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Monkeypox Presenting as Ototoxicity and Developing into Tinnitus as a Sequela: A Case Report

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ABSTRACT

A 35-year-old male with a history of AIDS presented to the emergency department with ear pain and discharge, subsequently developing tinnitus. The patient developed distinctive circular papules with central eschar on his face, neck, and upper extremities, characteristic of Monkeypox infection. While previous studies have documented various clinical presentations of Monkeypox such as rashes, encephalitis, tonsillitis, myocarditis, and bronchopneumonia, the manifestation of otalgia and tinnitus is unique to the literature. This case underscores the importance of recognizing new clinical presentations of Monkeypox to facilitate early diagnosis and reduce transmission. By understanding diverse clinical manifestations and potential complications, healthcare professionals can differentiate Monkeypox from similar conditions, leading to more accurate diagnoses and better disease management. Given the lack of clinically proven treatments, supportive symptom management and isolation precautions remain paramount.

BACKGROUND

Monkeypox is a zoonotic viral disease caused by the Monkeypox virus, a member of the Orthopoxvirus genus. Poxviruses are brick shaped and encompassed by a lipoprotein sheath with a linear double-stranded genome.[1] As of July 19, 2023 the CDC reports 88,549 global cases of monkeypox with 152 confirmed deaths.

A study by Philpott et al examined 1195 case report forms from 43 US states, Puerto Rico and the District of Columbia (DC). Among these 99% of cases were among men with 94% reporting male-to-male sexual or close intimate contact in the 3 weeks prior to symptom onset. 41% were non-hispanic White persons, 28% were Hispanic

persons and 26% were non-hispanic Black persons. 41% of cases reported a present HIV infection.[2]

Transmission occurs through direct contact with infected individuals, or contact with respiratory droplets, bodily fluids, or contaminated objects. Initially presenting with flu-like symptoms, followed by the development of the hallmark rash. 1 to 2 days of fever, lymphadenopathy, myalgia, and fatigue are characteristic of secondary viremia. Infected patients develop lesions beginning in the oropharynx, progressing to the face and extremities with centrifugal concentration.[1] The lesions progress through macular, papular, vesicular, and pustular phases over the following 2-4 weeks. Subsequent crusting and falling off signal the end of the infectious period for patients.[1]

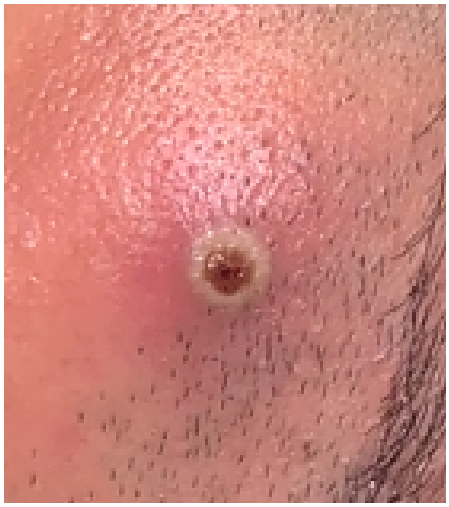

Figure 1: *Circular papule on preauricular skin with central eschar*

CASE PRESENTATION

A 35 year old male with a history of AIDS presented to the emergency department with a five-day history of ear pain and discharge. Two days prior to presentation at the emergency department, the patient noticed a lesion on their chin, which progressed to several circular papules with a central eschar on his cheeks, behind his left ear, on his neck, and over his upper extremities. The initial ear pain developed into tinnitus as a sequela. The patient is currently taking Symtuza and Bactrim for management of AIDS and reported recent travel to Las Vegas with kayaking and swimming in a lake. The patient was prescribed Tecovirimat for the management of Monkeypox and was advised to continue Symtuza and Bactrim.

