

Efficacy of a single injection of ZACTRAN® for Swine against *Bordetella bronchiseptica* Respiratory Disease in experimentally infected piglets



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INTRODUCTION

Bordetella bronchiseptica (Bb) is bacterial species that can cause atrophic rhinitis, bronchopneumonia and is one of the major pathogens involved in the respiratory disease complex (SRD) in growing pigs.

The efficacy of ZACTRAN® for Swine (gamithromycin) against Bb was tested in an experimental pneumonia model.

MATERIALS AND METHODS

Forty 5-week-old SPF piglets were inoculated with 9.3 log₁₀ CFU of a virulent Bb by nasal route on D0. Sensitivity of the Bb isolate to gamithromycin was representative of current field pig isolates. On D3, animals were randomly allocated to two groups according to SRD clinical signs.

They were administrated either:

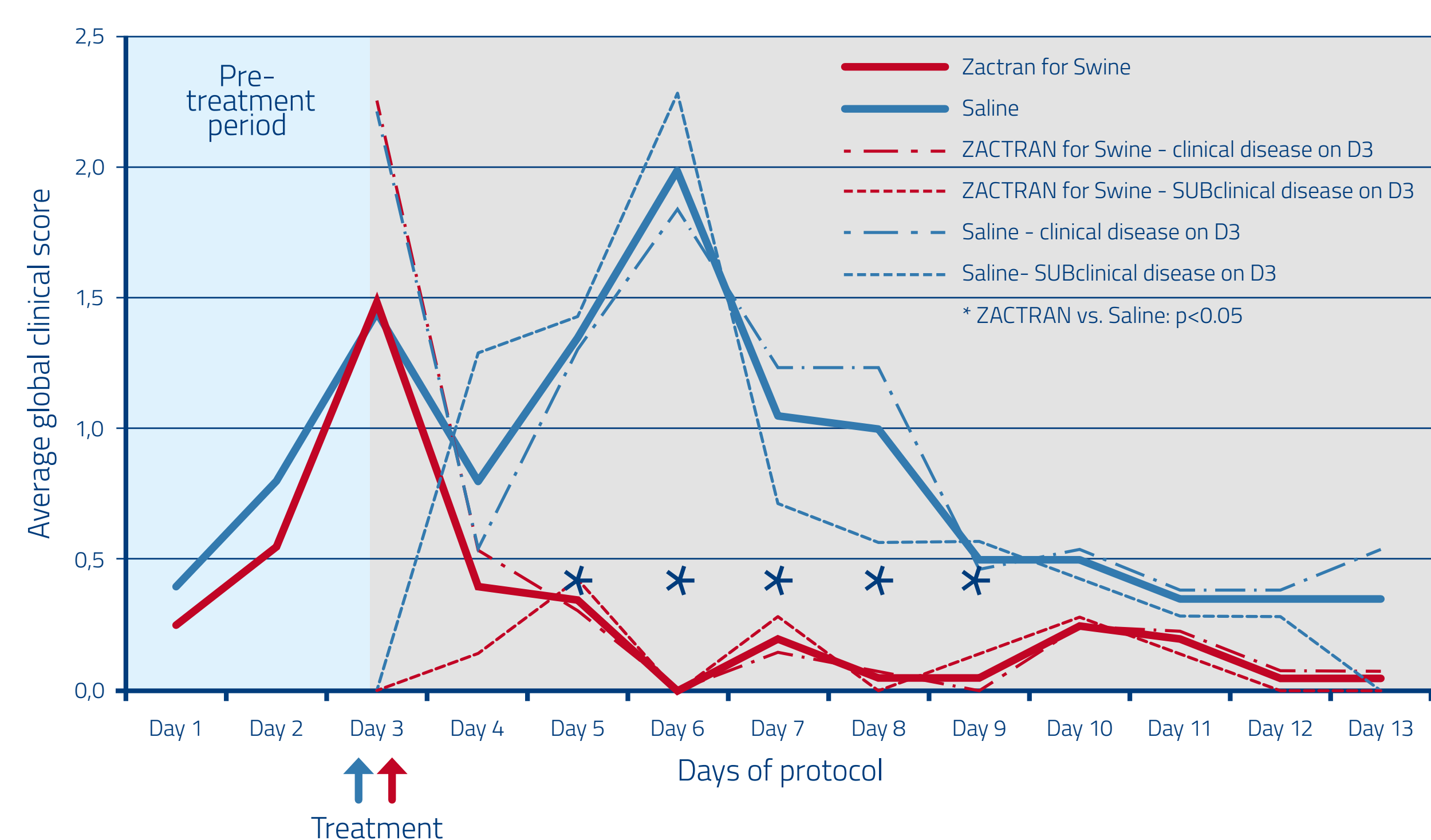
- a single dose of ZACTRAN for Swine (1 mL/25 kg IM, n=20),
- or saline (n=20).

