A case report of a patient with ocular manifestation of monkey pox

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Abstract

Introduction: Monkey pox (Mpox) is a rare viral zoonotic disease caused by a double stranded DNA virus. Monkeys are the primary host; the specific animal reservoir remains unknown. Mpox can spread through close contact with an affected person, contact with contaminated material or direct contact with live or dead infected wild animals. Clinical presentation can vary widely from a mild, self-limiting illness to a severe disease with life-threatening complications in immunocompromised individuals. Most individuals with Mpox experience a self-limiting illness and typically recover fully within two to four weeks after onset of symptoms. Ocular involvement is a serious complication that can lead to blindness. Treatment is mostly supportive. Antiviral therapy can be given in some circumstances.

Case: An eleven-year-old boy presented with a week's history of right lower eyelid swelling, followed by nodular rash involving the face and upper limbs associated with fever. He was seen at the eye clinic at Kenyatta National Hospital and admitted to the infectious disease unit with differential diagnoses of mpox blepharoconjunctivitis and molluscum contagiosum conjunctivitis. Lesion swabs done and sent for PCR were positive for monkey pox virus. The patient was managed by a multidisciplinary team involving Dermatology and Ophthalmology and was discharged after eleven days of isolation.

Conclusion: Ophthalmologists and general clinicians should maintain a high index of suspicion for Mpox in patients presenting with vesicular or umbilicated lesions around the eyes, particularly during outbreaks or in those with epidemiological risk factors. There is need for multidisciplinary involvement in the management of patients for proper identification and effective treatment.

Key words: Monkey pox, ocular manifestation.

Introduction

Mpox is a rare viral zoonotic disease caused by a double stranded DNA virus of the Orthopoxvirus genus of the Poxviridae family. Its symptoms are like those of smallpox but less severe.[1] In 2022, the World Health Organization (WHO) renamed the disease to Mpox in alignment with modern guidelines for disease naming. Mpox virus was first identified in 1958 among monkeys in a research laboratory in Denmark. The first human case was reported in 1970 in the Democratic Republic of the Congo.[2] Mpox is divided into two main clades: Clade I (formerly the Congo Basin or Central African clade, associated with more severe illness) and Clade II (formerly the West African clade). Each of these main clades is further divided into two subclades: Clade Ia and Ib and Clade IIa and IIb. Monkeys are the primary host; the specific animal reservoir remains unknown.[3]

Following the first detection of Mpox in humans, sporadic cases were reported in the rainforest areas of Central and West Africa. Large outbreaks were also identified, mainly in DRC. The disease is currently considered endemic in DRC.

Mpox was first reported outside Africa in 2003 during an outbreak in the United States of America.[3]

It can spread through close contact with an affected person, contaminated material or infected wild animals.[4]

Clinical presentation varied widely from a mild, self-limiting illness to a severe disease with life-threatening complications in immunocompromised individuals. The mean incubation period ranged from 2-21days. After the asymptomatic incubation period, patients typically had a prodrome of symptoms; fever, lymphadenopathy, myalgia,

malaise and headache before the appearance of a rash that lasts 1-5 days.

The characteristic clinical feature of mpox is painful skin lesion progressing through four stages over 2-4weeks. Lesions begin as macules, evolve into papules, vesicles and pustules which crust and desquamate in the final stage. It can also present with other complications such as proctitis, pharyngitis, urethritis and ocular disease. Diagnostic confirmation is achieved through molecular DNA amplification techniques of samples collected from lesions.

Most of the individuals with mpox experience a self-limiting illness and typically recover fully within 2 to 4 weeks after onset of symptoms. Ocular involvement is a serious complication since it can sometimes result in partial vision loss or even blindness.[5]

Treatment is mostly supportive. Antiviral therapy like tecovirimat, brincidofovir, and cidofovir is typically reserved for highly immunocompromised patients and those with very severe disease. Patients with ocular disease can be treated with systemic tecovirimat and topical trifluridine.[6]

Case Presentation

We report a case of a 11-year-old male with 1-week history of sudden onset of right lower eyelid swelling associated with redness, tearing, foreign body sensation, and photophobia. There was no reported history of pain, change in vision, or trauma.

He also had a 4-day history of nodular rash involving the face and upper limb associated with on-and-off fever.

