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AMPATH LABORATORIES

GENITAL ULCER MULTIPLEX PCR

The majority of genital ulcers are caused by sexually transmitted infections (STIs). The pathogens most commonly responsible for genital ulcers include herpes simplex virus type 1 and 2, *Treponema pallidum, Haemophilus ducreyi, Chlamydia trachomatis serovars* L 1–3, as well as *Klebsiella granulomatosis*. The presence of genital ulcers increases the risk of acquiring HIV. These patients may be co-infected with other sexually transmitted pathogens, hence accurate diagnosis and appropriate management is important. In addition to the above pathogens, varicella zoster virus may rarely involve the genital area, and cytomegalovirus may present with genital ulceration in immunocompromised patients. Table 1 outlines test details, including genital ulcer pathogens screened for using the genital ulcer multiplex assay at Ampath Laboratories.

Monkeypox is a viral zoonotic infection caused by the monkeypox virus. Human-to-human transmission can occur through close contact with respiratory secretions, skin lesions of an infected person or recently contaminated objects. Although traditionally endemic to Central and Western Africa, a global outbreak started in May 2022 and was declared a public health emergency of international concern by the World Health Organization on 23 July 2022. The first cases of monkeypox were reported in South Africa during the last week of June 2022. Most cases have been reported in men who have sex with men, leading to the theory that it was transmitted during close sexual contact. Monkeypox should therefore be included in aetiological agents screened for in patients who present with a genital ulcer. A PCR is available at Ampath Laboratories using the mnemonic MONPOXPCR.

An analysis of genital ulcer PCR test results for specimens submitted at Ampath Laboratories over a period of two years revealed a diverse aetiology of pathogens causing genital ulceration (Figure 1). Sixty-two percent of all specimens submitted for testing were positive for one or more pathogens. Herpes simplex type 2 was the most common pathogen detected (31%), followed by cytomegalovirus (21%). Co-infections were detected in 15% of samples testing positive. The most common co-infection was with HSV2 and CMV. The multiplex genital ulcer PCR has a competitive price in comparison to the standalone HSV PCR and is thus a cost-effective alternative test to request in patients with genital ulcers.

TABLE 1: GENITAL ULCER DISEASE MULTIPLEX PCR TEST DETAILS

Organisms detected*	**Comments**
Herpes simplex virus type 1 (HSV1)	Causative agents of genital herpes. Multiple vesicular lesions that rupture and become shallow painful ulcers. Constitutional symptoms may be present in primary infection. Generally regarded as the most common cause of genital ulcers.
Herpes simplex virus type 2 (HSV2)	
Varicella zoster virus	Herpes zoster may involve the genital area. Clinically resembles genital herpes.
Cytomegalovirus (CMV)	Genital ulceration in immunocompromised patients.
Treponema pallidum	Causative agent of syphilis. Single, painless, well-demarcated ulcer (chancre) with a clean base and indurated border. Presentation may be atypical with multiple ulcers in HIV-positive patients. Perform in conjunction with syphilis serology.
Haemophilus ducreyi	Causative agent of chancroid. Painful genital ulcer/s with necrotic base and tender fluctuant inguinal lymphadenopathy.
***Chlamydia trachomatis* serovars L 1–3**	Causative agent of lymphogranuloma venereum. Small painless genital or rectal papule or ulcer without induration. Tender inguinal lymphadenopathy. Outbreaks have been described among men having sex with men (MSM). May present with rectal pain, bleeding or discharge if rectal involvement. Tenesmus and constipation may also be present in these cases.
Validated specimen types	Genital ulcer swabs, liquid-based cytology, bubo aspirate and rectal swabs.
Mnemonic	**GENULPCR**
Turnaround time	48 to 72 hours (from being received in the laboratory)

* Does not detect *Klebsiella granulomatosis*, the causative agent of granuloma inguinale (donovanosisis). This pathogen is difficult to culture and can be detected by observing Donovan bodies on stained smears prepared from tissue biopsy.

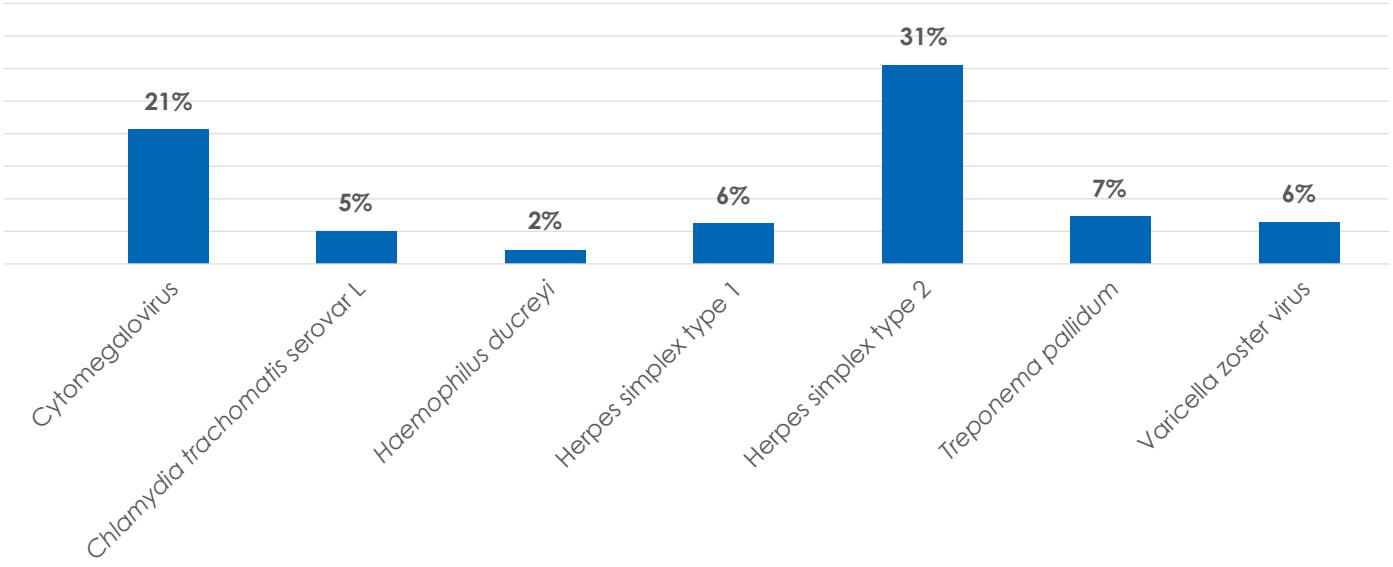

FIGURE 1: PATHOGENS DETECTED BY THE GENITAL ULCER PCR (PERCENTAGE POSITIVE)

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