
Swine vesicular disease

A contagious viral disease of pigs, swine vesicular disease (SVD) is characterised by the appearance of vesicles around the coronary bands of the feet, and to a lesser extent on the snout, lips and tongue.

It is not a fatal disease and results in only minor set-backs to fattening schedules, but its clinical similarity to foot and mouth disease, vesicular stomatitis and vesicular exanthema of swine, means that it cannot be tolerated in countries normally free from these diseases.

Geographical distribution

SVD first appeared in Italy in 1966 and during the past decade there have

been sporadic outbreaks in the Federal Republic of Germany, France, Great Britain, Hong Kong and Italy.

Cause

Family, Picornaviridae; genus *Enterovirus*. The virus is closely related to human enterovirus Coxsackie B-5.

The virus is very stable under normal temperatures and conditions and survives almost indefinitely when refrigerated. During infection large amounts of virus are shed into the environment and it is possible for detectable amounts to persist for up to 11 weeks in crevices in farm buildings even after rigorous cleaning and disinfection. SVD virus has been

isolated from the surface and gut tracts of earthworms collected from the soil above burial pits containing the carcasses of infected pigs and from throat and nasal washings of people working with or in the vicinity of infected pigs. Tissues of pigs can contain large amounts of virus before clinical signs are apparent and it is therefore possible for contaminated meat to enter the food chain. Since the virus is unaffected by the pH change of rigor mortis, it will persist almost indefinitely in refrigerated pork.

The virus can survive in some pork products and has been isolated from dried smoked salami more than a year after manufacture. By-products such as gut casings, endocrine glands, and tissues

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used for enzyme preparations can readily serve as sources of virus if taken from infected pigs.

Disinfection procedures which have been used in UK include the spraying of dead pigs and pens with an alkaline disinfectant. Manure and other debris are cleared by mechanical or manual means. All surfaces are cleaned with an industrial detergent solution based on sodium metasilicate. Following thorough cleansing, surfaces are heat-treated with flame guns and sprayed if possible while warm with 1% sodium hydroxide solution. After 48 hours the surfaces are washed with water. Fourteen days later a further caustic soda spray is applied followed by a wash. Materials unsuitable for the above treatment are destroyed.

Host species

Swine and humans.

Transmission

Following infection, large quantities of virus are produced in the secretions or excretions, especially during the first seven days of the disease.

Spread within herds is primarily by contact of susceptible pigs with infected pigs or with excretions from infected pigs. Faecal contamination is the major source of virus spread. Infection is contracted orally or by viral contamination of skin wounds or scratches.



Fig 15: Lesions on the foot of a pig with swine vesicular disease.

Tissues of infected pigs contain large amounts of SVD virus before clinical signs are apparent and, due to the mild nature of the disease in some cases, it may not be recognised and reported promptly. Contaminated pigmeat may thus find its way into the food chain.

Indirect transmission can occur via contaminated mechanical vectors such as livestock trucks.

Clinical signs

The sudden appearance of lameness is usually the first sign of SVD. There is an elevated temperature and lesions occur along the coronary band and interdigital spaces of one or more feet. Vesicles appear and rupture resulting in ulcerous skin lesions on the snout, buccal cavity, tongue and teats. The vesicles are indistinguishable from those of foot and mouth disease.

The incubation period is 2-4 days for vesicles, 5-6 days for generalisation of infection with vesicle formation at secondary sites.

Recovery is usually rapid with pigs returning to normal within three weeks. Morbidity is moderate and mortality is usually low.

In humans it has occurred only in laboratory workers and infection has caused symptoms similar to those experienced by Coxsackie virus infections.

Diagnosis

The specimens collected for laboratory confirmation are vesicular fluid, vesicular epithelium and serum from live animals. From dead animals lymph node, thyroid, adrenal, kidney or heart are taken. Vesicular lesions and other tissues fixed in 10% formalin are collected for histopathology.

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Risk of introduction

SVD is an uncommon disease and under current policies the risk of its introduction is considered to be low.

Uncooked and cured pigmeat products from infected areas would pose the most likely route of entry.

Effects of introduction

Diagnosis of any vesicular disease would immediately halt export of all animal products until confirmation that it was not foot and mouth disease.

If SVD were introduced to New Zealand's susceptible pig population, disease incidences of 80-90% could be expected. The pig-farming sector would lose export markets for pigmeat until at least 6 months after the disease was eradicated.

Because SVD virus can experimentally infect sheep, some markets for sheep and sheepmeat could be affected.

Prevention

There is no importation into New Zealand of pigs or pig products from countries with SVD.

By law, all garbage fed to pigs in this country must be cooked.

Control

Control measures, should the disease occur in New Zealand, would include the following:

- the complete quarantine of infected premises and the issuing of an Infected Place Notice;

- the tracing of susceptible animals, people and animal products coming on to and leaving the infected premises;
- the defining by the Chief Veterinary Officer of an Infected Area around the Infected Place(s). This area will be subject to strict quarantine, surveillance and movement control procedures;
- the slaughter of all affected and in-contact animals;
- the adequate disposal of carcasses;
- the cleaning and disinfection of Infected Premises;
- the re-stocking of farms under strict surveillance.

Further reading – refer page 27

4, 5, 8, 10, 11, 15, 18, 19

Further reading

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Fig 15: Lesions on the foot of a pig with swine vesicular disease.