P2289 Case report of mastitis non-puerperalis due to *Lawsonella clevelandensis* and its characterization by whole genome sequencing and evaluation of antimicrobial susceptibility

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Background:

*Lawsonella clevelandensis* is an emerging pathogenic bacterium: anaerobic, partially acid-fast, and first described in 2016. Between 2013 and 2018 a total of seven cases, mainly from North America, have been reported. All cases showed abscess formation with a mono-bacterial infection in different body sites. Two complete genome sequences exist for this species. To date, no antimicrobial susceptibility testing has been performed on this fastidious micro-organism.

Materials/methods:

*L. clevelandensis* was isolated from a patient with mastitis non-puerperalis. We characterized this isolate using routine methods including MALDI-TOF MS, Gram staining, 16S rRNA gene sequencing and evaluated susceptibility testing using the gradient diffusion technology against diverse antimicrobials. Whole genome sequencing (WGS) of extracted DNA was performed on the MiSeq™ Illumina platform.

Results:

Gram-labile pleomorphic rods were detected from a pus aspirate of a breast abscess after anaerobic incubation for 6 days. The isolate could not be identified by MALDI-TOF MS but partial 16S rRNA gene sequencing (704bp) showed 100% identity to *L. clevelandensis* reference sequences. Subsequent direct broad-range PCR from the aspirate confirmed this result. WGS analysis of the isolate produced a draft assembly of 1.87 Mb in 26 contigs with G+C content of 58.4%. The species was identified as *L. clevelandensis* by digital DNA:DNA hybridization with a difference of 4100 SNPs to the Type strain (CP009312). No resistance markers were found in the assembled genome. Susceptibility testing of 18 antimicrobials demonstrated low to very low MIC rates for all agents tested. The patient was treated with amoxicillin-clavulanate for 14 days and complete resolution of the abscess was observed.

Conclusions:

We report for the first time antimicrobial susceptibility results from the anaerobic, partially acid-fast bacillus *L. clevelandensis*, demonstrating no resistance traits with phenotypic as well as genotypic analyses. Our case represents the second case of this species in Europe and the eighth worldwide.