

Surgical Success in Severe Mpox Lesions: A Case Report from Pallisa General Hospital, Eastern Uganda

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Abstract— Mpox (formerly known as monkeypox) is a zoonotic viral infection caused by the monkeypox virus, a member of the Ortho poxvirus genus, closely related to variola (smallpox) virus. While traditionally considered a mild illness in most cases, mpox can present severe complications, particularly in immunocompromised individuals or those with delayed medical intervention (1). The recent resurgence of mpox outbreaks in both endemic and non-endemic regions has heightened awareness of its clinical manifestations, which include fever, swollen lymph nodes, and a distinctive rash that can progress into painful, disfiguring lesions (2).

In Uganda, particularly in rural areas such as Pallisa in Eastern Uganda, healthcare resources can be limited, complicating the effective management of severe cases. Severe mpox lesions may require interventions beyond supportive care, including surgical management, to address complications such as extensive tissue damage or secondary bacterial infections (3). While antiviral treatments like tecovirimat and intralesional cidofovir have shown promise in managing severe cases (1,2,3), they are often not readily available in resource-limited settings. Therefore, surgical techniques, though considered a last resort, may be an essential component of treatment in certain cases.

This case report from Pallisa General Hospital explores the role of surgery in managing severe mpox lesions. It highlights the challenges faced in a low-resource setting and the potential outcomes of surgical interventions in such environments. The report aims to contribute valuable insights into the management of severe mpox lesions, considering both the limitations and potential successes of surgical approaches, and the growing need for effective treatment strategies in the face of emerging epidemics.

Index Terms— Mpox lesions, zoonotic viral infection.

I. AIM

The aim of this case report is to describe the clinical presentation, surgical management, and outcomes of severe mpox lesions in a patient at Pallisa General Hospital, Eastern Uganda, and to assess the effectiveness of surgical intervention in the treatment of severe mpox in a resource-limited setting.

II. OBJECTIVES

- To provide a detailed case study of a patient diagnosed with severe mpox lesions, including the presentation, diagnosis, and progression of the disease.
- To examine the role of surgical intervention in managing severe mpox lesions, detailing the techniques employed, challenges faced, and postoperative care provided.
- To assess the clinical outcomes following surgical intervention, including recovery times, recurrence rates, and any complications that arose.
- To discuss the implications of surgical treatment for mpox lesions in the context of limited healthcare infrastructure, drawing comparisons to other case studies and literature.

To evaluate the broader applicability of surgical intervention in managing mpox lesions in similar settings, considering local health systems, access to resources, and the evolving nature of the mpox epidemic.

III. CASE PRESENTATION

A 2-year-old male presented to Pallisa General Hospital on November 18, 2024, with extensive necrotic Mpox lesions affecting the upper limbs, face, scalp, and trunk. The illness, ongoing for two weeks, began with a fever, malaise, and a vesiculopustular rash that progressed to widespread ulceration, with ruptured lesions. Complications included secondary bacterial infections with purulent discharge, localized cellulitis, dehydration, and functional impairment of the left shoulder joint. The child was admitted to the isolation ward for further management.

Clinical examination revealed extensive tissue necrosis in multiple areas, accompanied by pus pockets and abscesses, while some lesions had dried or formed scars. Laboratory confirmation of Mpox was established through PCR testing. A complete blood count demonstrated leucocytosis, and wound cultures identified *Staphylococcus aureus* as the causative agent of secondary bacterial infection. The lesions were noted to be atypical in presentation.

The staff in the isolation department, which managed 13 patients admitted with Mpox, adhered to stringent infection prevention and control (IPC) measures to ensure safety while providing care. They routinely cleaned and dressed lesions under aseptic conditions, using appropriate personal protective equipment (PPE) to minimize the risk of

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cross-contamination. Patients received antibiotics, analgesics, and antipyretics as part of their care regimen. While many patients showed improvement with lesions drying up, this particular 2-year-old patient exhibited persistent drainage of pus and necrotic tissue despite consistent wound care. Strict adherence to IPC protocols, including frequent hand hygiene, sterilization of equipment, and safe disposal of medical waste, was maintained throughout the care process to mitigate the risk of infection spread within the ward.