Rectal temperature, behavioral observations and respiratory signs were recorded and scored daily from D0 to D13. Ten days post-treatment, all animals were necropsied. Lungs were examined macroscopically for lesions. Lung and trachea were sampled for histology.

RESULTS

The Bb inoculation successfully induced coughing in 50% and sneezing in 45% of animals before treatment. From D3, clinical signs rapidly decreased in treated animals whereas they increased until on D6 in controls before initiation of a self-resolution phase (Figure 1).

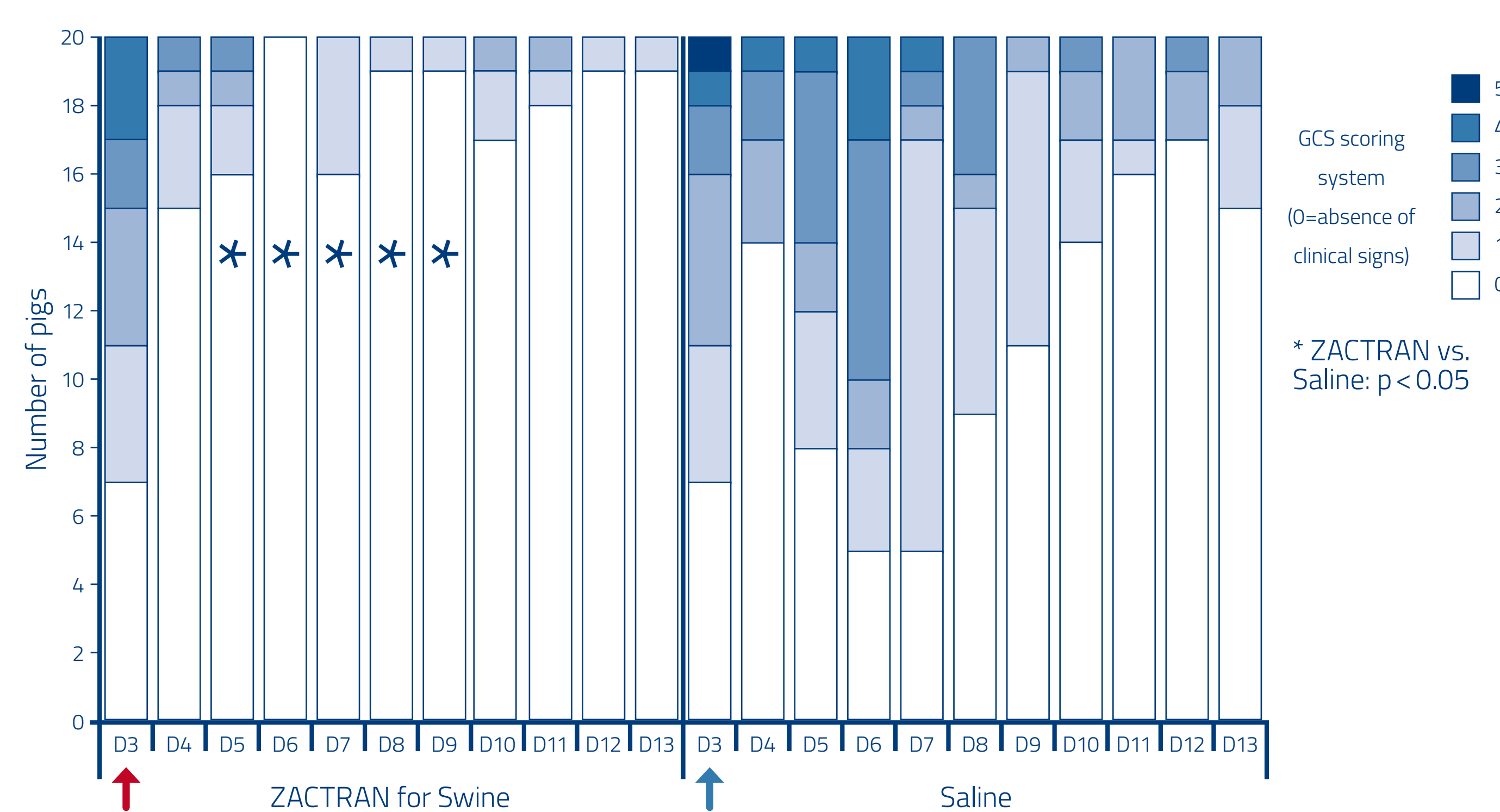
Figure 1. Average global clinical scores in ZACTRAN for Swine-treated and Saline-treated groups.



