FACTORS THAT CONTRIBUTE TO THE SUCCESS OF PRIMARY ISOLATION OF *MYCOPLASMA GENITALIUM* IN UROGENITAL SAMPLES FROM MELBOURNE, AUSTRALIA

Authors:
Huaman JL[1,2,3], Chua TP[1,2,3], Danielewski JA[1,2,3], Plummer EL[2,4,5], Vodstrcil LA[4,5,6], Bradshaw CS[4,5,6], Jensen JS[7], Garland SM[1,2,3], Murray GL[1,2,3]

[1]Department of Obstetrics and Gynaecology, University of Melbourne, Parkville, Victoria, Australia, [2]Centre for Women's Infectious Diseases, The Royal Women's Hospital, Parkville, Victoria, Australia, [3]Molecular Microbiology Research Group, Murdoch Children's Research Institute, Parkville, Victoria, Australia, [4]Melbourne Sexual Health Centre, Alfred Health, Carlton, Victoria, Australia,[5]Central Clinical School, Monash University, Melbourne, Victoria, Australia, [6]Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, University of Melbourne, Parkville, Victoria, Australia, [7]Research Unit for Reproductive Microbiology, Statens Serum Institut, Copenhagen, Denmark

Background:
Mycoplasma genitalium is difficult to culture and consequently few laboratories do this. In the absence of culture, direct assessment of antibiotic susceptibility is not routinely performed, and our understanding of this organism is largely based on molecular analysis. In this study, we aimed to understand factors that influenced success in primary isolation of *M. genitalium* from clinical samples.

Methods:
Urogenital samples (89 urine and 53 swabs) were collected at Melbourne Sexual Health Centre from patients with a confirmed or suspected *M. genitalium* infection. Eligible patients presented for *M. genitalium* testing and treatment, as a sexual contact of a *M. genitalium* infection, or for a *M. genitalium* test of cure with symptoms. Samples were transported to the research laboratory fresh (same day of collection) or frozen (-80°C). Samples testing positive for *M. genitalium* by routine diagnostic test (Aptima® *Mycoplasma genitalium* Assay, Hologic) were washed twice and then inoculated into Vero cells with selective antibiotic mixture (Thayer Martin Medium II). Cells were incubated at 37°C with 5% CO_2 and observed daily. In-house quantitative PCR was used to test initial *M. genitalium* load and growth.

Results:
21.1% (30/142) of samples tested negative for *M. genitalium* by routine diagnostic test and were discarded. In our preliminary studies an isolate was obtained from 16% (18/112) of samples. *M. genitalium* growth was detected in 4.9% (2/41) of swab and 22.5% (16/71) of urine. Culture success was highly influenced by initial *M. genitalium* load, with isolation rates of 0% (0/74) in samples with 0-4 geq/µl, 28.6% (6/21) in samples with 5-19 geq/µl and 100% (17/17) in samples with ≥ 20 geq/ml. In total, 47.5% (52/112) of samples were overgrown by bacterial contamination, mostly from swabs.

Conclusion:
Isolation of primary *M. genitalium* cultures was most successful from urine samples, and in samples with high initial bacterial concentration.

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