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Case Report

A Diagnostically Challenging Case of De Novo Febrile Ulceronecrotic Mucha-Habermann Disease with Fatal Pulmonary Involvement: A Case Report

Waseem Alhawsawi[a] Khalid Al Hawsawi[b] Bashaer Almahdi[a]
Shahad Alkidaiwi[c] Khlood Alzubaidy[d] Reema Alhuthayli[e]
Abdulmohsin Algethami[a] Alhusain Alshareef[a]

[a]King Saud Bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia; [b]Dermatology Consultant, King Abdulaziz Hospital, Makkah, Saudi Arabia; [c]Medical Intern, Umm Al-Qura University, Makkah, Saudi Arabia; [d]Medical Intern, Ibn Sina University, Jeddah, Saudi Arabia; [e]Medical Intern, King Abdulaziz University, Jeddah, Saudi Arabia

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Febrile ulceronecrotic Mucha-Habermann disease · Pityriasis lichenoides et varioliformis acuta

Abstract
The febrile ulceronecrotic Mucha-Habermann disease is a rare and potentially lethal variant of pityriasis lichenoides et varioliformis acuta (PLEVA). It is characterized by a sudden onset of ulceronecrotic skin lesions associated with high fever and systemic symptoms. Herein, we report a 23-year-old male, not known to have any medical illnesses, presented with a month-long history of persistent fever of unknown origin associated with a sudden onset of progressive diffuse necrotic ulcers and widespread papulosquamous lesions. Pan CT showed enlarged lymph nodes in the cervix, chest, and abdomen. Unfortunately, a skin biopsy was done late, showing features consistent with PLEVA. Few days after admission, despite being on intravenous methylprednisolone, our patient rapidly deteriorated by showing severe acute respiratory symptoms and consequently died. In spite of the continuous addition of new case reports to the literature, no definite diagnostic criteria have been established, leading to late or missed cases, and an optimum treatment is still waiting.

Correspondence to:
Waseem Alhawsawi, Waseemalhawsawi@gmail.com

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Introduction

Febrile ulceronecrotic Mucha-Habermann disease (FUMHD) may occur de novo or in the setting of preexisting pityriasis lichenoides et varioliformis acuta (PLEVA). Compared with PLEVA, the clinical manifestations of FUMHD are more severe [1]. Since the disease discovery by Degos et al. in 1966, there have been approximately 121 reported cases in the literature, including this case. The overall mortality rate is 12.4%; most deaths occurred in adults [2, 3]. Fever and acute progressive generalized eruption of necrotic papules that rapidly evolve to form necrotic plaques and ulcers that may reach up to a few centimeters in diameter are classic for this disease. Hemorrhagic bullae and mucosal ulcerations may also occur. Systemic involvement was seen in the majority of patients, ranging from mild abdominal pain, arthritis or myalgia, to severe central nervous system and cardiac or pulmonary compromise [1]. In 2015, the first proposed diagnostic criterion was established by Nofal et al. [4]; however, the therapeutic regimen was almost different in all cases owing to the poor understanding of FUMHD pathophysiology. Co-morbid or recent bacterial or viral infections such as human herpes viruses, measles vaccine/infection, parvovirus B19, adenovirus, human immunodeficiency virus-1, staphylococcus epidermidis, and *Pseudomonas aeruginosa* have been noted in cases with FUMHD. Therefore, a hypersensitivity reaction to microorganisms was meant to be as a possible theory behind FUMHD occurrence. On the other hand, non-infectious triggers including drugs such as levamisole-adulterated, cocaine, tegafur, and multivitamins were also reported in the literature. The co-existence of cutaneous T-cell lymphoma in patients with FUMHD suggests that increased monoclonality or polycolnality in T cells is a predisposing factor for this disease [5–12]. All of these different theories drove dermatologists to use multiple management modalities [4]. The literature still lacks a unified therapeutic approach for this disease. Herein, we present a case of de novo febrile ulceronecrotic Mucha-Habermann disease that was diagnostically challenging with fatal pulmonary involvement. A late diagnosis led to insufficient therapy and death of our patient.

Case Presentation

A 23-year-old man, with no significant past medical history, presented with 1-month history of constant fever associated with fatigue, abdominal pain, and bilateral elbow swelling. The patient visited a primary care 2 weeks prior to this emergency department visit. Amoxicillin-clavulanate for 7 days, oral paracetamol, a high potency topical corticosteroid, and topical fusidic acid were prescribed. The fever did not subside and skin lesions were still progressive. He came to our tertiary center and was admitted for further investigations. Travel history was unremarkable. Examination showed high body temperature (40°C) and normal other vital signs. Skin examination revealed widespread scaly crusted hyper-pigmented papules that coalesced in some areas into plaques. In addition to that, there were multiple necrotic ulcers over the trunk and all extremities (Fig. 1). Few days after admission, the patient rapidly deteriorated and started to develop new-onset shortness of breath and dry cough. His saturation was 68% on non-rebreather mask, blood pressure: 98/46 mm Hg, and heart rate: 190 beat/minute. Laboratory findings showed elevated inflammatory markers and liver aminotransferases with normocytic normochromic anemia on blood smear (Table 1). Investigations for various differential diagnoses including infectious and rheumatological diseases were all negative. Computed tomography of the neck showed multiple prominent bilateral deep cervical lymph nodes. Spiral computed tomography for pulmonary embolism showed no arterial filling defects, and bilateral lower lung lobes honeycombing associated with adjacent ground-glass/nodular