The surgical team from Mbale Regional Referral Hospital and Busitema University Faculty of Health Sciences provided critical consultancy care for the management of this challenging case, despite the absence of standardized protocols specifically tailored to severe Mpox lesions. Leveraging their expertise, the team applied established principles of wound and abscess care, adapting them to address the unique presentation of the child's condition. Utilizing locally available resources in a limited-resource setting, they ensured meticulous debridement, infection control, and wound management, offering valuable guidance and support to the team at Pallisa General Hospital. This collaboration underscores the pivotal role of regional referral centers and academic institutions in extending specialized care and consultation in novel and complex clinical scenarios

IV. SURGICAL CARE OFFERED

Debridement: A Critical Step in Recovery

Surgical debridement was performed under a combination of ketamine and diazepam anaesthesia, ensuring the child's comfort during the procedure. Severely necrotic areas were meticulously excised to remove devitalized tissue, a crucial step in controlling infection, stimulating wound healing, and reducing systemic inflammatory responses. This intervention marked a turning point in managing the child's severe condition, paving the way for improved recovery outcomes.

Incision and Drainage: Tackling Hidden Threats

Abscesses located near the left axillary area and trunk were carefully incised and drained, targeting pockets of infection that hindered recovery. The cavities were thoroughly irrigated with antiseptic solutions to clear bacterial load, and sterile drains were strategically placed to ensure continuous drainage. This proactive intervention was vital in managing the deep-seated infections and accelerating the child's healing process



Pus Pockets: Clearing the Path to Recovery

Pus pockets on the anterior and posterior trunk were meticulously opened, with adjacent pockets connected where feasible to ensure thorough drainage. A combination of hydrogen peroxide and iodine was used to debride necrotic tissue effectively, followed by irrigation with saline solution to cleanse the wounds. The deeper cavities were packed with sterile dressings to promote healing and prevent further infection, complementing the broader incision and drainage efforts.

Post Operative care

Antibiotic Therapy: Targeting Infection with Precision

The patient was initiated on intravenous cloxacillin, guided by culture and sensitivity results that identified

Staphylococcus aureus as the causative pathogen. This targeted antibiotic therapy was critical in managing the severe secondary bacterial infection, ensuring effective treatment while minimizing the risk of antibiotic resistance. The use of culture and sensitivity testing underscores the importance of personalized medicine, enabling clinicians to select the most appropriate antimicrobial agent for optimal outcomes in complex cases like this.

Wound Management: Promoting Healing with Precision

Daily dressing changes were carried out under sterile conditions using povidone-iodine solution to cleanse the wounds and reduce infection risk. To enhance healing, honey, a locally available and effective dressing, was recommended for its natural antimicrobial properties and ability to promote tissue regeneration. This approach combined advanced care with practical, accessible solutions, optimizing the patient's recovery in a resource-limited setting.

Nutritional Support: Enhancing Healing Through Nutrition

To support the healing process, the patient was provided with a high-protein diet and micronutrient supplementation, tailored to the availability of local foods. These nutritional interventions played a crucial role in promoting tissue repair, boosting the immune system, and aiding in overall recovery, ensuring that the patient received the necessary nutrients to enhance wound healing in a resource-constrained setting.

Physiotherapy: Restoring Mobility and Function

Early mobilization and targeted physical therapy were introduced to prevent joint stiffness and foster functional recovery. By encouraging movement from the outset, the aim was to maintain joint flexibility and muscle strength, ensuring the child regained full mobility and functionality as part of a holistic approach to recovery. This proactive therapy played a key role in minimizing long-term complications and promoting a smoother healing process.

