

An atypical presentation of monkeypox associated with scrotal and penile shaft edema



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INTRODUCTION

Since May 2022, a new global outbreak occurred in cases of human-to human transmission of monkeypox (MPX), an orthopoxvirus.¹⁻⁴ While the mode of transmission in the current outbreak is poorly understood, many cases have occurred following direct physical contact in men who have sex with men.^{1-3,5-7} It typically presents as the simultaneous development of discrete or multiple vesiculopustules with a monomorphic morphology and eventual crusting and may also be preceded by a prodrome of fever and lymphadenopathy.^{1-3,5-8}

Compared to previous endemic outbreaks, the current MPX outbreak has been characterized by a wider array of cutaneous and extracutaneous manifestations including lesions possibly in various stages of development and with a majority of cases presenting with anogenital lesions at the site of inoculation.^{2,3,6-8} Other novel features include proctitis, dysphagia, penile edema, and secondary bacterial cellulitis.^{1-3,6,7} In this report, we discuss a unique case of MPX with only a single characteristic lesion and an atypical, and dramatic presentation of acute-onset scrotal and penile edema. Dermatologists should be aware of atypical MPX presentations in at-risk populations to optimize diagnostic accuracy and prevent over-treatment of clinical mimickers.

CASE REPORT

A 27-year-old male with no significant past medical history presented with 4 days of worsening scrotal and

Abbreviation used:

MPX: monkeypox

penile edema, erythema, and pain (Fig 1). He reported a bite from an unknown arthropod near the glans penis which occurred during a camping trip in addition to swimming in a river in Southern Missouri. Other individuals attended and swam, but none reported similar symptoms. He reported being monogamous with a single male partner for many years. At symptom onset, he noted a single lesion on the right coronal penile sulcus. He denied dysuria, hematuria, dyschezia, or hematochezia.

Two days prior to hospitalization, he obtained cephalexin at an urgent care for a diagnosis of scrotal cellulitis. He experienced worsening edema and developed myalgias, chills, and fevers. On initial in-patient evaluation by urology, there were no indications for urgent surgical intervention nor concerns for Fournier's gangrene, and he was started on cefepime and vancomycin for presumed scrotal cellulitis. Dermatology was consulted on hospital day 6 given progressive scrotal and penile swelling and pain despite multiple days of antibiotics.

Physical examination showed significant tender induration over the scrotum, penile shaft, pubis, and perineum in association with mild erythema and without crepitus or fluctuance (Fig 2). A yellow crusted papule was also present on the right penile sulcus (Fig 3). Labs showed leukocytosis

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Fig 1. Initial hospital presentation. Pubic, penile, and scrotal erythema associated with tender, indurated swelling and a subtle heme crusted papule over the right coronal sulcus.



Fig 2. Initial dermatology evaluation on hospital day 6. Worsening pubic, penile, and scrotal erythema and indurated, tender swelling.



Fig 3. Initial dermatology evaluation on hospital day 6. Right coronal sulcus with yellow crusted papule.

(13.7×10^9 cells/L), thrombocytopenia (143×10^3 /uL), lactic acidosis (3.14 mmol/L), elevated C-reactive protein (18.5 mg/dL), and elevated erythrocyte sedimentation rate (24 mm/h). Infectious workup showed a positive Orthopoxvirus polymerase chain reaction swab on the dorsal penile sulcus lesion. Blood cultures, skin bacterial cultures, urinalysis, HIV, lesional herpes simplex virus-1 and 2, varicella zoster virus, *Chlamydia trachomatis*, *Neisseria gonorrhoea*, *Treponema pallidum*, and hepatitis C viral testing were normal. Computed tomography of the abdomen and pelvis and scrotal ultrasound showed bilateral hydroceles and inguinal adenopathy.

The patient declined punch biopsies until Orthopoxvirus polymerase chain reaction results returned. Initially, there was concern for an arthropod or tick bite causing scrotal swelling and cellulitis, so he was started on doxycycline, triamcinolone 0.1% ointment for scrotal erythema, and gentamicin 0.1% ointment over the right coronal sulcus papule. He was later started on metronidazole due to progressive swelling and concerns for anaerobic cellulitis and showed some improvement. The right coronal sulcus papule developed a black eschar over several days (Fig 4). When orthopoxvirus



Fig 4. Hospital day 11. Right coronal sulcus with *black* crusted papule.

polymerase chain reaction results returned 5 days later and he was diagnosed with MPX, it was felt that improvement in edema were related to time and not broad-spectrum antibiotics. All antibiotics were discontinued at the end of his 13-day hospitalization, and he was discharged with a 14-day course of tecovirimat 600 mg twice daily.

