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Mini Review

The Importance of Performing Necropsy at the Pig's Farm as a Tool for the Surveillance of Endemic or Emerging Pig Diseases

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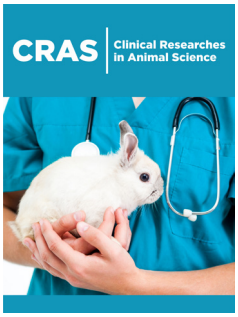

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Introduction

There is abundant information related the causes/ categories of death and their relationship with management and environmental factors affecting the pre / post weaning piglets [1-4]. On the contrary, in the growing and fattener stages, the references are scarce. Mostly are referred to farms dedicated exclusively to fattening, particularly in the USA and Europe, where pigs from 9 to 12 weeks old, from different sources and even from different countries are fattener [5-8]. In the above farms, stress by transport, the decline of cholesterol antibodies, as well as the different immunological status of the source farms the mortality can oscillate from 1.6 to 8% [9].

Studies carried-out in USA reported a mortality average in growing/fattener pigs of 2.3% (+- 0.2). In 3.5% of the farms studied (n=393) values were higher than 4% and, in 63.6 % below 2%. The management factors associated higher than 2% were weaning less than 28 days-old, mixture of pigs from several sources, barns with absence of a stool pit and infectious agents [9].

Locally, causes / categories and their causes have been evaluated in those circumstances in which an acute infectious with high mortality has been registered, such as that produced by infection by Actinobacillus pleuropneumonia alone, associated with viral infections such as Aujeszky's disease virus [10] or during a surveillance in a farrow-to-finishing operation [11].

Currently, information on the percentages of mortality in farrow to finish herds, is well known, however causes are usually lacking due to the lack of adequate facilities, the absence of compressive spreadsheets record, as well as the lack of knowledge of simplified necropsy technique for large pigs [11] or the or the impossibility of carrying out necropsies in those farms in which the dead and necropsied pigs are not removed by the companies that collect biological materials. In swine medicine we have the possibility to carry out a large number of necropsies of pigs that die "normally" as well as those with "unusual clinical signs" and to identify known or unknown agents in histopathological lesions by immunohistochemistry or "in situ" hybridization.

The lack of this information has a significant. economical losses for the producer as well as the global swine health monitoring related with new diseases [11].

An important step in order to correct this déficit by veterinarian practitioners is to know how to perform the complete "abbreviated" necropsy that differs from the traditional one in that:

a. The organs are inspected in situ (without extracting them from the adjacent tissues/organs)

b. Methodology for recorded of gross pathological findings / entities / diseases / injuries are done in "ad-hoc" spreadsheets in which the gross lesions are tick off [11].

c. Diagnosis of cause of death / delayed / removed are registered in order of decreasing importance.

What is the purpose of pathological surveillance of dead pigs?

We must remember the sentence due by pathologist J.T Done that said in the International Pigs Veterinary Society Congress Mexico 1982 "The study of the caused (lesions) must always preceded the study of the causes". This old sentence currently acquires actuality with the use of metagenomic techniques applied on fresh or fixed tissue samples from which several viruses can be identified [12]. The herd visit together with the systematic postmortem studies of the animals that "normally die", associated with serological survey and the surveillance of "syndromes" in slaughtered pigs altogether constitute a routine that allows:

a. Diagnosis of clinical and subclinical infections.

b. More representative population studies for the isolation of viruses, mycoplasmas, bacteria, fungi and parasites present on the farm.

c. Evaluation of the effectiveness of the management practices applied for the control of endemic infections.

d. Correlation studies (negative or positive) between pathological lesions and productive parameters such as daily body weight and feed conversion.

e. Correlation studies between production parameters, facility systems with the frequency/ prevalence of pathological findings.

For the correct implementation of this procedure, we must

a. perform it at regular intervals (every month);

b. collecting a few samples at regular intervals are more valuable than many intermittently.

c. repeated collecting samples from the same house / age in time allows to determine with more accurate the pathogens that affect it and

d. necropsies must be accompanied by complementary studies (histopathology, PCR, serology)

What are its limitations?

When conducting a pathological study, it should be taken into account that as any method applied to measure biological processes it has limitations which must be taken into account when results are extrapolating with what is happening on the farm.

1. Dead pigs according with their age/category are the end of the production system with a relationship with the environment, health management, food and farm facilities. Therefore, the information that it will give us about what is happening in the other categories is scarce if our study is limited to only one stage.

2. The sample studied is a biased sample (representative only of a group of animals) and usually not include the "poor doing pigs" as well as the discarded females.

3. The inflammatory processes of the respiratory and digestive tract are the most frequently lesions evaluated and usually are resolved, with or without sequelae. If the sequelae are not obviously, they are difficult to visualize or interpret without experience. Likewise, there is an average time of evolution and resolution for each entity that we evaluate, so the population reference that will be indicated in the final report should be consider the population at risk for each disease [13,14].

4. When correlating type and category of pathological finding with productive parameters, there are disagreements with the methods used by the different researchers [15,16].

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