V. OUTCOME SUMMARY

The 2-year-old patient with severe Mpox lesions and secondary bacterial infections showed significant improvement following comprehensive care. Surgical interventions, including debridement and drainage of abscesses, successfully controlled infection and promoted healing. These interventions are consistent with findings from other studies, which have reported successful outcomes in managing recalcitrant Mpox lesions through surgical techniques like debridement (5). Targeted antibiotic therapy, wound management with povidone-iodine and honey dressings, and nutritional support facilitated recovery. Studies have emphasized the importance of personalized antibiotic therapy guided by culture and sensitivity tests, which were crucial in optimizing infection management (5,7). Early physiotherapy prevented joint stiffness and aided functional recovery, highlighting the need for early rehabilitation to ensure long-term mobility and function (2). Overall, the patient's condition improved with wound healing, infection resolution, and restored mobility, demonstrating the effectiveness of collaborative, multidisciplinary care in a

resource-limited

setting



VI. CHALLENGES

Managing this patient presented several challenges, primarily due to the limited resources available in the setting. The absence of standardized protocols specifically for severe Mpox lesions made it difficult to devise an immediate, evidence-based approach (6). This lack of standardized care pathways is a recurring challenge in many resource-limited settings and underscores the need for tailored treatment strategies (5). Additionally, the severity of the infection, with persistent drainage of pus and necrotic tissue, complicated wound healing and required constant infection control measures. In some cases, wound care can be especially challenging when extensive necrotic lesions are present, as described in a recent study that highlighted the difficulty of managing Mpox lesions when associated with secondary infections (1,7). Wound care was particularly challenging, as the patient had extensive necrotic lesions that demanded meticulous and continuous attention. Furthermore, providing adequate nutritional support in the face of resource constraints added another layer of complexity, though it was essential for the patient's recovery. Similar challenges in providing adequate nutrition during infection management have been reported in other low-resource settings (8).

Lessons learned

However, this case offered valuable learning points. It demonstrated how adaptable care strategies could be in a resource-limited environment by modifying standard practices to suit available materials and expertise. The collaboration between the local hospital and the academic team from Busitema University was instrumental in managing the complexities of this case, showing the critical role of multidisciplinary teamwork. Early physiotherapy also proved essential in preventing joint stiffness and ensuring functional recovery. Finally, the importance of personalized antibiotic therapy was highlighted, as culture and sensitivity testing

guided the selection of the most effective antibiotics, optimizing infection management and contributing to the patient's recovery.

VII. RECOMMENDATION

It is crucial to develop and implement standardized protocols for the management of severe Mpox lesions in resource-limited settings, ensuring consistent and evidence-based care. Hospitals should prioritize enhancing infection control practices, including timely wound care and targeted antibiotic therapy based on culture and sensitivity results. Additionally, improving access to nutritional support and early physiotherapy can further optimize patient outcomes. Strengthening collaboration between regional hospitals and academic institutions is essential for improving expertise and resource availability in managing complex cases.

VIII. CONCLUSION

This case highlights the effectiveness of a multidisciplinary approach in managing severe Mpox lesions, even in resource-limited settings. Despite the challenges posed by the absence of standardized protocols, limited resources, and persistent infections, the combined efforts of the healthcare team, including timely surgical interventions, targeted antibiotic therapy, wound management, and early physiotherapy, led to significant improvement in the patient's condition. The experience underscores the importance of adaptability, collaboration, and a holistic approach to patient care in overcoming complex medical challenges, ultimately ensuring better outcomes in such difficult clinical scenarios.