DISCUSSION

Penile edema is a known complication of genital MPX and is occasionally associated with secondary bacterial infection.^{4,8} Multiple authors noted that cellulitis may occur several days after the initial eruption and the majority of cases respond to antibiotics within 2 to 7 days.^{1,3,6-8} Single-lesion MPX is well-documented any may not follow classic disease presentation and lead to diagnostic delay.^{2,4-6,8} It is possible our patient's scrotal lesion was related to MPX, but it lacked characteristic crusting changes which may have served as an additional clue to the correct diagnosis. Scrotal edema and cellulitis in the setting of MPX has been described once previously.⁴ In contrast, our patient lacked a documented bacterial infection and initially worsened despite multiple days of broad-spectrum antibiotics, and only improved toward the final days of his 13-day hospitalization, which favors a diagnosis of MPX.

The differential diagnosis for acute scrotal edema includes anatomic causes (eg, testicular torsion and thrombosed varicocele) in addition to infectious causes (eg, epididymitis, orchitis, and Fournier's

gangrene). Penile tick bites have been associated with scrotal cellulitis, and may prompt consideration of an atypical presentation of tick-borne illness.⁹ Cutaneous Crohn's disease may present with isolated scrotal edema.¹⁰ Had MPX testing been unremarkable in our patient, testing for Crohn's disease may have been warranted given his age and partial improvement after metronidazole was started. Given our patient's constellation of symptoms and presentation of acute-onset scrotal and penile edema associated with a single characteristic MPX lesion, it is important to consider MPX in at-risk populations and be aware of atypical presentations for diagnostic accuracy and prevent over-treatment of clinical mimickers.

Conflicts of interest

None disclosed.

REFERENCES

- Hammerschlag Y, MacLeod G, Papadakis G, et al. Monkeypox infection presenting as genital rash, Australia, May 2022. *Euro Surveill.* 2022;27(22):2200411. <https://doi.org/10.2807/1560-917.E5.2022.27.22.2200411>
- Thornhill JP, Barkati S, Walmsley S, et al. Monkeypox virus infection in humans across 16 countries - April-June 2022. *N Engl J Med.* 2022;387(8):679-691. <https://doi.org/10.1056/NEJMoa2207323>
- Ortiz-Martinez Y, Rodriguez-Morales AJ, Franco-Paredes C, et al. Monkeypox - a description of the clinical progression of skin lesions: a case report from Colorado, USA. *Ther Adv Infect Dis.* 2022;9:20499361221117726. <https://doi.org/10.1177/20499361221117726>
- Patel A, Bilinska J, Tam JCH, et al. Clinical features and novel presentations of human monkeypox in a central London centre during the 2022 outbreak: descriptive case series. *BMJ.* 2022;378:e072410. <https://doi.org/10.1136/bmj-2022-072410>
- Quattri E, Avallone G, Maronese CA, et al. Unilesional monkeypox: a report of two cases from Italy. *Trav Med Infect Dis.* 2022;49:102424. <https://doi.org/10.1016/j.tmaid.2022.102424>
- Girometti N, Byrne R, Bracchi M, et al. Demographic and clinical characteristics of confirmed human monkeypox virus cases in individuals attending a sexual health centre in London, UK: an observational analysis. *Lancet Infect Dis.* 2022;22(9):1321-1328. [https://doi.org/10.1016/S1473-3099\(22\)00411-X](https://doi.org/10.1016/S1473-3099(22)00411-X)
- Mailhe M, Beaumont AL, Thy M, et al. Clinical characteristics of ambulatory and hospitalized patients with monkeypox virus infection: an observational cohort study. *Clin Microbiol Infect.* 2023;29(2):233-239. <https://doi.org/10.1016/j.cmi.2022.08.01>
- de Sousa D, Frade J, Patrocínio J, Borges-Costa J, Filipe P. Monkeypox infection and bacterial cellulitis: a complication to look for. *Int J Infect Dis.* 2022;123:180-182. <https://doi.org/10.1016/j.ijid.2022.08.024>
- Shields LBE, Peppas DS, Rosenberg E. Urological evidence of tick bites in children. *Pediatr Emerg Care.* 2021;37(8):e485-e487. <https://doi.org/10.1097/PEC.0000000000001933>
- Simoneaux SF, Ball TI, Atkinson GO Jr. Scrotal swelling: unusual first presentation of Crohn's disease. *Pediatr Radiol.* 1995;25(5):375-376. <https://doi.org/10.1007/BF02021708>