BPEX Knowledge Transfer
NADIS Health Bulletin

NADIS Pig Health - September 2006
Erysipelas

Erysipelas is a bacterial disease of pigs that can also occur in turkeys and sheep. It is caused by the organism *Erysipelothrix rhusiopathiae*, which is widespread in the environment and carried by many wild animals without being evident. The pig is particularly susceptible to it and, in the absence of vaccination, the disease can be a major problem.

There are many different strains of the bacteria, with vaccines only covering the 2 most common strains. Routine strain identification is not performed in the UK but experience suggests that vaccination is effective and the strains not covered are rare.

Clinical Presentation

The disease can present in a multitude of forms:

1. Peracute. Either presenting as sudden death or as a severe septicaemia with high temperature, lethargy, inappetance, lameness. Death is rapid. This form is most commonly seen in growers, although occasionally occurs in young adults.
2. Acute. The classic "Diamonds" in which body temperature will rise dramatically and red raised diamond shaped blotches appear, particularly over the back. The pigs will be lethargic and reluctant to move about.
3. Reproductive. As a result of acute infection in the pregnant sow abortion can occur at any stage of pregnancy. Pigs born to sows/gilts infected in late pregnancy may be born alive and develop classic "Diamonds" within a few days of birth.
4. Chronic. The after effects of Erysipelas infection can be extremely serious with a number of possible consequences:-
   a. Skin necrosis. Following recovery from the acute form, areas of skin will die and slough off. This can particularly affect the ears, skin over the scrotum and occasionally the lower legs.
   b. Lameness. As part of the recovery process, the immune reactions in some individuals may be excessive and produce an arthritis, which is severe and irreversible. In these cases, the organism is not found in the joints as it has long since passed.
   c. Endocarditis. Following acute infection, the organism can "seed" onto the valves of the heart and grow into cauliflower like lesions which compromise heart function. Affected animals usually drop dead. It is unusual, though not impossible, to see this form of the disease without having seen "Diamonds" in the 2-3 weeks preceding in at least some of the pigs. Occasionally, this form of Erysipelas will present as an explosion of mortality in growing pigs.

Fig. 1: *Chronic 'diamonds' in acute erysipelas.*

Fig. 2: *Shin sloughing in a recovering pig. Sometimes ears and tails or even feet can suffer dry gangrene and sough off.*

Fig. 3: *Permanent crippling arthritis as a chronic consequence of erysipelas in a weaner/grower.*

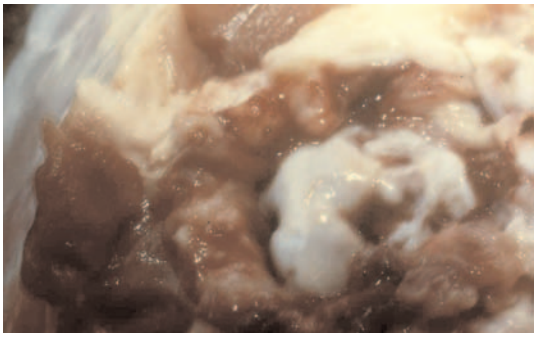

Fig. 4: *Chronic osteoarthritis as a result of erysipelas infestation.*

Treatment

The acute form of the disease is rapidly and effectively treated with Penicillin, although inadequate dosing can allow the chronic form of the disease to prevail. Raised body temperatures will come down to normal within 8-10 hours of injection and apparent full recovery occurs within 24 hours, provided early treatment is given.

Where an outbreak of disease occurs within a population, mass medication using either penicillin or amoxycillin in water or in feed may be necessary. This is particularly necessary in outbreaks of the chronic endocarditis form of the disease.

The chronic lameness form of the disease does not respond to treatment and pigs require humane destruction.

Diagnosis

The diagnosis is usually reached on clinical or post mortem examination, by culture of the causative organism in the laboratory. The organism is usually easily grown from heart lesions in endocarditis cases, and can be found within the body of aborted piglets.

The reproductive and chronic lameness forms of the disease require diagnosis by serology, measuring levels of immunity to Erysipelas. Care is needed in interpreting single samples but, in general, a clinical case will give high titres (1:1000 or more is common) whereas a titre of ~ 1:160 or less tends to suggest either reaction to vaccine or contact with infection without disease.

Control

The pig is so susceptible to Erysipelas and the organism so ubiquitous that it should be regarded as standard practice to vaccinate breeding stock using one of the commercially available vaccines. A primary course of 2 doses (separated by 2-6 weeks as appropriate depending upon the vaccine used) is needed, followed by booster doses given every 5-6 months.

The sow is most susceptible to disease in late pregnancy and booster vaccines given 3 weeks prior to farrowing will give maximum protection to both sow and litter.

Do not forget boars.

It is not usual to vaccinate growing pigs unless there is known to be a problem, or in breeding stock where the chronic arthritic form can compromise breeding ability. Growing pigs where appropriate can be vaccinated from 6 weeks of age.

The organism will survive many months in damp conditions and the disease is seen far more commonly in deep straw yard finishing systems than in fully slatted finishing accommodation, particularly in warm weather.

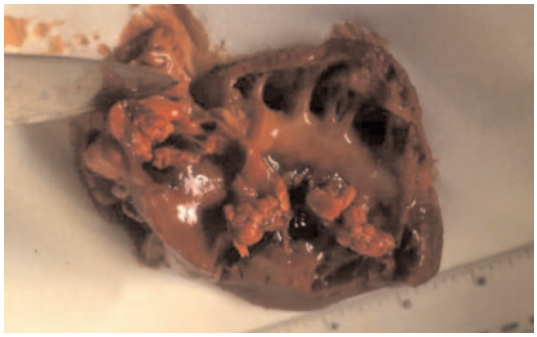

Fig. 5: *Vegetative (cauliflower) accumulation as heart valves leading to sudden heart failure.*

Rodents and wild birds carry the organism and contamination of feed or environment can often be the trigger for disease to occur. Proper control of such animals is an essential component of all disease control programmes.

The susceptibility of the pig to Erysipelas and the ubiquitous nature of the organism means that vaccination of breeding stock is essential. Whilst several strains exist, the most frequently encountered are covered by commercially available vaccines. By way of illustration, the cost of vaccinating a 500 sow breeding herd would be approximately £300/year assuming 20p /vaccine dose @ 40% replacement rates. However an abortion outbreak affecting 15 litters (an easily seen occurrence) would lead to a shortfall of 150 pigs weaned worth more then £2250 in addition to 3 or 4 dead sows. This takes no account of infertility or any knock on effects in growing pigs.

Chronic erysipelas in growing pigs, particularly in straw yards is more difficult to quantify. Outbreaks of endocarditis whilst unusual, can be devastating but more commonly chronic arthritis will occur with up to 1% of pigs unmarketable and a further 1% or more condemnation rate at slaughter. Add to this the fact that carcasses with partial condemnation are downgraded, then the cost per 100 finishing pigs can exceed £200. It should be born in mind that vaccination of weaners alone will not prevent the arthritic form of the disease. A programme of sow vaccination - preferably prior to farrowing rather than at weaning, hygiene, pest control and weaner vaccination is more appropriate.