

Importance of using a scarring score to classify tail biting lesions on pigs' carcasses at the abattoir

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Introduction and Objectives

Tail biting has been recognized as an emerging problem in pig production. During meat inspection, tail assessment can be challenging and lead to an underestimation of the real tail biting prevalence at the farm since the current method of evaluation only accounts for fresh/recent wounds. By

the time the pig reaches the slaughterhouse, some tails can appear to be healed, but that does not exclude the fact that there might still be an underlying ongoing infection with the presence of deep abscesses. Besides, since it can take up to several weeks for the abscesses to develop in the vertebral column, it is possible to detect during post-mortem inspection carcasses with both purulent osteomyelitis and a healed tail. This study aims to evaluate tail biting occurrence in slaughtered pigs, explore the relationship between carcass condemnations and tail damage and assess the importance of creating a more detailed tail score classification that includes scarred lesions.

Materials and Methods

Information on a total of 9189 pigs from 73 batches was collected at a Spanish abattoir. Total and local carcass condemnations were registered. Due to the speed of the slaughter line, it was only viable to classify a subset of 3636 animals, who had their tail classified by two scores: the lesion score (relating to recent tail lesions) and the scarring score (which evaluated only scarred tissue) (Figure 1).

Results and Discussion

Batches with higher lesions scores had a greater chance of total condemnation (p=0.014, OR = 1.81), and were even more associated with scarred lesions (p=0.0002, OR=3.24). Pyaemia was influenced by recent lesions (p=0.013, OR=2.06) and had an even stronger relationship with scarring scores (p=0.0002, OR=3.86). These results establish a clear relationship between tail damage and carcass condemnations. The within-batches probability for local condemnation due to abscesses was only influenced by the presence of scarred tissue (p<0.0001, OR=3.65), having the lesion score no effect on local condemnations (Table 1). During post-mortem inspection, tails can be classified with severe scarring and have no recent/fresh lesions. In animals with these scarred lesions, it can be speculated that the tail was bitten on the farm and had time to heal until the animal reached the age for slaughter. The bite, by allowing systemic spreading of bacteria, can lead to the further development of purulent lesions, which require some time to develop and become visible during post-mortem inspection of the carcass and viscera. This hypothesis could explain the observed association between scarred tails, total condemnations due to pyaemia and local condemnations due to abscesses.

Figure 1. Examples of examined tails. | Lesion score: A - no lesions; B and C - mild lesions; D and E - severe lesions. | Scarring score: F - mild scarring; G - severe scarring (scarring with shortening of the tail).

Response variable	Explanatory variable	Statistics	P value	Odds Ratios	
				Estimate	95% IC
Total condemnations	Lesion score	χ^{2}_{1} =5.98	0.0145	1.81	1.12 – 2.91
	Scarring score	χ^{2}_{1} =13.81	0.0002	3.24	1.74 – 6.02
Total condemnations due to pyaemia	Lesion score	χ^{2}_{1} =6.22	0.0126	2.06	1.16 – 3.63
	Scarring score	X ² ₁ =13.79	0.0002	3.86	1.89 – 7.88
Local condemnations due to abscess	Lesion score	$\chi^{2}_{1}=0.50$	0.48		
	Scarring score	$\chi^{2}_{1} = 44.69$	<0.0001	3.65	2.50 – 5.34

Table 1. Statistical model exploring the relationship between total condemnations, total condemnations due to pyaemia and local condemnations due to abscess with the lesion and scarring score from the slaughtered animals (9189 pigs). CI – confidence interval.

Conclusion

This research concludes that scarred tail lesions have a close relationship with all total condemnations and with local condemnations due to abscesses. The scarring score displayed a more relevant role than the scoring system for recent lesions, which proves that scarred tissue can also work as a welfare indicator regarding farm conditions and should be included in the tail surveillance program.

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