

MELIOIDOSIS IN INTENSIVE PIGGERIES IN SOUTH-EASTERN QUEENSLAND

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Melioidosis was unexpectedly diagnosed in 140 pigs from seven intensive piggeries in the Central Burnett region of Queensland, 250 km south of the Tropic of Capricorn, between June 1981 and August 1983.

Porcine melioidosis is diagnosed commonly in wet tropical Queensland (around Townsville), with the bulk of diagnoses being made soon after the summer "wet". Sixty-two cases were diagnosed there between 1974 and 1982. Porcine melioidosis has not been diagnosed in any other Australian State.

All cases from the Central Burnett region were diagnosed when abscesses were detected at meat inspection in clinically normal bacon pigs. No lesions were detected in sows. Abscesses typically consisted of a homogeneous moist or dry caseous exudate contained in a thin spherical capsule. The colour was usually light green; occasionally off white. Very

early lesions in bronchial lymph nodes consisted of small amounts of very viscous, homogeneous, light-green pus with no apparent encapsulation. Thirty-nine percent of lesions were in bronchial lymph nodes and 35% in the spleen. Other sites of isolation in decreasing order of frequency were: lung, gastro-hepatic lymph node, liver, cervical lymph node, kidney, superficial inguinal lymph node, seminal vesicle, uterus and heart. The high isolation rate from the bronchial lymph node is an unusual finding that suggests pigs may be infected by the respiratory route.

Pseudomonas pseudomallei was readily isolated from lesions, especially soon after the first diagnoses were made in a year. In February, March and April 1982, *Ps. pseudomallei* was isolated from thirty-six of thirty-nine splenic abscesses submitted for culture.

Cultures of normal organs of twenty pigs with melioidosis abscesses elsewhere were negative. The organism was cultured from the faeces of one pig with extensive lung and kidney lesions.

The likely sources of infection are soil and/or water. All piggeries with cases are within 40 km of one another and draw their water from the Burnett River or a tributary. All are intensive units and, except for half the sows in one piggery and occasional lame sows on other units, pigs do not have access to soil. Therefore river water is considered to be the most likely source of infection. Water and soil samples are being examined for the presence of *Ps. pseudomallei*. Water was initially examined by culturing the sediment of centrifugal litre samples. Recently Moore's swabs have been used. Soil samples were collected at five different levels from various sites. Sludge from storage tanks was also cultured.

To date 854 soil and 183 water samples have been examined without yielding *Ps. pseudomallei*. A pseudomonad with similar morphological and biochemical patterns has been isolated on over twenty-five occasions.

Thirty rats have been autopsied but none showed lesions and *Ps. pseudomallei* was not isolated from twenty that were cultured.

Cases of melioidosis follow high rainfall and river freshes. During early 1983 the Burnett River was almost static. No cases of melioidosis occurred during this time. However, cases were detected at slaughter 2 weeks after the drought broke.

Water intakes of the seven piggeries with cases, and another five piggeries without cases, were investigated to identify features that could explain the presence or absence of infection. Of the five "clean" units, four draw water from rocky, gravelly or sandy waterholes and three of these four use an intermediate dam. The two units with the highest prevalence of melioidosis draw water from muddy holes and have no intermediate dam.

Marked differences in prevalence between piggeries has been a feature despite apparent similarities in their source of water and piggery management.

PIGS

An evaluation of seven serological tests has been undertaken on experimentally infected pigs. The indirect haemagglutination (IHA) test and the complement fixation with added pig serum (CFPS) test are now being used in serological surveys. Exposure to the organism appears to be less in south-eastern Queensland than in north Queensland. IHA titres have been detected in 33% of backfatters from properties in north Queensland where melioidosis has been culturally diagnosed, and in 6% of backfatters from piggeries with cases in the Central Burnett.

Melioidosis is now being diagnosed in animals outside its traditionally accepted geographic distribution in the tropics. The occurrence of cases in pigs in south-eastern Queensland is another example of this.