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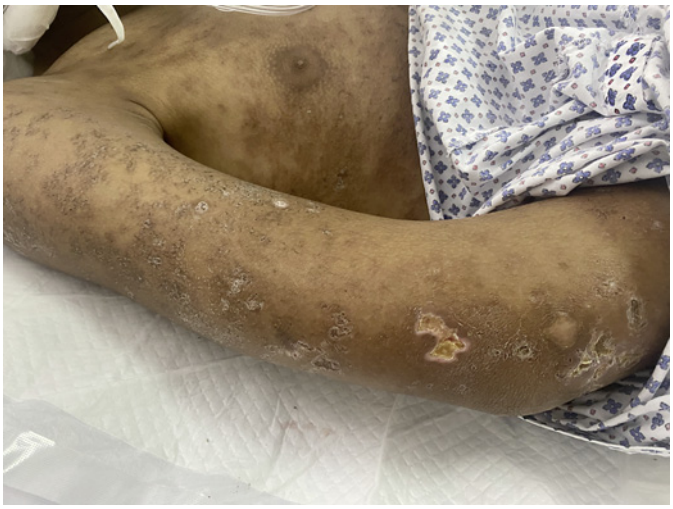

Fig. 1. The patient allowed for only one photo, showing necrotic ulcers over the elbow and chest with diffuse scaly crusted plaques and hyper-pigmentation.

opacities and lung reticulation. Prominent bilateral hilar lymph nodes and left side plural effusion were also noted. Abdominal and pelvic computed tomography demonstrated multiple enlarged lymph nodes and mild abdominopelvic free fluids. Skin punch biopsy was taken from an edge of an ulcer from the upper back. The results were awaited. The patient was empirically started on intravenous methylprednisolone, vancomycin, and meropenem with no signs of clinical improvement. The patient was shifted to the intensive care unit due to persistent worsening of oxygen saturation, tachycardia, tachypnea, and worsening blood pressure readings. Serial chest radiographs were consistent with increase bilateral patchy lung infiltration. Our patient died 10 days after admission without a proper diagnosis. The result of the skin biopsy came after his death, showing laminated hyperkeratosis, focal parakeratosis, mild spongiosis, rare apoptotic keratinocytes, interface dermatitis, superficial perivascular lymphocytic infiltration in the dermis, and melanin incontinence. Periodic acid-Schiff and Fite's stains were negative. Based on the above clinicopathological findings, a diagnosis of FUMHD was made.

Discussion

Patients with FUMHD who have preexisting PLEVA are easier to be diagnosed earlier and treated properly since this fatal compilation of PLEVA is usually kept in dermatologists' mind. A major problem in our patient is that the biopsy result was not urgently demanded. The major message to deliver from this case report is that FUMHD should always be taken into consideration as one of the fatal dermatological diseases. Thus, prioritizing a skin biopsy and hastening histopathological results immediately is mandatory to start with aggressive immunosuppressive therapy, hence preventing death. In the literature, the most commonly proposed diagnostic criteria consist of persistent fever, acute onset of generalized ulceronecrotic papules and plaques, rapid and progressive course without any tendency to spontaneous resolution, and histopathology consistent with PLEVA. Unlike cases with previous diagnosis of PLEVA, de novo FUMHD has a wider differential diagnosis since it presents with nonspecific polymorphic cutaneous lesions, making histopathological features a major clue to diagnosis. Our differential diagnoses based on the initial fever and

Table 1. Complete blood count, inflammatory markers, and changes in liver enzymes at admission and before death

Parameters	At admission	Before death
Hemoglobin, g/dL	9.9	7.7
Leukocytes, $\times 10^9$/L	9.8	6.3
Platelets, $\times 10^9$/L	324	204
C-reactive protein, mg/dL	1.8	1.2
Erythrocyte sedimentation rate, mm/h	73	90
Alanine transaminase, U/L	60	71
Aspartate transaminase, U/L	109	138

gross skin features included erythema nodosum leprosum, malignant syphilis, blastomycosis, extensive vasculitis, and systemic lupus erythematosus. FUMHD is not only diagnostically challenging, even the proper therapeutic regimen has no consensus in the literature yet. The ambiguity of FUMHD pathophysiology made physicians to combine multiple treatment modalities, most of which contain antibiotics, antivirals, systemic steroids, methotrexate, and other immunosuppressive therapy with phototherapy. The CARE Checklist has been completed by the authors for this case report, attached as online supplementary material (for all online suppl. material, see www.karger.com/doi/10.1159/000528500).

