

ASSESSMENT OF AGONIC ASPIRATION OF BLOOD LUNG LESIONS AS AN ANIMAL-BASED INDICATOR OF ELECTRICAL STUNNING INEFFECTIVENESS IN PIGS

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INTRODUCTION

Agonic aspiration of blood (AAB) results of an inadequate exsanguination, that can be favoured by an ineffective stunning. In pigs, electrical stunning ineffectiveness can be individually assessed by evaluating the presence of “*animal-based measures*” (ABMs). This study aimed to investigate the incidence of AAB lung lesions at post-mortem inspection of pigs (*Sus domesticus*) as an animal-based indicator of electrical stunning ineffectiveness.

MATERIAL & METHODS

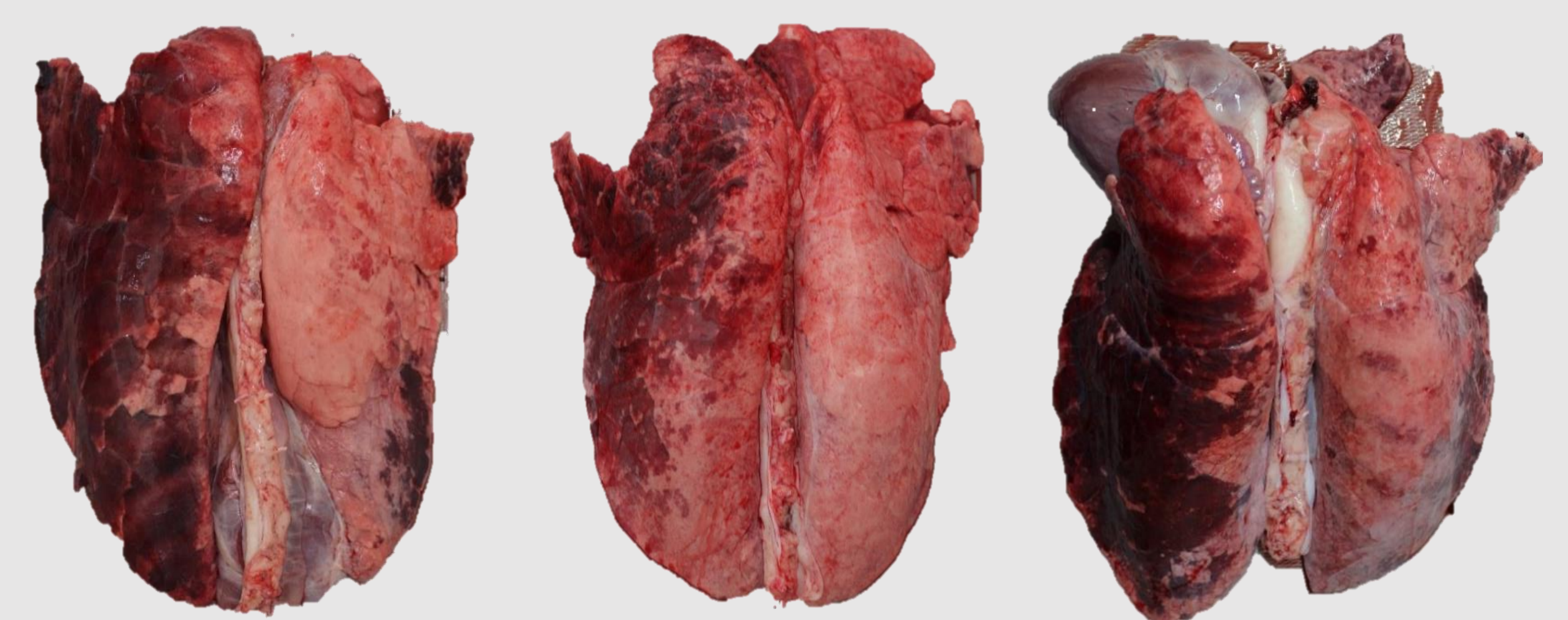
Information about a total of 3 584 finishing pigs from 73 random batches was collected at a Portuguese abattoir performing a head-to-body electrical stunning with horizontal bleeding. Data collection included: **Stun-ineffectiveness score (SIS)** - (0) absence of rhythmic breathing and rightening reflex, (1) presence of these two ABMs alone or in combination and (2) presence of corneal reflex, spontaneous blinking and/or voluntary vocalizations in addition to grade 1; **Side** to which the pig laid down during sticking and initial bleeding; **Extension of blood lung lesions** during post-mortem inspection.