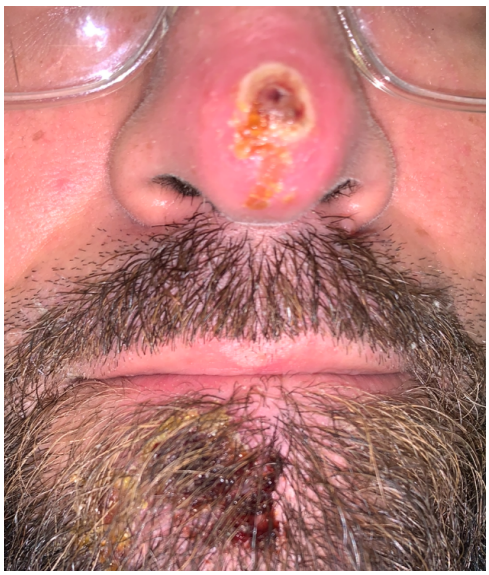

Figure 2: *Erythematous papule with central pustulation on nose and*

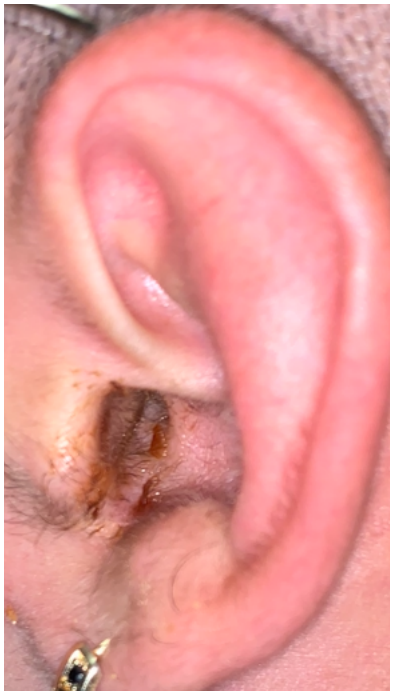

Figure 3: *Erythematous papule within external ear canal with pustulation*

DISCUSSION

This case presents a unique instance of otalgia progressing to tinnitus in an AIDS patient infected with Monkeypox. A review of the current literature showed Monkeypox presenting as rashes in penile, perianal, and pharyngeal areas, epiglottitis, encephalitis, bronchopneumonia, myocarditis, and tonsillitis.[3] However, otalgia and tinnitus as a complication of Monkeypox has not previously been documented in the literature. An in-depth examination of diverse clinical presentations and potential complications of Monkeypox is crucial in improving diagnostic accuracy, enhancing patient management, and informing public health response strategies in affected areas. of the current presentations and adverse complications of Monkeypox provides a foundation for improving diagnostic accuracy, patient management, and public health response strategies in affected areas.

Currently, there are no clinically proven treatments for monkeypox infection. Primary treatment focuses on supportive symptom management to prevent mass outbreaks. Infected individuals should remain in isolation wearing the appropriate personal protective equipment until all of the crusted lesions have fallen off.[1]

Brincidofovir and Tecovirimat are often used in the management against the monkeypox virus and can be used in combination in severe cases. Brincidofovir is an oral DNA polymerase inhibitor, while tecovirimat is an oral intracellular viral release inhibitor. Tecovirimat inhibits viral envelope protein p37 to prevent viral maturation and the release of viral particles from infected cells. The p37 protein is required in the final steps of viral maturation for intracellular mature virus (IMV) to further envelope forming an intracellular enveloped virus (IEV). IEV travels to the cytoplasmic membrane to release virions from the site of infection.[4]

Vaccinia Immune Globulin (VIG) is derived from the plasma of individuals immunized against smallpox or with prior exposure to the vaccinia virus. It contains a pool of polyclonal antibodies specific for the vaccinia virus, which bears close structural resemblance to the monkeypox virus (CDC, 2023). Administration for monkeypox is considered in cases with clinical deterioration and risk of severe outcome.

The modified vaccinia Ankara virus is a nonreplicating attenuated vaccine approved for monkeypox. It has a large safety margin and is safe to use in immunocompromised patients and those with skin complications.[5] A recent study demonstrated that administration of JYNNEOS and ACAM2000 in humans and animal subjects led to significant elevations in antibodies,

especially neutralizing antibodies to vaccinia vaccines. With a higher effect after administration of JYNNEOS, a modified Ankara vaccine, than ACAM2000 (p=0.00 vs p =0.48).

CONCLUSION

The identification of new clinical presentations for Monkeypox is important for public health for early diagnosis and reducing onward transmission. Otalgia progressing to tinnitus in an AIDS patient sheds light on the breadth of presentations and adverse complications of Monkeypox. The advancement of current literature on unique presentations and adverse complications of Monkeypox serves as a valuable resource for future research endeavors and reinforces the need for ongoing research and knowledge dissemination to enhance public response strategies during Monkeypox outbreaks.

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