PREVALENCE OF MACROSCOPIC LUNG LESIONS IN SLAUGHTER PIGS IN FRANCE

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SUMMARY

The aim of the survey was to assess the prevalence of gross lung lesions of slaughter pigs at the National level. The study was carried out in 185 batches of pigs randomly selected from 35 slaughterhouses in France. The number of batches to be selected per slaughterhouse was determined proportionally to the production level. In every batch, lungs from a random sample of 20 pigs were submitted to macroscopic examination at the slaughterhouse. Pneumonia and pleuritis were scored according to the extent of the lesion. Healing following pneumonia, abscesses, nodules and enlargement and congestion of tracheo-bronchial lymph nodes were recorded. Pneumonia and pleuritis were the two most frequent lesions with 50.8% and 13.6% of affected pigs respectively. Healing of pneumonia, enlargement and congestion of lymph nodes were recorded in 14.2%, 15.3% and 16.1% of the pigs respectively. Abscesses and nodules were the less frequently detected lesions, both at the pig and herd levels. For 44.3% of the herds, high pneumonia scores were observed in more than 10% of the pigs. Extended pleuritis was recorded in 29.2% of the batches. Our survey showed that lung lesions are frequently detected at the slaughterhouse in finishing pigs in France, pneumonia and pleuritis being the most prevalent lesions. Despite the wide use of vaccination towards respiratory pathogens, extended lung lesions were detected in a non negligible proportion of herds. Factors related to management, hygiene and housing conditions definitely need to be properly considered when designing control programmes aiming at reducing disease prevalence and severity.

INTRODUCTION

Respiratory diseases are one of the most costly diseases affecting growing-finishing pigs raised under confined conditions in intensive systems worldwide [17]. Lung diseases are associated with economic losses due to lower growth performance, reduced feed efficiency and higher medication costs [2, 17] and have an adverse effect on pig welfare. Even if retrospective evaluation of respiratory disorders by slaughterhouse surveillance is based mainly on chronic lesions, and does not provide information on respiratory illness of pigs throughout the fattening period [15], slaughterhouse inspection is widely used to assess the subclinical respiratory health status of pigs [6, 9, 11, 13]. These data are important to monitor lesion incidence and severity. They can also be used to identify risk factors for lung lesions [7, 13, 16, 14]. This information is extremely useful to further implement adequate control strategies. In France, recently published studies on the prevalence of respiratory lesions are scarce the latest being published in 2005 [11]. Therefore the aim of the present survey was to assess the prevalence of gross lung lesions of slaughter pigs at the national level.

MATERIAL AND METHODS

The study was carried out from May 2008 to December 2009 in 35 slaughterhouses in France representing more than 97% of the National pig production. The number of batches to be selected per slaughterhouse was determined proportionally to the production level (number of tons-carcass slaughtered/year). In total, 185 batches of pigs were randomly selected. A batch was defined as a group of pigs belonging to the same farm that were slaughtered on the same day. In every batch, lungs from a random sample of 20 pigs were submitted to macroscopic examination at the slaughterhouse [5]. The lungs were collected on the slaughter line, just after removal from the carcass, and were removed from the slaughter line for individual macroscopic examination of the lesions. The lungs were palpated and visually assessed for pneumonia and pleuritis according to the method described by Madec and Kobisch [12]. Pneumonic lesions consisted of dark red to grayish purple areas of consolidation in the apical, cardial, accessory and/or diaphragmatic lobes. Pneumonia was scored from 0 to 28 depending on the extent of the lesion of each lobe: point 0 no lesion; 1: lesion affecting <25% of the lobe surface, 2: lesion reaching [25-50]% of the surface, 3: [50-95]% of the surface affected; 4: ≥95% of the surface affected. Pleuritis lesions, i.e. inflammation of the visceral and parietal pleura, were graded from 0 to 4: 0 indicating no lesion, 1: one pleural adherence between or at border of lobes, 2: focal lesion with multiple adherence between lobes, 3: extensive parietal adherence with partial adherence to the thoracic wall, 4: adherence of the entire lung to the rib cage. Abscess, nodule and healing following pneumonia and any enlargement or congestion of the tracheo-bronchial lymph nodes were also recorded.
RESULTS

An amount of 3678 lungs were submitted to macroscopical lesions. Pneumonia and pleuritis were the two most frequent lesions with 50.8% (Confidence Interval (C.I.) 95% : 49.3; 52.7%) and 13.6% (C.I. 95%: 12.8; 15.1%) of affected pigs respectively. Healing of pneumonia, enlargement and congestion of lymph nodes were recorded in 14.2% (C.I. 95%: 13.0; 15.3%), 15.3% (C.I. 95%: 14.1; 16.5%) and 15.1% (C.I. 95%: 14.9; 17.3%) of the pigs respectively. Abscesses and nodules were rarely detected (< 1% of the pigs). Pneumonia was observed in 95% of the batches with a mean within herd frequency of 51%. For 44.3% of the herds, high pneumonia scores (∝12/28) were observed in more than 10% of the pigs. Extended pleuritis was recorded in 29.2% of the batches.

DISCUSSION

Our results showed that pneumonia and pleuritis were the two most prevalent lung lesions detected at the slaughterhouse in France. This is in agreement with the results of a previous study carried out in western France where 72.4% and 14.4% of the pigs were found to be affected by pneumonia and pleuritis, respectively [11]. Results of studies in other countries have also shown that lung diseases are widespread in pigs raised under confined and intensive systems with prevalence ranging from 21% to 72% and 14.4% to 62% of the pigs for pneumonia and pleuritis, respectively [1, 4, 7, 8, 11, 19] [14]. Healing following pneumonia was the third most frequent lung alteration which suggests that some recovery of pneumonic lesions had occurred by the time of slaughter [20]. Since healing of pneumonia is a slow process requiring at least eight to ten weeks [10, 18], this observation of healing indicates that pneumonia had developed early in the fattening phase. However, the presence of any healing process should be noted when measuring pneumonia incidence at the slaughterhouse on a herd basis so that the importance of lung problems is not underestimated. Abscesses and nodules were less frequent at both pig and herd levels, as previously reported [3, 8, 11].

CONCLUSIONS

Lung lesions are frequently detected in the lungs of finishing pigs in France, pneumonia and pleuritis being the most prevalent lesions both at the pig and herd level. Despite the wide use of vaccination towards respiratory pathogens, extended lung lesions were detected in a non negligible proportion of herds. Non infectious factors related to herd management, hygiene and housing conditions need to be properly considered in control programmes aiming at reducing the impact of the disease, which in turn would improve pig performance and welfare.
REFERENCES