His mother and younger sister had similar nodules on the face and trunk a week before the onset of his symptoms that resolved spontaneously.

His father is a truck driver and had come home from Democratic Republic of Congo 2weeks prior to onset of his mother and sister's symptoms.

Patient was seen at an eye hospital and on clinical examination, he was in a fair general condition, was afebrile, he had no lymphadenopathies and had umbilicated nodules on the face and upper limbs. (Figure 1-2)

For his right eye, his visual acuity was 6/9, there was limited extraocular muscle motility in all gazes. He had blepharospasms, lower lid edema with nodules on the upper lid and medial canthus, matted lashes and nodules on the upper and lower lid margins. His conjunctiva was injected with whitish discharge inferiorly. (Figure 3-4). He also had chemosis and symblepharon inferiorly. There were macropapillae on eversion of the lids. The rest of the anterior segment structures were normal, his posterior segment examination was also normal.

For his left eye, he had a visual acuity of 6/6, he had a normal anterior and posterior segment examination.

The eye examination findings of the patient were as shown in Table 1.

Table 1: Eye examination findings

Examination	Right Eye	Left Eye
Vision	6/9	6/6
Extraocular muscle motility	Limited in all gazes (-2)	Free
Lids and Lashes	Blepharospasms, Lower lid edema, nodules on the upper lid and medial canthus, matted lashes, nodules on the upper and lower lid margins	Normal
Conjunctiva	Injection, chemosis, symblepharon inferiorly, macropapillae on eversion of the lids, whitish discharge inferiorly	Normal
Cornea	Clear	Clear
Anterior chamber	Deep and Quiet	Deep and Quiet
Iris	Normal	Normal
Pupil	Round and reactive to light	Round and reactive to light
Lens	Clear	Clear
Fundus	CDR-0.3, Normal macula, Normal vessels	CDR-0.3, Normal macula, Normal vessels

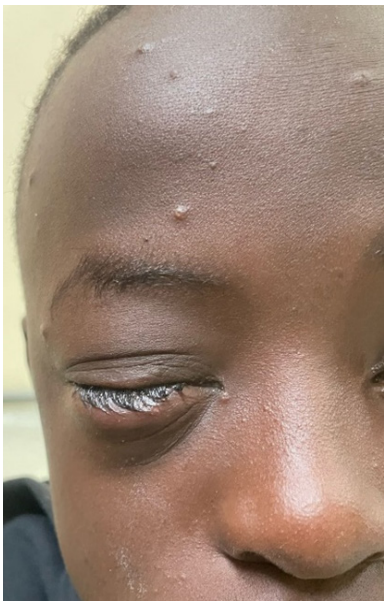

Figure 1: Umbilicated nodules on the forehead, right medial canthus and upper lid. (© Dr. Daryl Muyenzi)

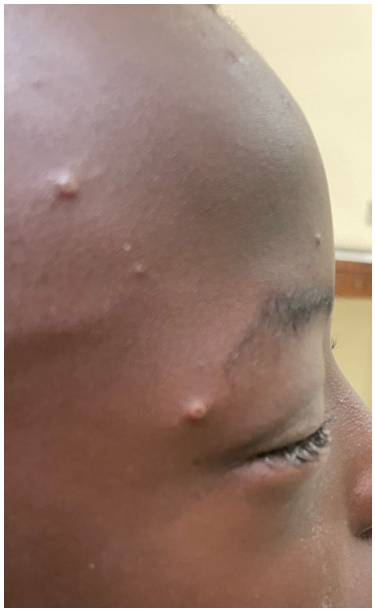

Figure 2: Umbilicated nodules on forehead and right upper lid. (© Dr. Daryl Muyenzi)

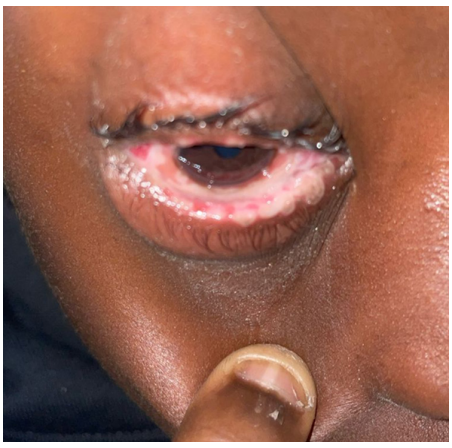

Figure 3: Matted lashes, nodules on the upper and lower lid margin with lower lid edema. (© Dr. Daryl Muyenzi)

