



August 31, 2022

Dear colleagues,

The World Health Organization (WHO) declared the increasing monkeypox outbreak a public health emergency of international concern (PHEIC). As case numbers are increasing across the world, optometrists may encounter patients with either diagnosed or undiagnosed monkeypox. From an eye care perspective, monkeypox has several ophthalmic findings. Abdelaal et al (2022) have outlined these clinical findings in their recent paper published in *Eye*; the information presented following is summarised from their paper, and other sources.

The characteristic skin lesions caused by monkeypox virus most frequently tend to be more concentrated on the face (in 95% of cases) and the palms of the hands and soles of the feet (in 75% of cases) (WHO 2022). The rash typically progresses sequentially from macules (lesions with a flat base) to papules (slightly raised firm lesions), vesicles (lesions filled with clear fluid), pustules (lesions filled with yellowish fluid), and crusts which dry up and fall off (WHO 2022, CDC 2022). These lesions are an early presentation during monkeypox, usually beginning within 1-3 days after the onset of fever (WHO 2022). The skin lesions may resemble those of the rash found in Herpes/Varicella Zoster rash and are thus an important differential diagnosis. A further early sign, consistent with viral infections, is enlarged lymph nodes (lymphadenopathy), including the pre-auricular lymph nodes, occurring in around 70% of cases (Huhn et al, 2005). There may be other non-specific symptoms such as headache, fatigue, muscular ache (McCollom and Damon 2014), with frontal headache reported as an early symptom in some 65% of patients (Huhn et al 2005).

Conjunctivitis and lid oedema are common and importantly, focal conjunctival and lid margin lesions were found to have a higher incidence in unvaccinated patients with confirmed monkeypox (Ježek et al 1987, Reynolds et al 2017). Additionally in patients with “conjunctivitis”, a higher frequency of other symptoms, including nausea, chills, sweating, oral ulcers, sore throat, general malaise, lymphadenopathy, and photophobia was found compared to those with no reported “conjunctivitis” (Hughes et al 2014). Hughes et al also found that 47% of patients with conjunctivitis reported being “bed-ridden”, compared to 16% of patients where “conjunctivitis” was not reported, suggesting the presence of conjunctivitis is possibly predictive of progression of the monkeypox infection.

Corneal involvement can range from mild to severe and is more typically a later clinical finding. Photophobia as a single symptom was reported by Ogoina et al (2020) in about 20% of affected patients. Virus infection which results in severe keratitis and/or corneal scarring is reported to occur in single figure percentages of patients (McCollum and Damon 2014, Ogoina et al 2020, Ježek et al 1988). A recent case report highlights a patient whose ocular involvement was a unioocular single white ulcer on the medial bulbar conjunctiva, and a small vesicular lesion on the lower eyelid (Benatti et al 2022).

It is important that optometrists consider monkeypox virus as a potential differential diagnosis when they encounter patients who present with clinical signs of viral infections (typically conjunctivitis, blepharitis, keratitis, and corneal lesions), particularly in regions where monkeypox is spreading, where patients have visited countries where monkeypox is prevalent, and in patients who represent higher risk groups for



monkeypox infection. Appropriate infection control is required if patients present with skin lesions, as they are contagious while the skin lesions are present, until skin lesions resolve and a new skin layer forms (CDC 2022).

The American Optometric Association has additional monkeypox information on their website. This may also be of interest to colleagues.

Sincerely,

Peter Hendicott
WCO President

References

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