Solid lines (—, —) depict average GCS for the entire treatment groups. Dotted lines depict GCS evolution in subpopulations of pigs either clinically affected on the treatment day (---, ---) or subclinically affected on the treatment day (---, ---)

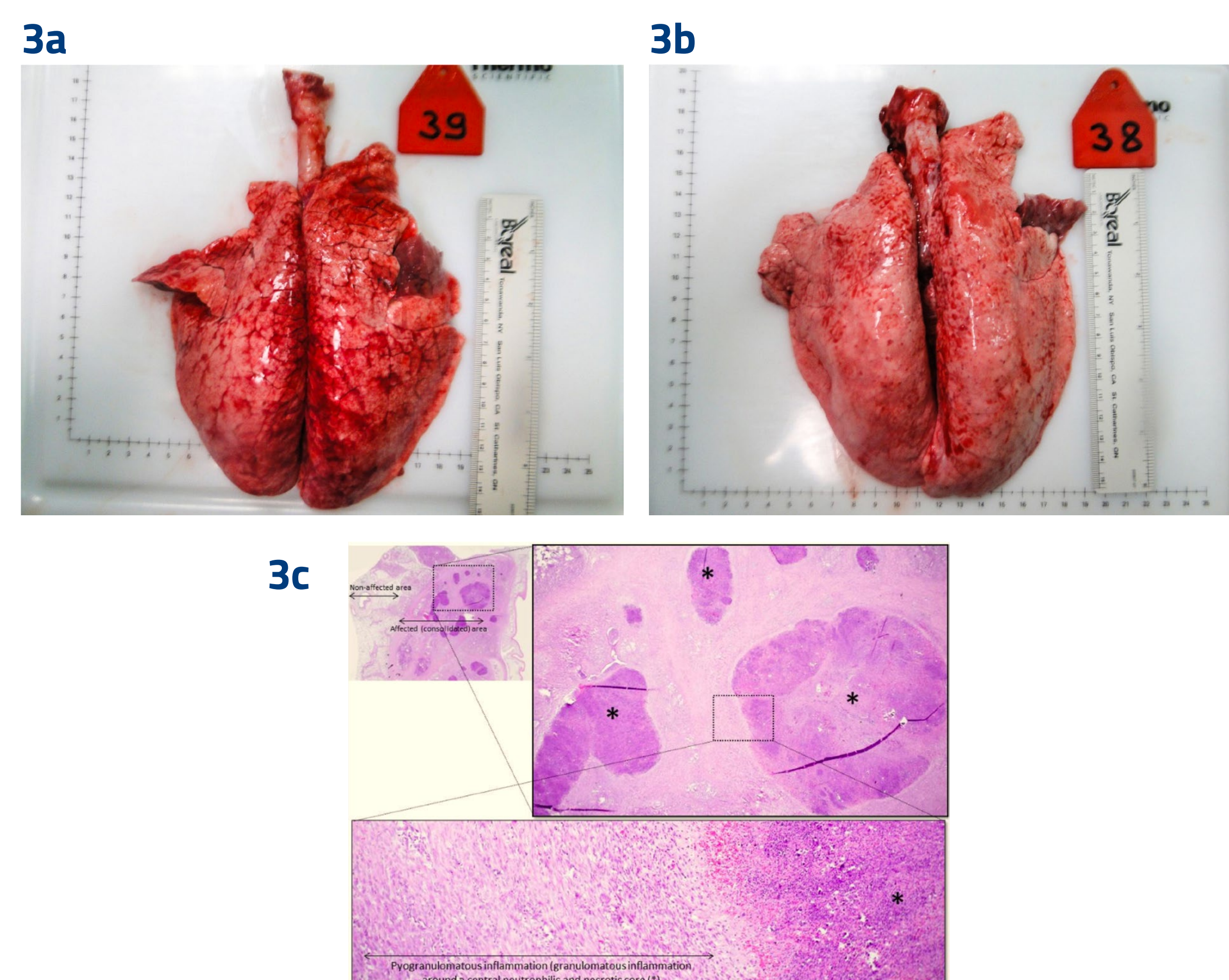
Global Clinical Scores (GCS) in the treated group were consistently lower than in the control group from D4 onwards (p<0.03 for D5-to-D9 period). Average number of post-treatment diseased days (GCS≥1) was reduced by 74% (1.1 vs 4.3 days, p<0.0001).

Figure 2. Post-challenge individual global clinical sign scores in ZACTRAN for Swine-treated and Saline-treated animals.



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Figures 3. Examples of dark, red consolidated areas with well-demarcated borders (right middle lobe) induced by *Bordetella bronchiseptica* (3a & 3b). Example of pyogranulomatous lesions (right middle lobe) induced by *Bordetella bronchiseptica* (3c).



CONCLUSION

This study demonstrated the efficacy of ZACTRAN for Swine at label dose for the treatment of SRD due to *Bordetella bronchiseptica*, based on lung lesions and clinical signs reduction.

