



# Monkey pox during the 2022 outbreak: A fatal case report in the North West region of Cameroon

Nchindo Kindong P-M.<sup>1,2,\*</sup>, Nkoro G.<sup>3,4</sup>, Cho J.<sup>5</sup>, Defo Defo<sup>4</sup>, Angwafor S.<sup>1,2</sup>, Mambap A.<sup>1,2</sup>, Nsame D.<sup>2</sup>, Kouotou E.<sup>3,4</sup>

## Abstract

Cameroon registered a total of nine cases of monkeypox disease following the 2022 multi-country outbreak that began Democratic Republic of Congo. Two cases have been registered in the conflict stricken North West region, with one being fatal which we shall be presenting. We report the case of a 76-year-old patient, hunter, living in Batibo in the Northwest region of Cameroon. He presented at the Regional Hospital Bamenda in 2024 with multiple umbilicated, confluent vesiculo-pustular lesions on the face, torso, scrotum and limbs involving the palms and feet, associated with multiple inguinal lymphadenopathies in a febrile context evolving for two weeks. Mpox clade 2 was confirmed by RT-PCR on skin swap. Evolution was fatal by the 9<sup>th</sup> day when he rapidly became pyrexia again, associated with altered level of consciousness, stiffness and then died, despite meningeal dose antibiotics and anti-tetanus serum administered.

**Key Words:** monkey pox, umbilicated rash, Cameroon

## Résumé

### La variole du singe lors de l'épidémie de 2022: cas mortel dans la région du Nord-Ouest du Cameroun

Le Cameroun a enregistré un total de neuf cas de variole du singe à la suite de l'épidémie multinationale de 2022 qui a débuté en République Démocratique du Congo. Deux cas ont été enregistrés dans la région du Nord-Ouest, dont un mortel que nous allons présenter. Nous rapportons le cas d'un patient de 76 ans, chasseur, vivant à Batibo dans la région du Nord-Ouest du Cameroun. Il s'est présenté à l'Hôpital régional de Bamenda en 2024 avec des multiples lésions vésiculopustuleuses ombiliquées et confluentes sur le visage, le torse, le scrotum et les membres impliquant les paumes et les pieds, associées à de multiples lymphadénopathies inguinales dans un contexte fébrile évoluant depuis deux semaines. Le clade 2 du virus Mpox a été confirmé par RT-PCR sur un prélèvement cutané. L'évolution a été fatale au 9<sup>ème</sup> jour lorsqu'il est rapidement redevenu pyrexique, associé à une altération du niveau de conscience altéré, une raideur puis est décédé, malgré l'administration d'antibiotiques à dose méningée et de sérum antitétanique.

**Mots clés:** variole du singe, éruption cutanée ombiliquée, Cameroun

<sup>1</sup>Faculty of Health Sciences, University of Bamenda, Bambil, Cameroon

<sup>2</sup>Internal Medicine Department, Regional Hospital Bamenda, Cameroon

<sup>3</sup>Faculty of Medicine and Biomedical, University of Yaounde I, Cameroon

<sup>4</sup>Dermatology Department, Central Hospital Yaounde, Cameroon

<sup>5</sup>Dermatology Department, Yaounde Gyneco-Obstetric and Pediatric Hospital, Cameroon

\*Correspondences to: Nchindo Kindong P-M;

