle was used to press on the scrotum. The skin was not opened and testicles were not removed) pigs. The behavior noted in an EU³ study indicated, castrated pigs stood inactive or sat more than sham castrated pigs for the first two hours post castration. Time of arrival at the first 21 nursings post castration and the number of missed nursings for 22 hours were not different as measured by video surveillance. A more recent study from Texas⁴ showed that using a long acting topical anesthetic in gel form or a short acting lidocaine product at castration was not significant in changing the behavior of the pigs as compared to the control (sham castrates). However, the non-treated castrated pigs spent more time lying without contact with other pigs or the sow. The authors note there was no time by treatment interaction for any of the behaviors measured in the study. Perhaps, looking at pain relief in castration is too subtle to see. In a small pilot study done by the authors, it was observed that there was obvious pain relief

when the tail dock area was sprayed with a product containing lidocaine. It is unclear if the pigs in the Texas study were tail docked. Tail docking is not mentioned in the text; however, photos showing examples of the wound healing scores are of pigs with tails docked. No anti-infectives were used in the Texas study yet wound healing scores improved over time regardless of treatment showing that lidocaine does not interfere with wound healing. This paper will look at a field study and farm records associated with implementing the use of Barrier wound spray with 2% lidocaine and a summary of non-medicated healing scores.

Field study

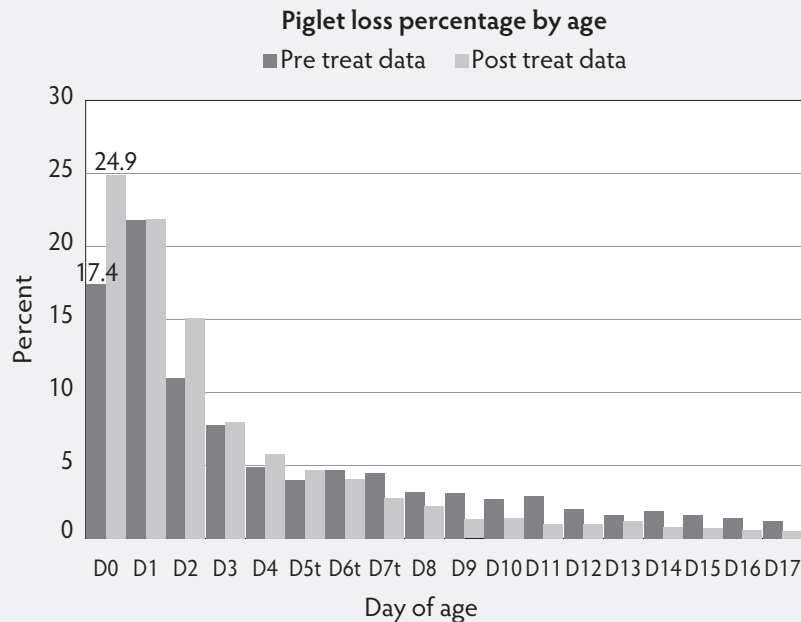
Barrier wound spray with 2% lidocaine was introduced to the veterinary market in December of 2010. It is designed to provide immediate pain relief to the patient and reduce the rate of infection by lowering the skin bacterial count in and around the surgical site for an extended period of time post application. It provides immediate reduction in bacteria due to its alcohol content and prolonged effect due to povidone iodine 20% with 2% available iodine. The results of a field trial showed it allows the animal to remain pain free while its normal mechanisms for pain control take effect. Our observations suggest that the product does significantly reduce pain at the tail dock site and the associated behavioral changes in piglets

immediately post processing. 34% of the treated pigs as compared to non-treated pigs showed improved activity at five minutes post processing. During the field trial there was a 32% reduction in the number of pigs that bled during the first five minutes post castration. Reduced bleeding is due to the combined effect of lidocaine causing blood vessels to constrict and povidone promoting clot formation. During the first three days post castration, 44% more piglets sprayed with the anti-infective showed progressive healing as compared to those that were not treated.

Herd records

Utilizing Pig CHAMP Care[®] records for a 2400 sow farrow to wean unit, a comparison of pre and post implementation of Barrier wound spray with 2% lidocaine at processing showed a 4.3% decrease in baby pig mortality. The records show the greatest change was a 6.7% reduction in the number of laid-on pigs. Processing of pigs took place around days 5 to 7 after the pigs were born. The average weaning age was at 17 days. Figure 1 shows the comparison of the piglet loss percentage by day of age pre-treatment data versus post-treatment data. The shift of percent mortality back to days 0-4 is an indication that post treatment, fewer pigs died. On average, from Day 5 to Day 17 mortality changed from 2.7% to 1.7%; a full 1% prewean mortality improvement for that time period after implementation of the treatment.

