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Ear necrosis: solutions for a complex problem

Worldwide the problem of ear necrosis seems to become more and more important. Whereas the disease used to be season-related with a much higher appearance in autumn and early winter, nowadays we see this problem throughout the year. The problem usually begins in the nursery a couple of weeks after weaning. The first symptoms are very small lesions and scabs, but soon the lesions become necrotic surfaces. Sometimes 2/3 of the ear is affected and becomes necrotic.



Histologically we see the appearance of inflammation around the blood vessels with a disturbed peripheral blood flow and epidermiolysis as a consequence. The combination of a bad blood flow and toxin producing bacteria (*Staphylococcus*, *Streptococcus* and *Treponema*) on the surface of the ears will lead to necrosis. It is very typical to see that once the piglets are removed to the fatteners unit, the problem disappears very fast. To comprehend which factors that induce this problem the different changes have to be studied closely.

The problem of ear necrosis is multifactorial, but most factors can be related to stress. The different stress-factors can be divided in four main groups: nutritional stress, environmental stress, health stress and managerial stress.

Nutritional stress

Mycotoxins are known to evoke ear necrosis. Sometimes the problem can be controlled by simply adding a high quality mycotoxin binder (eg. Vitafix Ultra) to the feed. Additionally, water of low quality can cause problems with ear necrosis. Therefore it is important to check the quality of the water at least every half year. By changing the nutritional content of the feed it is sometimes possible to decrease the severeness of the problems. Crude fiber content, Magnesium, tryptophan content, decreasing protein levels, ... are all actions that can help solving the syndrome. By taking these measurements performance of the piglets often go down.

Environmental stress

After weaning, piglets have to cope with a lot of environmental changes. They are put in different groups, in a new pen with a different climate. It is known that decreasing stocking density and improving the climate of the nursery by reducing humidity and draughts, can have a big impact on the prevalence of ear necrosis. Piglets that are housed on a partially concrete floor show less problems compared to piglets on a plastic grinding.

Health stress

When bacteria die endotoxins are produced in the piglets gut. These endotoxins can, just as mycotoxins, evoke ear necrosis when the barrier function of the gut is under pressure. Some bacteria can produce exotoxins (staphylococcus, streptococcus, treponema) which try to enter the body through wounds and scratches on the ears and again induce ear necrosis. There is seen a positive correlation between ear necrosis and immunosuppressive diseases like PCV and PRRS. Control of these diseases is essential in the battle against ear necrosis.

Managerial stress

In modern swine husbandry early weaning is something which often appears. Piglets that are weaned very early (< 24d) show more often problems with ear necrosis compared to piglets that are weaned a few days later. There is a close relationship between ear necrosis and feed intake just before and after weaning. So different feeding strategies around weaning can be a solution to reduce managerial weaning stress.



Impact of ear necrosis

In general the appearance of ear necrosis is considered to have little effect on piglet performance, at least when the lesions are only mild to moderate. However the unsightly visual appearance could interfere with the sale of affected pigs and raise welfare concerns. Therefor farmers are very sensitive for this problem and want to solve it by any means.

In practical conditions it is not always easy to counter all these different factors who will lead to ear necrosis. Therefor Nuscience developed a simple nutritional solution which tries to tackle all provoking stress factors at ones. **Vitatip** is a functional feed ingredient with a mode of action which counters stress on three different pathways.

1) Counteracting toxins

When myco/endotoxins are entering the piglet, the body will react with a sympatic reaction which leads to vasoconstriction of the outer arteries and to the production of cytokines. **Vitatip** has the ability to bind different sorts of toxins and this way counter the bad effects of myco- and endotoxins

2) Scavenge free radicals

When piglets are facing stress there will be a high amount of free radicals produced. These free radicals attack the tight junctions of the gut barrier, and make this gut more permeable for all sorts of pathogens/toxins. **Vitatip** will scavenge these free radicals before they can attack the gut. This way the piglet is protected against most of the bad effects that are stress-related.

3) Support the immune system

Prevalence of ear necrosis is often linked to immune suppressive pathogens like Circovirus, PRRS, ... **Vitatip** supports the immune system which will lead to a healthier population. Healthier piglets with a higher immune status will be less vulnerable for ear necrosis.

Conclusion

Although the different causes of ear necrosis can vary in different cases, we see that weaning stress in all its forms (nutritional, environmental, health and managerial) is always involved. By trying to avoid all the different

types of stress, and by adding **Vitatip** to the feed we can reduce the symptoms of ear necrosis and eventually prevent the problem from appearing at all.