Email: piusmary2016@gmail.com

## 1 | INTRODUCTION

**M**onkeypox (MPX) is a zoonosis with manifestations similar symptoms to smallpox and chickenpox[1]. The epidemiology of MPX presents two types: Clade I of the Congo Basin, Central Africa, and Clade II, the West African clade [2]. Mortality associated with clade I is reportedly higher than that of clade II (10% versus 3–6%)[2,3]. Its transmission occurs frequently through animal reservoirs (rodents, monkeys, squirrels arboreal and prairie dogs), or the consumption of bushmeat. Inter-human spread is by direct contact with respiratory droplets and other bodily secretions or skin lesions and scabs[4]. These accounts for most of the cases that have been reported in African outbreaks. The incubation period of MPX is about 12 days (5-24 days) [4]. Monkey pox became a Public Health Emergency of International Concern (PHEIC) as per the WHO on the 23<sup>rd</sup> July 2022, following an outbreak in central Africa earlier same year. As of December 31<sup>st</sup> 2024, 124 753 cases of monkey pox had been confirmed globally (20 345 cases in Africa), concerning 128 countries with 272 deaths reported [5,6]. Following the WHO July 23 2022 declaration, Cameroon reported a total of nine cases as of December 31<sup>st</sup> 2024 mostly in urban cities, in patients from rural areas. Two of these cases were from the North West region[7]. We are reporting the first ever confirmed case of Clade II Monkeypox in Bamenda, capital city of the North West region which was surprisingly fatal.

## 2 | CASE PRESENTATION

The patient was 76-year-old, hunter, living in Batibo ( Northwest region) without any obvious immunocompromise. He consulted on 04/01/2024 at the emergency unit of the Regional Hospital Bamenda for a generalized skin rash in the context of fever evolving for about 10 days initially managed as bacterial skin infection with unfavorable course.

He underwent a herniorrhaphy 3weeks prior, with the post operative course marked by slow wound healing.

He later on began experiencing mild body aches, fever and throat pains, for which he was hospitalized at a health center and placed on unknown medications. Evolution was marked by persistence

of symptoms associated with a rash that rapidly spread to the whole body, most of them pruritic, with some draining brownish liquid.

Persistence and progressive worsening of symptoms prompted his referral to the Regional Hospital Bamenda for better care. On physical examination, patient was conscious with an altered general state (WHO performance status of 3) temperature: 39,2° C, dehydrated, with multiple tender cervical and inguinal lymph nodes. He was also tachypneic and tachycardic with a normal blood pressure. On the skin, (Photo 1), multiple facial umbilicated vesiculo-pustular rash, ulcerated in some areas, confluent on most parts (Photo 2) with palmoplantar involvement. On the inguinal area over the herniorrhaphy scar, there was an ulceration with a dirty base and partially covering crust with oozing, and partial wound dehiscence. Ulcerated lesions were also identified on the scrotum (Photo 3), thigh and antero-posterior aspect of the trunk. The neurological and digestive examinations were normal.



Photo 1: Facial vesiculo-pustular umbilicated and ulcerated rash



Photo 2: Dirty dried crusted lesion on the forearm

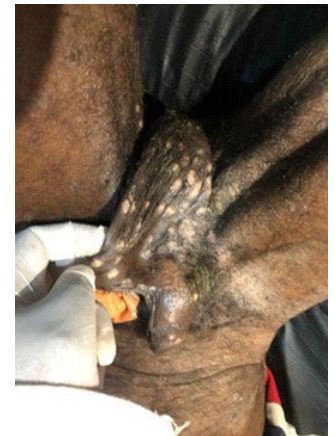


Photo 3: Ulcerated scrotal lesions with plaster over herniorrhaphy scar

The identification of a unexplained acute rash with palmo-plantar involvement, associated with: fever, headache, lymphadenopathy, argued in favour of Monkeypox. A super infected viral dermatosis (severe chickenpox or molluscum contagiosum) and or rare cutaneous mycosis (cryptococcosis or histoplasmosis) were differential diagnosis. The following investigations were requested: hyperleukocytosis with neutrophil predominance = 15.900cells/mm<sup>3</sup>; % neutrophils = 75%; % Lymphocytes = 17% % monocytes 1.5%.