Conclusion

De novo FUMHD is a rare, fatal, and diagnostically challenging disease. Many similar reported cases demonstrated a late diagnosis. It should always be considered in the differential diagnoses when a patient present with fever and diffuse ulceronecrotic cutaneous eruptions. Until this date, aggressive immunosuppressive therapy shows to be effective. However, a therapeutic approach needs to be added to the literature to reduce the mortality rate.

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Statement of Ethics

The authors have no ethical conflicts to disclose. Written informed consent was obtained from the patient's next of kin (father) for publication of the details of their medical case and any accompanying images. The research was conducted ethically in accordance with the World Medical Association Declaration of Helsinki. The study protocol was reviewed and approved by the institute's committee on human research named: the General Directorate of Health Affairs of Makkah Region. The date of approval is April 21, 2022. Information revealing the subject's identity is to be avoided.

Conflict of Interest Statement

The authors have no conflicts of interest that are directly relevant to the content of this case.

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Author Contributions

All authors made huge efforts in structuring this case report. Conception and design of the study: Waseem Alhawsawi. Data collection: Shahad Alkidaiwi. Introduction and discussion: Bashaer Almahdi. Drafting the manuscript: Khlood Alzubaidy and Reema Alhuthayli. Revising the manuscript for critically important intellectual content: Khalid Al Hawsawi. Patient care: Alhusain Alshareef and Abdulmohsin Algethami. All authors approved the version of the manuscript to be published.

Data Availability Statement

All data that support the findings of this study are included in this article. Further inquiries can be directed to the corresponding author.

References

1 Wood GS, Hu CH, Liu R. Parapsoriasis and pityriasis lichenoides. 8th ed. In: Goldsmith LA, Katz SI, Gilchrest BA, et al., editors. Fitzpatrick's dermatology in general medicine. McGraw Hill; 2012. p. 285. no abstract available.
2 Blohm ME, Ebenebe CU, Rau C, Escherich C, Johannsen J, Escherich G, et al. Mucha-Habermann disease: a pediatric case report and proposal of a risk score. Int J Dermatol. 2022;61(4):401–9. Epub ahead of print.
3 Degos R, Duperrat B, Daniel F. Hyperthermiculceronecrotic parapsoriasis. Subacute form of parapsoriasis guttata. Ann Dermatol Syphiligr. 1966;93(5):481–96.
4 Nofal A, Assaf M, Alakad R, Amer H, Nofal E, Yosef A. Febrile ulceronecrotic MuchaHabermann disease: proposed diagnostic criteria and therapeutic evaluation. Int J Dermatol. 2016;55(7):729–38.
5 Tsai KS, Hsieh HJ, Chow KC, Lin TY, Chiang SF, Huang HH. Detection of cytomegalovirus infection in a patient with febrile ulceronecrotic Mucha-Habermanns disease. Int J Dermatol. 2001;40(11):694–8.
6 Ricci G, Patrizi A, Misciali D, Masi M. Pathological case of the month. Febrile Mucha-Haberman disease. Arch Pediatr Adolesc Med. 2001;155(2):195–6.
7 Hsieh CC, Chiu YK, Ho JC, et al. Febrile ulceronecrotic Mucha-Habermanns disease: report of a case. Dermatol Sinica. 2001;19:233–42.
8 Yanaba K, Ito M, Sasaki H, Inoue M, Nobeyama Y, Yonemoto H, et al. A case of febrile ulceronecrotic Mucha-Habermann disease requiring debridement of necrotic skin and epidermal autograft. Br J Dermatol. 2002;147(6):1249–53.
9 Yang CC, Lee JY, Chen W. Febrile ulceronecrotic Mucha-Habermann disease with extensive skin necrosis in intertriginous areas. Eur J Dermatol. 2003;13(5):493–6.
10 Cozzio A, Hafner J, Kempf W, Haffner A, Palmedo G, Michaelis S, et al. Febrile ulceronecrotic Mucha-Habermann disease with clonality: a cutaneous T-cell lymphoma entity? J Am Acad Dermatol. 2004;51(6):1014–7.
11 Sotiriou E, Patsatsi A, Tsorova C, Lazaridou E, Sotiriadis D. Febrile ulceronecrotic Mucha-Habermann disease: a case report and review of the literature. Acta Derm Venereol. 2008;88(4):350–5.
12 Miyamoto T, Takayama N, Kitada S, Hagari Y, Mihara M. Febrile ulceronecrotic Mucha-Habermann disease: a case report and a review of the literature. J Clin Pathol. 2003;56(10):795–7.