

INTISARI

GAMBARAN KLINIS, HEMATOLOGIS, DAN HISTOPATOLOGIS LIMPA MENCIT (*Mus musculus*) YANG DIINFEKSI *Streptococcus suis* ISOLAT PAPUA INDONESIA

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Streptococcus suis adalah penyebab berbagai penyakit pada babi, yang ditandai dengan meningitis, septikemia, artritis, pneumonia, dan kematian akut. *Streptococcus suis* terutama serotipe 2 bersifat zoonosis yang dapat menginfeksi manusia yang gejala spesifik meningitis. Studi ini bertujuan mengetahui potensi patogen isolat *S. suis* asal Papua melalui observasi *in vivo* pada mencit terinfeksi *S. suis*, ditinjau dari pengamatan gejala klinis, gambaran darah, dan histopatologi.

Sebanyak 18 ekor Mencit (*Mus musculus*) betina strain Balb/C berusia 6 minggu dengan berat badan antara 25-30 gram diaklimatisasi 3 hari di laboratorium hewan coba (*Practical Animal Laboratory* FKH UGM) diberi pakan dan minum secara *ad libitum*. Total jumlah mencit dibagi menjadi 6 kelompok dengan 3 ekor mencit per kelompok. Kelompok pertama merupakan kelompok mencit kontrol (tanpa infeksi *S. suis*), kelompok kedua hingga keenam merupakan kelompok mencit yang diinfeksi dengan suspensi *S. suis* standar 0,5 *Mc Farland* (sebanding dengan 10^8 CFU/ml) secara injeksi intraperitoneal berturut-turut dengan *strain* berasal dari Jerman (735), asal babi Papua (J123L dan J110), dan dua *strain* asal manusia di Papua (H076 dan H086). Darah mencit diambil melalui plexus retro orbitalis sebelum infeksi, setelah 3, 12, 18, 24, dan 36 jam setelah infeksi. Pasca infeksi semua mencit diamati gejala klinis sampai akhir penelitian (selama 14 hari). Pada akhir penelitian semua mencit dieutanasi dan dinekropsi, kemudian organ limpa diambil dan diawetkan dengan formalin 10% untuk dibuat preparat histopatologi dengan pengecatan HE (Hematoksilin-Eosin).

Hasil penelitian memperlihatkan adanya kematian mencit yang diinfeksi *S. suis* berbagai *strain* pada 24 jam (26,67%) dan 48 jam (20%). Mencit yang diinfeksi *S. suis* J123L isolat babi asal Papua memiliki persentase kematian paling tinggi pada 24 jam (66,66%). Gejala klinis mencit pasca diinfeksi *S. suis* memperlihatkan depresi, rambut kusam, mata bengkak berair, lemas, ascites, eritema, tremor, dispnea dan *tachypnea*. Gambaran darah mencit yang diinfeksi *S. suis* memperlihatkan leukopenia setelah 3 jam infeksi, leukositosis setelah 12 sampai 24 jam infeksi, kemudian leukopenia sampai ditemukan mati atau sampai hari ke-14. Gambaran histopatologis limpa mencit pasca diinfeksi *S. suis* berbagai *strain* terlihat adanya nekrosis, destruksi eritrosit, kongesti, degenerasi, dan infiltrasi sel radang. Berdasarkan hasil penelitian dapat disimpulkan bahwa *S. suis* isolat babi asal Papua bersifat patogen dan *strain* dengan kode J123L memiliki sifat paling patogenik.

Kata kunci: *Streptococcus suis*, babi, manusia, Papua, mencit, limpa, hematologi, dan histopatologi.

ABTRACT

CLINICAL SIGNS, HEMATOLOGY, AND HISTOPATHOLOGY SPLEEN OF MICE (*Mus musculus*) INDUCED BY *Streptococcus suis* ISOLATED FROM PAPUAINONESIA

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Streptococcus suis is a pathogen causing various diseases in pigs, which is characterized by meningitis, septicemia, arthritis, pneumonia, and acute death. *Streptococcus suis* serotype 2 is particularly zoonotic that can infect humans which specific symptoms of meningitis. This study aimed to determine the pathogenic potential of *S. suis* isolated from Papua through in vivo observation of infected mice, including clinical symptoms, blood profile, and histopathology of spleen.

A total of 18 female mice (*Mus musculus*) strain female Balb/C, 6 weeks old with body weight about 25-30 gram were acclimatized 3 days in practical laboratory animal FKH UGM given free access (ad libitum) of food and drink. The total number of mice were divided into 6 groups with 3 mice per group. The first group was control mice (without *S. suis* infection). The second to the sixth group were infected with *S. suis* suspension 0,5 Mc Farland standard (equal 10^8 CFU/ml) intraperitoneally injection strain from Germany (735), swine isolate originated from Papua (J123L and J110), and two human Papua isolates (H076 and H086). Mice blood was collected via retro-orbital plexus before infection, after 3, 12, 18, 24, and 36 hours after infection. After infection all of mice were observed clinical signs until the end of the research (during 14 days). At the end of the research all mice were euthanized and necropsied to take the spleen, then preserved with 10% formalin for histopathological preparations with HE (hematoxylin-eosin) staining.

The results showed that the mice died at 24 hours (26.67%) and 48 hours (20%) after infection. Mice that infected by swine isolate (J123L) revealed the highest percentage of deaths at 24 hours (66.66%). Clinical signs of post-infected mice were depression, dull hair, puffy and watery eyes, weakness, ascites, erythema, tremor, dyspnea and tachypnea. The blood profile of infected mice showed leukopenia after 3 hours infection, leukocytosis after 12 to 24 hours infection, and leukopenia until died or until day 14. Histopathologic spleen of mice after infected with *S. suis* included necrosis, destruction of erythrocytes, congestion, degeneration, and infiltration of inflammatory cells. Based on the results of this research could be concluded that *S. suis* swine isolates originated from Papua are pathogenic especially strain (J123L).

Keywords: *Streptococcus suis*, swine, humans, Papua, mice, spleen, hematology, and histopathology.