RESULTS

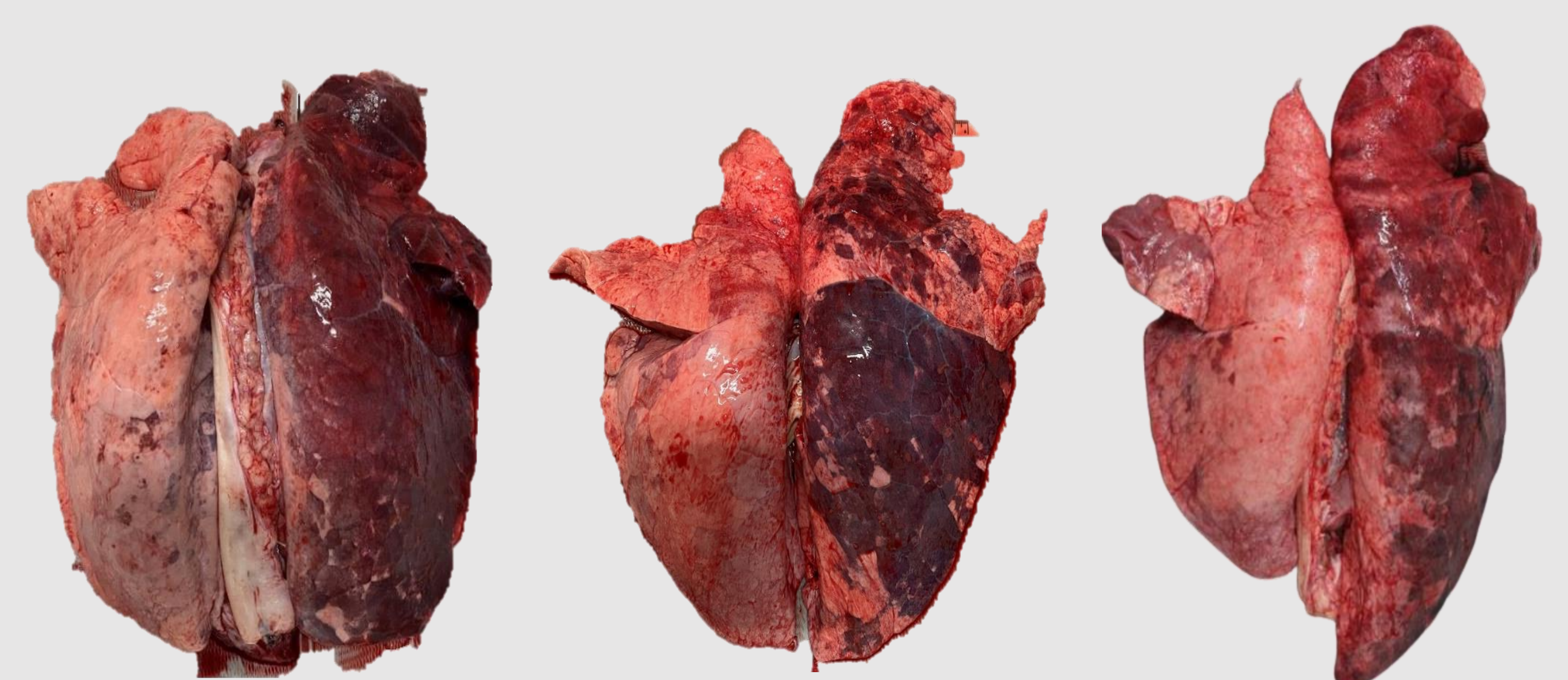
In the present study, 15.5% of the pigs presented signs of ineffective stunning (grade 1 and 2 of the SIS). AAB lung lesions were found in 27.8% lungs during post-mortem inspection. Statistical analysis did not show any correlation between inefficiently stunned animals and detection of AAB lesions in the lungs. On the contrary, there was a good correlation ($r = 0.320$; p value = 0.006) between animals stunned properly and detected AAB lesions. Furthermore, statistical significances (p value <0.05; **Table 1**) were found between pig’s side lying down at the conveyor and presence of blood lesions affecting exclusively or mostly one side of the lungs.

Table 1 Spearman correlation coefficients for pig’s side laying down and detected blood lung lesions at a batch-level analysis (N = 73 batches).

		Pig’s side lying down (n= 3 584 pigs)	
		Right side (n= 3028)	Left side (n=410)
Detection of blood lung lesions (n= 989 lungs)	Right Lung (n= 692)	$r = 0,264$ $p = 0,024$	$r = -0,250$ $p = 0,033$
	Left Lung (n= 297)	$r = -0,077$ $p = 0,518$	$r = 0,361$ $p = 0,002$



Presence of blood affecting exclusively the left side of the pig’s lung.



Presence of blood affecting exclusively the right side of the pig’s lung.

CONCLUSIONS

- › Blood aspiration in pig’s lungs should not be used by official veterinarians as an indicator of compromised animal welfare at the moment of slaughter.
- › Horizontal bleeding can have an impact on slaughter technopathies, leading to lesions resembling AAB lesions.
- › This study brings awareness regarding failure of stunning on a first attempt using a stun-to-kill method.

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