- CRP = 96mg/l and ESR = 45mm/hour;

- Blood culture was sterile; polymicrobial germs on skin swap culture;
- Fasting blood sugar =1,06g/l;
- HIV, HBsAg and HCV serologies negative;
- Hyponatremia at 149mmol/L; creatinine at 2.2mg/dl, BUN 69mg/dl and a normal urinalysis;
- Investigations for cutaneous mycosis weren't performed;

Clade 2 monkeypox virus was identified by a RT-PCR on skin swab, 5 days after sampling and expediting the sample to Yaoundé (@ Centre Pasteur Yaoundé, Cameroun).



Service de Virologie

Centre Pasteur du Cameroun

Laboratoire National de Référence et de Santé Publique

451 Rue 2005 - Yaoundé 2, BP. 1274 Yaoundé

Tél : 222 23 18 03 / 222 23 10 15

## Diagnostic de l'orthopoxvirose simienne

### Techniques de PCR en Temps Réel « Mpx Virus » générique et spécifiques

**Demandeur:** Direction de la Lutte contre la Maladie, les Epidémies et les Pandémies (DLMEP), Ministère de la Santé Publique

REGION : NORD-OUEST

DISTRICT DE SANTE :BAMENDA

Date de rendu des résultats

18/01/2024

Code au CPC	Code Patient (terrain)	Age (Sexe)	Date de début de la maladie	Type de prélèvement	Date de prélèvement	Réception au CPC	Résultat I PCR générique Mpx virus	Résultat II PCR Mpx virus de Clade 1	Résultat III PCR Mpx virus de Clade 2	Résultat IV PCR Varicella Zona virus	Conclusion
24V-00317	TAK-SEN	76 ANS (M)	-	Ecouvillon	12/01/2024	17/01/2024	POSITIF	NEGATIF	POSITIF	NEGATIF	Presence du Mpx virus chez ce patient

Clade 1 = Ancien génotype "Bassin du congo"

Clade 2 = Ancien génotype "Afrique de l'Ouest"

Chef de Service Virologie

  
 Dr. Richard Njomon  
 Chef Service de Virologie  
 Centre Pasteur du Cameroun

Super infected monkeypox with complicated by dehydration, prerenal acute renal failure, and none healing inguinal wound was the retained working diagnosis. The hospital issued an alert to the two local epidemiologic team for investigations and contact tracing. No new case was identified. He was immediately isolated and placed on:

- Antibiotics (levofloxacin and flucloxacillin)
- Hydration with 0.9% saline
- Antitetanic serum single
  - The skin asepsis daily with: 0.9% saline, povidone iodine 10% and fucidic acid cream. The wound (and ulcer) over the inguinal incision site was cleaned for eventual secondary closure. Evolution was marked on day 3 till day 9 with apyrexia and improvement of general condition. On day 10 he developed a fever of 39°C, altered consciousness (GCS 12/15) without signs of meningeal irritation nor other focal neurologic sign, and stiffness. For this, patients placed on oxygen, meningeal dose antibiotics (Vancomycin 1g/12h and cefotaxime 2g/12h), and anti-tetanic serum. He

### 3 | DISCUSSION

We just reported the first confirmed case of monkeypox in the Northwest Region of Cameroon since the current 2022 epidemic that started in Democratic Republic of Congo. This was a 76-year-old man, resident in a village in the North West region, a hunter, with frequent involuntary displacement into the bush for days because of insecurity as a consequence of the ongoing crisis, indicating a possible close contact to animals in the bush as mode of transmission though it couldn't be confirmed. No similar presentations were reported in the community to suggest interhuman transmission. This case illustrates a possible means through which zoonosis can propagate in a

population. In 2018, fifteen patients presented with features suspicious of monkeypox in the Northwest Region of Cameroon of which one case was confirmed, [8]. In accordance with WHO 2024, case definitions for monkey pox could be: suspected, probable or confirmed as follows [9]:

