Diagnosis and Treatment of Swine Streptococcicosis

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Abstract [Objective] This paper aimed to sum up the clinical symptoms, pathological changes, diagnosis and control method of swine streptococcicosis. [Method] Ill and dead pigs were dissected and organs such as liver, kidney, spleen and lung were aseptically took to inoculate in sheep blood agar, respectively, with bacteria isolated and purified to Gram staining and microscopy. [Result] It was positive in Gram staining and hemolysis ting was formed on the sheep blood agar; the bacteria could ferment sucrose, sorbital, glucose, mannose, lactose and hydrolyze sodium hippurate. [Conclusion] Through drug sensitive test, it indicated that swine streptococcus suis was highly sensitive to cephalosporin, ciprofloxacin and penicillin, and showed resistance to kanamycin, oxytetracycline, streptomycin and gentamicin.

Key words Piglets; Streptococcus suis; Drug sensitive test

In August, 2012, there was a heavy rainfall widely in Qinhuangdao and Tangshan districts with severe flood disaster, in addition, due to low relief, part of pigs were swamped or washed away seriously. After the flood, there was an outbreak of a series of diseases in pigs with immunity declined. The infected pigs about 30 to 50 kg of weight were diagnosed with meningitis, septicemia, endocarditis, arthritis and pneumonia widely, indicating the swine streptococcosis. The author was exposed to part of the cases and thus made a summary of the diagnosis and treatment.

1. Clinical symptoms

The infected pigs mainly showed respiratory symptoms and arthritis quickly, with body temperature up to 40 to 43℃ and continuous fever, in details, characterized by respiratory signs including tachypnea, dry muzzle with serous or purulent secretion flowed out of the nasal cavity, and conjunctival flushing, tears. Moreover, it was purple red of the skin on the neck, ear, belly and lower limbs with bleeding point. The pigs were depressed and lost their appetite, some presented polyarthritis, characterized by joints swelling, lameness or paralysis, or lymph nodes suppuration and abscesses of submandibular, pharynx, neck and so on, they finally died due to weakness and paralysis. Some manifestations were neurological symptoms including grinding their teeth, foaming, circling movement, convulsions and falling to the ground with limbs paddling, and died because of paralysis. In a word, after pigs were infected with streptococcus, it had different clinical symptoms due to the different invasion sites and bacterial toxicity.

2. Pathological changes

2.1. Sepsis type It could be seen that the nasal mucosa turned purple red, with congestion and hemorrhage after the autopsy, and congestion of larynx and trachea with a lot of foam. Lung was also congested and swollen. Systemic lymph nodes showed different degrees of swelling, congestion and swelling. Spleen was one to three times of swelling, and presented dark red, edge with dark red hemorrhagic infarct zones. The other organs such as the mucosa of the stomach and small intestine, the kidney and mater had different levels of congestion and bleeding, moreover, the kidney was swollen and bleeding points of needle tip were visible in some brain sections.

2.2. Meningitis type After the autopsy, that congestion, bleeding, even hemorrhage of mater could be seen, and effusion under individual mater, dotted bleeding were visible in some brain sections, other pathological changes were the same with that of sepsis type.

2.3. Lymph node abscess type It could be seen that there was yellow glue peptone sample exudate, or fibrinous, purulent exudate in the joint cavity with abscess of lymph nodes. Cauliflower-like neoplasm could be seen in cardiac valve in some cases.

3. Diagnosis

It could be priliminarily diagnosed as swine streptococcicosis according to the morbidity, clinical symptoms and pathological changes. For further accurate judgement, laboratory diagnosis should be carried out, in detail, organs such as heart blood, liver, kidney, lymph node and brain and so on were subjected to smear or wafer, by Gram stain and microscopic examination, it could be diagnosed as streptococcus if single, double or short chain of gram positive coccus were found. The above-mentioned disease materials could also be inoculated in blood agar plate, after 24 to 48 h of cultivation at 37℃, β type of hemolytic small colony could be seen, that single pure colony was subjected to biochemical test and growth characteristics identification, indicating that it could ferment sucrose, sorbital, glucose, mannose, lactose and hydrolyze sodium hippurate. When injected with pathogenic bacteria in the animal infection test, experimental mice began to die on the fourth day, characterized by skin cyanosis, bleeding of liver, kidney, lung and heart, and 0.9 to 1.1 cm diameter of abscess in the injection sites with yellow-green pus. And there were no dead mice in the control groups. Moreover, the streptococcus could be re-isolated from the livers of dead mice, indicating that the isolated strain was pathogenic to mice. Susceptibility test showed that swine streptococcus suis was highly sensitive to cephalosporin, ciprofloxacin and penicillin, and resistant to kanamycin, oxytetracycline, streptomycin and gentamicin.

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