

VII. — PATHOLOGY

**Control on normal healthy swine of the pharmacological properties
of an injectable highly concentrated oxytetracycline product**

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We checked the bio availability of Terramycine injectable 100 mg/ml solution on healthy swine.

The animals were injected intra muscularly (IM) or subcutaneously (SC) with 2.5-5 or 10 mg/kg b.w. Blood levels were controlled on 104 pigs of 20 kg b.w. and 72 of 100 kg b.w. With reference to the « effective blood levels area » between 2 or 4 hours and 24 hours post injection, we found :

- I. M. is better for 20 kg b.w. pigs but S.C. is equivalent to I.M. in 100 kg b.w. animals ;
- at the same dose level, the « yields » are better in 100 kg than in 20 kg b.w. swine.

Residues were controlled on 86 sacrificed swine.

We determined the absence of residue even in the kidneys at the highest dose from 10 days post injection.

**Influence of passive immunity
on the response of piglets to viral infections.
Application to classical swine fever**

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Passive immunity derived from the maternal colostrum and milk is useful for the animal as it provides a passive protection, but it often hinders an active protection after early vaccination. An attempt was made to determine the influence of this passive immunity on the induction of

active immunity by using pigs previously injected with variable amounts of swine fever antivirus immunoglobins.

The vaccine used was an attenuated strain of swine fever virus : the Thiverval Strain. The immune response was estimated as follows :

- by the kinetics of appearance of the neutralizing serum antibodies, studied by means at seroneutralization in cell culture ;
- by resistance of the pigs after challenge with the virulent strain.

Vaccination per parenteral route with 10^4 UFP of the thermosensitive strain was compared with that performed per intranasal route using 10^5 UFP of the same strain.

The results obtained were the following :

1. In the absence of passive immunity :
the immune response of the pigs was the same whatever the route of administration of the vaccine : early, intense and long lasting.
2. In the presence of passive immunity of low intensity :
at the moment of the primary response, the production of neutralizing antibodies was partly inhibited. However, the animals resisted to the challenge with the virulent strain.
3. In the presence of passive immunity of high intensity :

At the moment of the primary response, production of antibodies was entirely inhibited. A large proportion of the animals resisted to the challenge with the virulent strain, practised at a period when the passive antibodies had disappeared.

The kinetics of appearance of neutralizing antibodies of the secondary type showed that this resistance was due to an active immunization.

Swine fever vaccination of piglets in natural conditions with the « Thiverval » strain in presence of colostrum derived passive immunity

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The « Thiverval » strain is a cold mutant of swine fever isolated in tissue culture at 29-30°C. Because of its immunizing properties and its innocuity, this strain is used as live vaccine. 142 piglets born from sows immunized or not against swine fever several months ago, were vaccinated with Thiverval strain in natural conditions between the 10th and 90th day of life using per nasal, per os or intramuscular route. The colostrum derived passive immunity and the active immunity induced by vaccination were determined by means of challenge with virulent Alfort strain and by means of titration in tissue culture of specific neutralizing antibodies of serum. Seroneutralizations were made in cell cultures by means of immunofluorescent techniques.

In absence of passive immunity, vaccination performed in 18 days old piglets was efficient. In piglets from immune sows, vaccination was unefficient on days 10, 13 and 28 of life, because of the too high level of passive immunity. But on day 46, active immunization became possible. Piglets were protected against virulent infection (challenge) on days 54-55 of life. Results from