Figure 1: Summary of piglet loss percentage by age for data prior to implementation of anti-infective at processing versus data after implementation.



Non-medicated healing scores

In an attempt to keep cost down, many farms choose not to treat with an anti-infective at processing. Weight gain is the primary economic measure used when evaluating the advantage of using anti-infectives. Overall there doesn't appear to be an advantage in weight gain. However, some data we have seen suggests that treatment with Barrier wound spray improves weight gain in the lightest one-third of the baby pigs. Details of this information may be presented at the meeting. In a study conducted by the authors, information about doing nothing was gathered. Baby pigs were randomly assigned to one of three treatments. The study design was not followed as planned

and results of the entire study were invalid. The information from the 70 non-treated pigs is helpful in showing what happens when a farm chooses doing nothing. Pigs were castrated and tail docked on Day 0. Healing and inflammation/infection were evaluated separately and given subjective scores on days 1, 2, 3, 7, 9, 11 and 14. Healing scores ranged from 2 through 6. Inflammation/infection scores ranged from 0 to 3. Table 1 summarizes the scoring guidelines. For the analysis, the scores across the seven days were summed. A higher summed healing score (H) indicates the wound healed faster. A lower summed inflammation/infection (Inf) score indicated the wound appeared normal. Figure 2 shows a summary of both summed scores. The correlation between H

and Inf was -0.759 showing there is a relationship between the two scores. Twenty-two of seventy (31%) of the pigs had no inflammation or infection an Inf score of zero. On the other end of the spectrum, 11% of the pigs had an abscess during at least one observation period. The photos at the end of the paper show one pig with excellent healing versus another pig with inflammation/infection and poor healing.

Conclusion

Though many studies have been done looking at the behavior of pigs during castration, none have definitively shown that there is a difference between castrates and sham castrated pigs. Handling the pigs seems to be the greatest cause of painful behavior. None of the studies looked at tail docking. Barrier wound spray with lidocaine has been shown to reduce behavior associated with pain due to tail docking. It reduces bleeding and improves healing. Doing nothing at processing, increases the rate of infections and abscesses and slows the healing process.

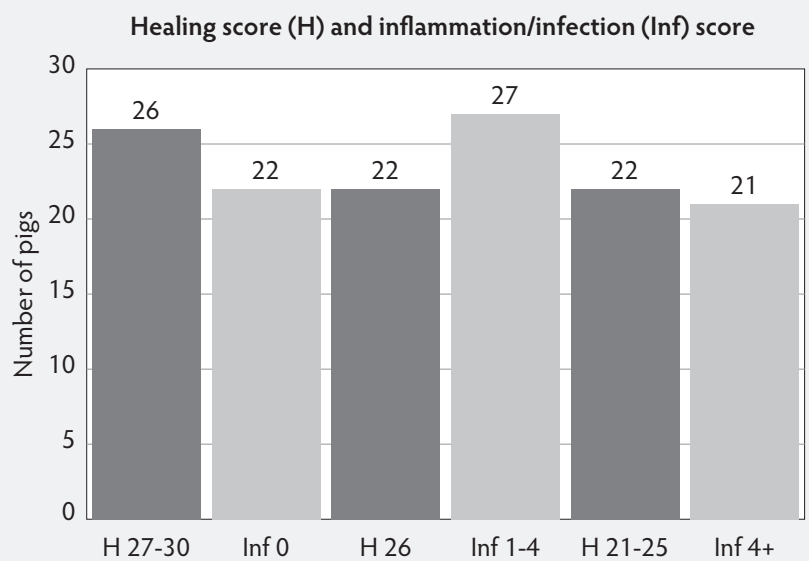
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Table 1: Description of wound healing and inflammation/infection scores

Score	Healing	Inflammation/infection
0	n/a	None
1	Fresh cut (Day 0) not noted	Some redness
2	Wound open fresh blood	Excess swelling and red
3	Scab formed over wound	Infection (exudate/pus)
4	Scab is thick over wound	
5	Scab has contracted	
6	Completely healed (no scab)	

Figure 2: A high H score correlates to a low Inf score (r = -0.759)



Photos: Good healing (left) versus poor healing (right) by day of observation

