

Oral and anal *T. pallidum* detection in men who have sex with men with early infectious syphilis: a cross-sectional study.

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Background

This study of men who have sex with men (MSM) with early syphilis determined the frequency of *Treponema pallidum* shedding from potentially asymptomatic sites and the stage with the most frequent shedding.

Methods

Primary and secondary syphilis lesions were swabbed. Non-lesion samples collected were oral rinse, oral cavity swab, anal canal swab, urine, and semen. Specimens were tested for *T. pallidum* using polymerase chain reaction assays targeting *poIA* and *47kDa* gene targets.

Findings

Two hundred men with serologically confirmed early syphilis were included: 54 (27%) primary, 93 (46.5%) secondary and 53 (26.5%) early latent cases. *T. pallidum* DNA was detected orally in 48 (24%; 95% CI: 18.3-30.5%) men by oral rinse and/or oral lesion swab, 24 with no oral lesion. Oral *T. pallidum* detection was most frequent

during secondary syphilis compared to other stages, (44%(41/93) versus 7% (7/107), $p < 0.0001$); and in men with rapid plasma reagin titres $\geq 1:64$ (32% (37/117) versus 13% (11/83), $p = 0.0026$). *T. pallidum* was detected by anal canal swab and/or anal lesion swab in 45/196 (23%; 95%CI: 17.3-29.5%) men, 10 with no anal lesion. Seventy-four percent (69/93) of men with secondary syphilis had *T. pallidum* detected at any site: 26% (24/93) had detection at ≥ 2 separate sites. *T. pallidum* was detected in 6% (12/198) of urine and 12 (6/50) of semen samples tested.

Interpretation

Unrecognised oral and anal shedding of *T. pallidum* may be a factor in sustaining syphilis transmission. Secondary syphilis may be the most infectious stage, with oral transmission possibly being important. Control should focus on early testing and treatment to prevent progression to secondary syphilis.

Declarations of interest

All authors declare no competing interests