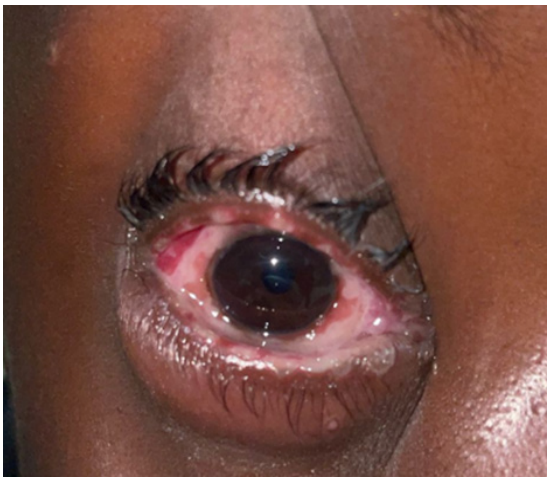

Figure 4: Conjunctival injection with whitish discharge on the bulbar conjunctiva. (© Dr. Daryl Muyenzi)

A differential diagnosis of right eye blepharoconjunctivitis secondary to monkey pox or molluscum contagiosum was made.

The patient was admitted to the infectious disease unit and was started on Lubtears 2 hourly, ciprofloxacin drops QID for bacterial superinfection, and cabomer gel nocte for the right eye.

Lesion swab was done, and the sample was taken for PCR. The results were positive for Mpox.

Dermatology team was also consulted, and the patient was started on calamine lotion for the skin lesions. The patient was discharged home after 11days in the infectious disease unit. By the time of discharge patient had a visual acuity of 6/12 in the right eye and 6/6 in the left eye. He had mild lower lid edema, nodules on the eyelid margin had resolved, conjunctiva was still injected, and he had symblepharon inferiorly. Cornea was clear and anterior chamber was deep and quiet. The persistent conjunctivitis and symblepharon in the right eye at discharge likely contributed to the reduced vision. He was discharged to come back for review at the oculoplastic clinic after 1 week but unfortunately, he got lost to follow up.

Discussion

Mpox virus infection has been associated with multiorgan presentations. Ocular involvement is a rare yet significant complication of the Mpox virus. It is unclear whether the ocular involvement is a result of the systemic spread of the virus in the early viremic phase of infection or is secondary to self-inoculation.[7] It is mainly an external disease, involving the lids and periorbita, conjunctiva, and cornea. Uveitis has also been reported. Retinitis, retinochoroiditis, optic neuritis, dacryoadenitis and ophthalmoplegia have yet to be reported.[8] Typically has a mild to moderate severity and a self-limiting course. Timely recognition and

proper management of the disease could reduce the risk of permanent ocular sequelae and disease morbidity.[7]

Treatment is mostly supportive and symptomatic management. Aggressive lubrication is recommended. Topical antibiotics may be necessary for prophylaxis of epithelial defects or bacterial superinfection. [9] Trifluridine may be considered in cases of conjunctivitis and is recommended in keratitis. Tecovirimat (Tpoxx) orthopoxvirus inhibitor is used to treat many orthopoxviruses, including Mpox.[10] Acyclovir and ganciclovir are not effective toward orthopoxviruses.[11] Acyclovir cannot replace trifluridine in cases of conjunctivitis and keratitis. In low-resource settings, supportive therapy remains the mainstay, and efforts should focus on early recognition, lubrication, infection control, and referral.

Conclusion

Mpox is one of the emerging infectious diseases that has been seen recently. Most public health awareness messages do not mention ocular involvement, and this can lead to delay in seeking medical attention which can lead to serious ocular complications that can lead to blindness. In low-resource settings, where access to laboratory diagnostics and antiviral therapy may be limited, early clinical recognition becomes critical. Ophthalmologists and general clinicians should maintain a high index of suspicion for Mpox in patients presenting with vesicular or umbilicated lesions around the eyes, particularly during outbreaks or in those with epidemiological risk factors. Patients presenting with periocular lesions and systemic rash should be promptly evaluated and isolated to prevent transmission. There is need for multidisciplinary involvement in the management of patients for proper identification and effective treatment.

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