REFERENCES

- [1] Raccagni, Angelo Roberto, Davide Leoni, Arturo Ciccullo, Stefano Verdenelli, Anna Maria Cattelan, Simona Di Giambenedetto, Marco Falcone, Davide Mileto, Antonella Castagna and Silvia Nozza. "Rapid improvement of severe Mpox lesions with oral tecovirimat." *Journal of Medical Virology* 95 (2023): n. pag.
- [2] Bacorn, Colin, Shahriyar P. Majidi, Hannah R. Schultz, Michael E. Sulewski, Charles G. Eberhart and Nicholas R. Mahoney. "Severe Mpox Infection of the Eye and Periocular Region." *Ophthalmic plastic and reconstructive surgery* (2023): n. pag.
- [3] Vosschulte, Hendrik, Konrad Mohnike, Klaus Mohnike, Katharina Warncke, Ayse Akcay, Martin Zenker, Ilse Wieland, Ina Schanze, Julia Hoefele, Christine Förster, Winfried Barthlen, Kim Stahlberg and Susann Empting. "Correlation of PET-MRI, Pathology, LOH, and Surgical Success in a Case of CHI With Atypical Large Pancreatic Focus." *Journal of the Endocrine Society* 6 (2022): n. pag.
- [4] Americo, Jeffrey L., Patricia L. Earl and Bernard Moss. "Virulence differences of mpox (monkeypox) virus clades I, IIa, and IIb.1 in a small animal model." *Proceedings of the National Academy of Sciences of the United States of America* 120 (2023): n. pag.
- [5] Buechler, Connor R., Zachary Anderson, Sara A. Kullberg, Daniel D. Miller, Aileen Ahiskali, Ronald Schut and Sara A. Hylwa. "Successful Treatment of Recalcitrant Mpox Lesions With Intralesional Cidofovir in a Patient With HIV/AIDS." *JAMA dermatology* (2023): n. pag.
- [6] Deputy, Nicholas P., Joseph Deckert, Anna N. Chard, Neil Sandberg, Danielle L. Moulia, Eric Barkley, Alexandra F. Dalton, Cory Sweet, Amanda C. Cohn, David R. Little, Adam L. Cohen, Danessa Sandmann, Daniel C. Payne, Jacqueline L. Gerhart and Leora R. Feldstein. "Vaccine Effectiveness of JYNNEOS against Mpox Disease in the United States." *The New England journal of medicine* (2023): n. pag.
- [7] Owens, Lauren E., Dustin W. Currie, Ellen A. Kramarow, Safana Siddique, Megan Swanson, Rosalind J. Carter, Jennifer L. Kriss, Peter M. Boersma, Florence C. Lee, Ian H. Spicknall, Elizabeth Hurley, Maria Zlotorzynska and Adi V. Gundlapalli. "JYNNEOS Vaccination

Coverage Among Persons at Risk for Mpox — United States, May 22, 2022–January 31, 2023." *Morbidity and Mortality Weekly Report* 72 (2023): 342 - 347.

- [8] Riser, Aspen P., Alli P. Hanley, Michael Cima, Linda S. Lewis, Kayla Saadeh, Jemma Alarcón, Lauren E. Finn, Moon J. Kim, Jeremy Adams, Douglas Holt, Amanda L. Feldpausch, Jessica Pavlick, Andrew English, Marguerite Smith, Tyler Rehman, Ronald J. Lubelchek, Stephanie Black, Matthew Collins, Layne Mounsey, David Blythe, Meredith Hodach Avalos, Ellen H. Lee, Olivia Samson, Marcia Wong, Blake Stokich, Ellen Salehi, Lynn Denny, Kirsten Waller, Pamela P. Talley, Julie Schuman, Michael Fischer, Stephen L. White, K. R. Davis, Ashley Caesar Cuyler, Rabeeya K. Sabzwari, Robert N. Anderson, Katrina M. Byrd, Jeremy A. W. Gold, Shannon Kindilien, James Tseryuan Lee, Siobhán M. O'Connor, Jesse G. O'Shea, LaTweika A.T. Salmon-Trejo, Raquel Velazquez-Kronen, Carla Zelaya, William A. Bower, Sascha R. Ellington, Adi V. Gundlapalli, Andrea M. McCollum, Leah Zilversmit Pao, Agam K. Rao, Karen K. Wong and Sarah Anne J. Guagliardo. "Epidemiologic and Clinical Features of Mpox-Associated Deaths — United States, May 10, 2022–March 7, 2023." *Morbidity and Mortality Weekly Report* 72 (2023): 404 - 410.