Complicated infection caused by *Streptococcus suis* serotype 14 transmitted from a wild boar

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**Introduction:** *Streptococcus suis* is a zoonotic pathogen transmitted to humans from infected pigs. Nearly all human cases of *S. suis* are caused by serotype 2 organisms, and meningitis is the best-documented type of human infection. On rare occasions, *S. suis* can be transmitted to humans from wild boars.

**Case presentation:** Here we report a case where *S. suis* of serotype 14 was transmitted from a wild boar to a previously healthy 63-year-old man, causing meningitis, spondylodiscitis, a psoas abscess and a prolonged post-infectious inflammatory condition. The infection was treated with a long course of β-lactam antibiotics, but signs of inflammation were relieved only after the addition of corticosteroids. The isolate was found to harbour the virulence-associated gene *sly*.

**Conclusion:** *S. suis* of serotypes other than type 2 can be transmitted to humans from wild boars and the disease may become complicated. Increasing numbers of wild boars in some European countries calls for increased vigilance to this type of infection.

**Keywords:** meningitis; serotype; *Streptococcus suis*; wild boar; zoonosis.
polynuclear cells and S. suis

(b) A similar sequence as shown in (a) of the lower thoracic and lumbar spine. Arrows indicate regions of aberrant signal. (c) Coronary section of a CT scan demonstrating the abscess located in the right inguinal tract.

Discussion

In Sweden, more than 70 000 wild boars are shot annually, and the number of animals is steadily increasing. As wild boars in northern Germany are colonized with potentially human pathogenic S. suis isolates (Baums et al., 2007), it is likely that similar isolates are found also among Swedish wild boars. The present case is, to the best of our knowledge, the first describing a non-serotype 2 isolate transmitted from a wild boar to a human and is the third case of S. suis infection reported from Sweden (Christensen & Kronvall 1985; Gustavsson & Rasmussen 2014). The course of the infection described here was complicated, and, despite adequate treatment with antibiotics, an abscess developed. As the infection became so widespread, an intravascular focus was suspected, but repeated TEE and investigation of the aorta failed to detect this. The prolonged course with a high inflammatory activity was suspected to be due to a post-infectious condition rather than a persisting infection. In line with this, the

Investigations

The isolate of S. suis was determined to be serotype 14 by the Statens Serum Institute (Hillerød, Denmark) through agglutination with a latex kit and type-specific serum as well as by microscopic determination of capsule swelling according to Neufeld. The three methods gave concordant results. E-tests (BioMérieux) indicated that the isolate was sensitive to all antibiotics tested. The MIC for cefotaxim was 0.125 mg l−1 and for amoxicillin was 0.008 mg l−1. The isolate was tested for the presence of the virulence-associated gene sly, as well as for mrp and epf, believed to be markers of virulence in serotype 2 isolates, by PCR as described by Kim et al. (2010). A PCR fragment of the predicted size was obtained with primers hybridizing to sly, but no fragment was amplified with primers hybridizing to mrp or epf. A serotype 2 isolate (kindly provided by Susanne Sauer, Statens Serum Institute) and a serotype 5 isolate (Gustavsson & Rasmussen, 2014) were used as positive controls for the epf and mrp primers, respectively.

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inflammation declined rapidly with corticosteroid treatment without recurrence of infection. *S. suis* serotype 14 has been described in at least three cases of fatal infections (Gottschalk *et al.*, 1989; Takeuchi *et al.*, 2012; Watkins *et al.*, 2001). Thus, it seems that *S. suis* of this serotype has a high pathogenic potential. Nothing is known about the presence of the putatively virulent *S. suis* serotype 14 in wild boars, but the increasing numbers of wild boars in Sweden and the present case of severe infection calls for increased vigilance. Protective gloves should be worn when slaughtering wild boars and note should be taken regarding infectious symptoms if traumatic cuts are inflicted. Early antibiotic treatment should be initiated if symptoms occur.

**Acknowledgements**

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. This work was financed by the Swedish Governmental Funds for Clinical Research (ALF). We acknowledge the help of Susanne Sauer at the Statens Serum Institute and Göran Wassbeck at Lund University. The authors have no competing interests.

**References**


