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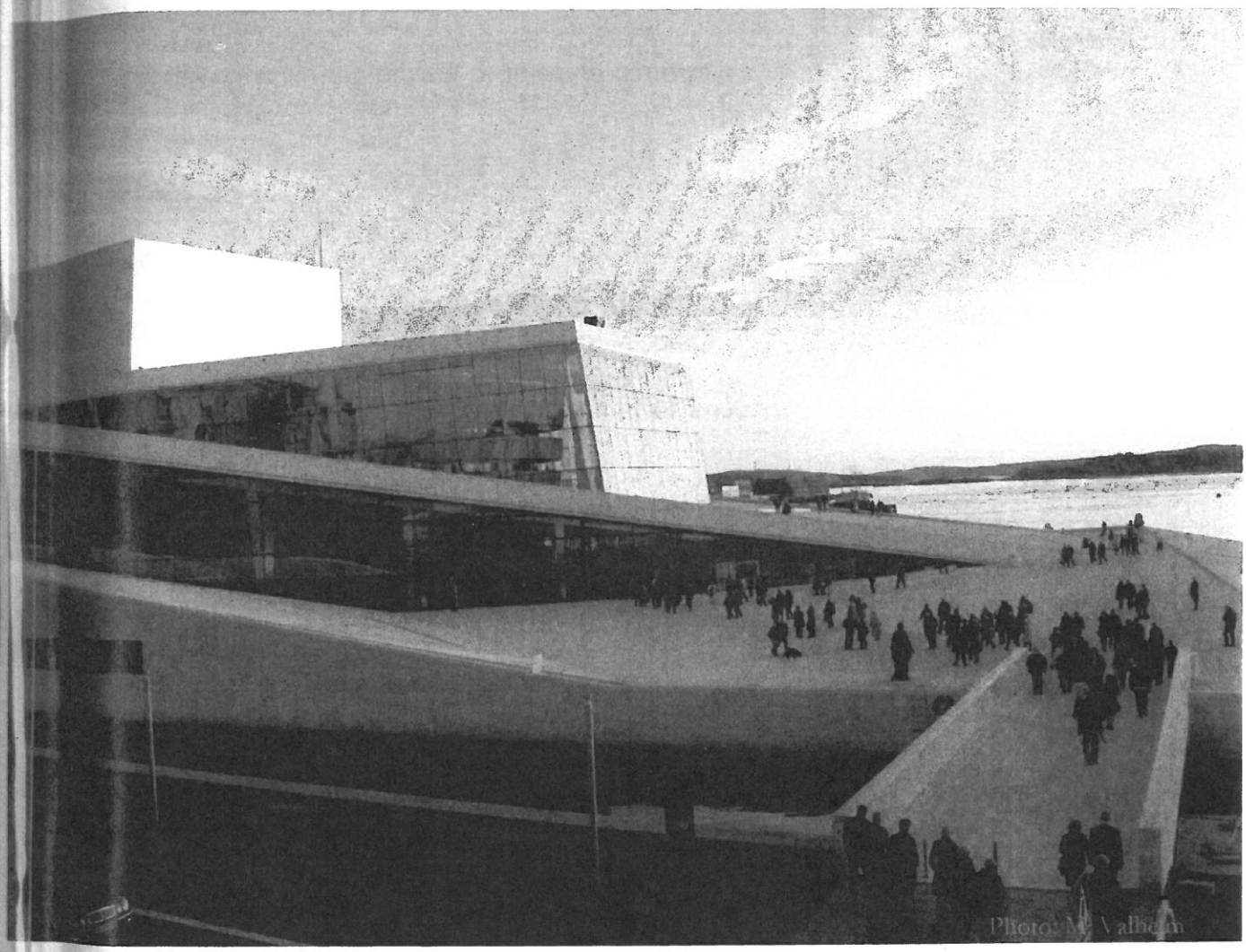

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Intestinal pathology in pigs with *Staphylococcus aureus* induced sepsis – a pilot study

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Sepsis is a significant health issue, resulting in a high rate of human fatality and brings a substantial economic burden to the community. Causes of the disease are many and the progression of the disease is multifactorial and it is difficult to diagnose and treat. Despite the fact that it is generally accepted that the intestine plays an important role in the progression and the outcome of the disease, this has not been a major focus point in the process of diagnosing and treating sepsis.

This pilot study (a veterinary master's project) was part of a larger project to develop a porcine model for *Staphylococcus aureus* induced severe sepsis. It is unknown if the porcine intestinal response is comparable to the human intestinal response, therefore the aim of this pilot study was to examine the histopathological changes induced by sepsis in the porcine intestine.

Two young pigs were intravenously inoculated with a bolus of *S. aureus* with a dosage of 1 x 10^8 CFU/kg. Two other pigs were sham-infected with saline as control animals. After 48 hours the animals were euthanizedand tissue samples were taken from all parts of the intestine for histopathological examination. One of the infected pigs had to be put down 30 hours post infection due to animal ethical reasons. Histochemical and immunohistochemical staining methods were used to study the histopathological changes and for the identification and quantification of apoptotic intestinal epithelial cells.

The infected animals showed various degrees of histopathological changes similar to what is shown earlier in mice and humans with sepsis,the most striking feature being a subepithelial oedema with a band of neutrophils underneath, especially in the small intestine. There were no differences in the number of apoptotic cells between infected and uninfected pigs.

In conclusion, changes in the intestine of the infected pigs are similar to what is seen in humans and could be detected even in this small study, thus it will be worthwhile to increase the focus on the intestine in future studies.