



Molecular diagnosis of Lymphogranuloma venereum infection

Lymphogranuloma venereum infection is caused by *Chlamydia trachomatis*, a Gram negative non-motile, ovoid shaped bacteria. *C. trachomatis* consists of three biovars: serovars Ab, B, Ba and C cause trachoma; serovars D-K, cause urethritis, pelvic inflammatory disease, ectopic pregnancy, neonatal pneumonia and neonatal conjunctivitis; and serovars L1, L2 and L3 cause lymphogranuloma venereum (LGV).

Chlamydia is the most commonly diagnosed STI in the UK and the NCSP recommend that sexually active under-25 year old men and women should be screened every year, and on change of sexual partner. By comparison, LGV infection caused by L1, L2 and L3 serovars, was rare in Western Europe and the USA for many years, but outbreaks of infection have occurred amongst MSM more commonly in the UK since 2003, with most cases appearing in HIV positive individuals (van de Laar, 2006).

The health protection report for Lymphogranuloma venereum infections published by Public Health England in July 2016 revealed how LGV diagnoses in the UK had risen rapidly over the previous twelve years, with a sharper increase observed in the last three years recoded. The highest annual number of diagnoses in the UK LGV epidemic was reported in 2015 (946 cases). The number of diagnoses continued to rise in the first quarter of 2016 immediately before the report was published.

The clinical manifestations which arise from infection with LGV-causing *C. trachomatis* serovars can include: self-limiting genital ulcers or papules, tenderness in the groin region and femoral lymphadenopathy. Rectal exposure to these strains may also result in proctocolitis (inflammation of the rectum/colon) which can cause symptoms mimicking those caused by inflammatory bowel disease. Clinicians should therefore observe diligence when diagnosing patients with these symptoms and should always consider the patients sexual history. Asymptomatic infection may also occur (CDC, 2015).

LGV diagnosis is typically based on clinical suspicion, epidemiological information and the exclusion of other aetiologies for proctocolitis. Indeed, persons presenting with clinical syndromes consistent with LGV should be presumptively treated for LGV at the initial visit. The recommended course of antibiotic treatment for LGV infection is 100mg of doxycycline orally twice a day for 21 days, which is significantly longer than that recommended for treatment against general *C. trachomatis* infection (CDC, 2015). Therefore in order to prescribe the most appropriate and effective treatment plan, it is beneficial to the clinician to be able to confirm LGV infection via detection of *C. trachomatis* L1, L2 and L3 serovars.

Micropathology Ltd. uses a probe assay for qualitative detection of *C. trachomatis* LGV strains. The polymorphic membrane protein H gene (*pmp* gene) is targeted during PCR DNA amplification. It is the unique gap present in this DNA sequence in LGV strains of *Chlamydia trachomatis* compared to other serovars which makes this assay highly specific to L-type serovars.

Validated sample types for this assay include swabs, urine and tissue. Appropriate swab sites will include the rectum, vagina, penis and lymph nodes dependent on clinical presentation. By extension, rectal and lymph node biopsies are considered the most clinically relevant tissue types for *C. trachomatis* detection in suspected cases of LGV. First-catch urine specimens can be used when urethritis and/or inguinal lymphadenopathy is present and LGV is suspected as the cause. Enlarged or fluctuant lymph node or buboe aspirate may also be useful to test where a patient presents with inguinal lymphadenopathy (Ceovic and Gulin, 2015).

References

CDC (2005) 'Lymphogranuloma Venereum (LGV)' *Centers for Disease Control and Prevention*. Available at: <https://www.cdc.gov/std/tg2015/lgv.htm> [Accessed: 27/04/17].

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