**Suspect case** – a person who is a contact of a probable or confirmed mpox case in the 21 days before the onset of signs or symptoms, and who presents with any of the following: acute onset of fever ( $>38.5^{\circ}\text{C}$ ), headache, myalgia (muscle pain/body aches), back pain, profound weakness, or fatigue. **OR** ii) A person presenting with an unexplained acute skin rash, mucosal lesions or lymphadenopathy (swollen lymph nodes). The skin rash may include single or multiple lesions in the ano-genital region or elsewhere on the body. Mucosal lesions may include single or multiple oral, conjunctival, urethral, penile, vaginal, or anorectal lesions. Ano-rectal lesions can also manifest as ano-rectal inflammation (proctitis), pain and/or bleeding. **AND**, for which the following common causes of acute rash or skin lesions do not fully explain the clinical picture: varicella zoster, herpes zoster, measles, herpes simplex, bacterial skin infections, disseminated gonococcus infection, primary or secondary syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale, molluscum contagiosum, allergic reaction (e.g., to plants); and any other locally relevant common causes of papular or vesicular rash.

**Probable case** - A person presenting with an unexplained acute skin rash, mucosal lesions or lymphadenopathy (swollen lymph nodes). The skin rash may include single or multiple lesions in the ano-genital region or elsewhere on the body. Mucosal lesions may include single or multiple oral, conjunctival, urethral, penile, vaginal, or anorectal lesions. Ano-rectal lesions can also manifest as ano-rectal inflammation (proctitis), pain and/or bleeding. **AND**, One or more of the following: an epidemiological link to a probable or confirmed case

of mpox in the 21 days before symptom onset; had multiple and/or casual sexual partners in the 21 days before symptom onset has a positive test result for orthopoxviral infection (e.g., OPXV-specific PCR without MPXV-specific PCR or sequencing).

**Confirmed case** - A person with laboratory confirmed MPXV infection by detection of unique sequences of viral DNA by real-time polymerase chain reaction (PCR) and/or sequencing.

Definition of mpox death for surveillance purposes - death in a probable or confirmed mpox case unless the alternative cause of death is trauma. In the endemic setting where access to laboratory confirmation of mpox is limited, this definition includes deaths among persons with suspected (clinically compatible) mpox, which are to be considered suspected mpox deaths. The diagnosis for mpox can also be confirmed after the death has occurred if there is sufficient lesion material to perform PCR testing. There should be no period of complete recovery between the illness and death for the death to be recorded as a mpox death [9]. The clinical features of MPOX presents in two phases: a viral prodrome - fever, malaise, sweats, lymphadenopathy, and headache, eventuating into a skin rash 2-4 days later [10]. On dermatological grounds, a macule is the primary lesion, with possible progressions as papules, vesicles, and pustules, eventually crusting over and then desquamating, though patients could present with intermediaries or more than one lesion. The most face (95%), palms and soles (75%) and mucous membranes (70%) are the most affected cutaneous sites –[11]. These features were closely mirrored by our patient, eventually confirmed by the identification of MPOX Clade II.

Diagnosis as a general rule is straight forward with the detection of viral genetic material or viral cultures. Challenges do however exist where technical platforms don't permit isolation. There

exist no national management protocols for management of MPOX, with management based mainly on appropriate wound care, antitetanic serum, adequate hydration, prevention and treatment of superinfections, control of other comorbidities, and preventing spread. Internationally, no drug has been FDA approved for MPOX, though because of its genetic similarities with smallpox, antivirals used for this disease initially have shown invitro activity (Tecovirimat or ST-246, cidofovir, and brincidofovir) [12]. Spontaneous recovery is most often the role clade 2 MPOX within 2-4 weeks. The development of encephalitis, secondary skin infection, chest infection, ocular disease, or immune suppressed host are poor prognostic markers, indicative of a complicated disease course [11].

The evolution still in the context of these complications is rarely fatal when appropriate care is commenced on time. Death is the eventual consequence in the context of poor prognostic factor(s); extensive lesions, advanced age, possible encephalitis, tetanus, and bacterial superinfection the case with our patient.

