IDENTIFICATION OF MAJOR STREPTOCOCCUS SUIS SEROTYPES 2, 7, 8 AND 9 ISOLATED FROM PIGS AND HUMANS IN UPPER NORTHEASTERN THAILAND

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Abstract. Streptococcus suis serotype 2 infections occur in many provinces of northeastern Thailand. However, knowledge concerning the prevalence of the common S. suis serotypes (1, 1/2, 2, 5, 7, 8, 9, 14 and 16) among healthy and diseased pigs in upper northeastern Thailand remains limited. This study investigated S. suis isolates from pigs (healthy and diseased) and also from humans using 11 conventional biochemical tests, 16S rDNA PCR and sequence analysis and multiplex PCR genotyping of porcine cps and gdh. Thirty-three isolates were obtained between 2009 and 2012 from blood or cerebrospinal fluid of patients from northeastern Thailand previously diagnosed with S. suis infection, based on clinical symptoms and laboratory diagnosis using 11 biochemical tests and PCR detection of 16S rDNA and cps. Eleven S. suis isolates were obtained between 2006 and 2009 from diseased pigs with clinical signs and laboratory diagnoses. In addition, 43 isolates obtained from 741 nasal swab cultures of slaughtered pigs between 2011 and 2012 were included. All three methods showed similar sensitivity in detection of S. suis from clinical and diseased pig specimens, although in healthy pigs, the 11 conventional biochemical methods yielded 2.3% false positives, and the gdh PCR detection method exhibited 31% false negatives. S. suis was present among healthy pigs in 8 of 10 provinces in upper northeastern Thailand, giving an average prevalence of 5.7% (range 1%-17%) using conventional methods together with 16S rDNA PCR assay. False positives by conventional methods were due to species with similar phenotypes, such as viridian streptococci, and are not statistically different from those obtained with the 16S rDNA PCR method, and the false negatives using gdh PCR assay will require further investigation. As S. suis was recovered from both diseased and healthy pigs, raw or undercooked pork products should be considered unsafe for handling or consumption in these regions of Thailand.

Keywords: Streptococcus suis, identification, humans, pig, northeastern Thailand

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