Evaluation of a nested PCR test and bacterial culture of swabs from the nasal passages and from abscesses in relation to diagnosis of Streptococcus equi infection (strangles) - DTU Orbit (20/07/2019)

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Reasons for performing study: Streptococcus equi is the cause of strangles in horses. To improve diagnostic sensitivity, development and evaluation of DNA-based methods are necessary. Objectives: To evaluate diagnostic methods and observe the pattern of bacterial shedding during natural outbreaks. Methods: Two herds with natural outbreaks of strangles were visited over a period of 15 weeks and 323 samples originating from 35 horses investigated. The diagnostic use of a nested PCR test was evaluated using a collection of 165 isolates of Lancefield group C streptococci (species specificity) and swabs from nasal passages or from abscesses from horses infected with S. equi (diagnostic sensitivity). Results: All 45 S. equi isolates tested positive in the nested PCR, whereas no amplicon was formed when testing the other 120 Lancefield group C isolates. A total of 43 samples were collected from 11 horses showing clinical signs of strangles during the study period. The diagnostic sensitivity for PCR test was 45% and 80% for samples from the nasal passages and abscesses, respectively; the corresponding diagnostic sensitivity for cultivation was 18% and 20%. The diagnostic sensitivity was significantly higher for PCR than for bacterial cultivation. Furthermore, the shedding of S. equi in 2 infected horse populations was evaluated. An intermittent shedding period of S. equi of up to 15 weeks was recorded in this part of the study. It was also shown that shedding of S. equi occurred both from horses with and without clinical signs. Conclusions and potential relevance: The nested PCR test represents a species-specific and -sensitive method for diagnosis of S. equi from clinical samples. It may, however, be desirable in future to develop detection methods with high diagnostic sensitivity and specificity without the potential problems inherent in nested PCR.

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