#### **4| CONCLUSION**

We have reported a fatal case of MPX in the Northwest region of Cameroon. Advanced age, dehydration, acute kidney injury and multifocal sepsis were identified poor prognostic factors. Any patient presenting with an acute febrile rash associated with lymphadenopathy, with or without contact to a probable or confirm case is considered suspicious MPOX. Late referral, multifocal sepsis, tetanus, advanced age, dehydration, and acute kidney injury and lack of an effective antiviral agent could explain in part the death of our patient. This particularly tasks the government with intensifying strategies geared towards capacity building in early detection, prevention of spread, timely referral, management and case tracking✂

► **Abbreviations**

AKI: Acute Kidney Injury  
 BUN: Blood Urea Nitrogen  
 CRP C-Reactive Protein  
 DR: Democratic Republic  
 ESR: Erythrocyte Sedimentation Rate  
 HBsAg: Hepatitis B surface antigen  
 HCV: Hepatitis C virus  
 HIV: Human Immunodeficiency Virus  
 MPX: Monkeypox  
 PHEIC: Public Health Emergency of International Concern  
 World Health Organization  
 RT-PCR: Real Time Polymerase Chain Reaction  
 WHO: World Health Organization

► Conflict of interests: None

► Funding: None

---

**References**

1. Haider N, Guitian J, Simons D, Asogun D, Ansumana R, Honeyborne I, et al. Increased outbreaks of monkeypox highlight gaps in actual disease burden in Sub-Saharan Africa and in animal reservoirs. *Int J Infect Dis.* 2022;122:107–11.
2. Likos AM, Sammons SA, Olson VA, Frace AM, Il Y, Olsen Rasmussen M, et al. A tale of two clades: monkeypox viruses. *J Gen Virol.* 2005;86(10): 266 1–72.
3. Di Giulio DB, Eckburg PB. Human monkeypox: an emerging zoonosis. *Lancet Infect Dis.* 2004; 4(1): 15–25.
4. Awan MAE, Waseem M, Sahito AF, Sahito AM, Khatri G, Butt MA, et al. Monkeypox has devastated the world; should we prepare for the outbreak of a new pandemic? *Ann Med Surg.* 2022;79:104051.
5. Wenham C, Eccleston-Turner M. Monkeypox as a PHEIC: implications for global health governance. *Lancet.* 2022;400(10369):2169-71.
6. WHO. Multi-country external situation report no. 46, published 28 January 2025. WHO; 2025.
7. Ministère de la santé publique du Cameroun. Rapport de situation de la variole du singe au Cameroun n° 5 [Internet]. Available from: <https://www.ccousp.cm/documentations/rapports-de-situation-monkeypox/>
8. Jarman EL, Alain M, Conroy N, Omam LA. A case report of monkeypox as a result of conflict in the context of a measles campaign. *Public Health Pract.* 2022; 4:100312.
9. [https://cdn.who.int/media/docs/default-source/documents/emergencies/outbreak-toolkit/who-suggested-outbreak-case-definition-3c9e12f0-d346-4583-b34c-99c3a201aa1c.pdf?sfvrsn=521f7713\\_1](https://cdn.who.int/media/docs/default-source/documents/emergencies/outbreak-toolkit/who-suggested-outbreak-case-definition-3c9e12f0-d346-4583-b34c-99c3a201aa1c.pdf?sfvrsn=521f7713_1)
10. Adler H, Gould S, Hine P, Snell LB, Wong W, Houlihan CF, et al. Clinical features and management of human monkeypox: a retrospective observational study in the UK. *Lancet Infect Dis.* 2022;22(8):1153–62.
11. WHO. Monkeypox. <https://www.who.int/news-room/fact-sheets/detail/monkeypox> (accessed 29 Jun 2022). WHO; 2022.
12. Zovi A, Ferrara F, Langella R, Vitiello A. Pharmacological agents with antiviral activity against monkeypox infection. *Int J Mol Sci.* 2022;23(24):15941.