Dermatology Practical & Conceptual

Hyperacute Graft-Versus-Host Disease Mimicking Stevens-Johnson Syndrome in a Patient With Allogeneic Hematopoietic Stem Cell Transplantation

Ecem Bostan[1], Duygu Gulseren[1], Deniz Ates Ozdemir[2], Ibrahim Haznedaroglu[3], Sibel Ersoy-Evans[1]

1 Department of Dermatology and Venereology, Hacettepe University, Faculty of Medicine, Ankara, Turkey
2 Department of Pathology, Hacettepe University, Faculty of Medicine, Ankara, Turkey
3 Department of Hematology, Hacettepe University, Faculty of Medicine, Ankara, Turkey

Key words: graft versus host disease, pathology, skin, Stevens-Johnson syndrome

Citation: Bostan E, Gulseren D,Ozdemir DA, Haznedaroglu I, Ersoy-Evans S. Hyperacute Graft-Versus-Host Disease Mimicking Stevens Johnson Syndrome in a Patient with Allogeneic Hematopoietic Stem Cell Transplantation.*Dermatol Pract Concept.* 2022;12(2):e2022073. DOI: https://doi.org/10.5826/dpc.1202a73

Accepted: September 7, 2021; **Published:** April 2022

Funding: None

Competing interests: None.

Authorship: All authors have contributed significantly to this publication

Corresponding author: Ecem Bostan, Hacettepe University, Faculty of Medicine, Department of Dermatology and Venereology, Ankara, Turkey. E-mail: bostanecem@gmail.com

Introduction

Grafts-versus-host disease (GvHD) is a severe systemic complication most commonly occurring after allogeneic hematopoietic stem cell transplantation (HSCT). We would like to share our clinical experience with a patient who developed a grade 4 hyperacute GvHD after haploidentical HSCT for acute myelogeneous leukemia (AML).

Case Presentation

A 18 year-old woman with a history of haploidentical HSCT was consulted for palmoplantar erythematous rash and severe mucositis. Twelve days prior to the consultation, she had allogeneic haploidentical HSCT from her younger sister for AML. Three days after HSCT, the patient developed neutropenic feverand intractable diarrhea; intravenous (IV) meropenem, teicoplanin and metronidazole were initiated. There was no bacterial growth in blood and urine cultures. However, abdominal computed tomography revealed findings compatible with typhlitis. Twelve days after HSCT, she was referred to our clinic due to severe mucocutaneous eruption. Dermatological examination showed diffuse hemorrhagic-crusted plaques on her lips and neck and dusky-edematous plaques involving volar areas (Figure 1). Our initial diagnoses were Stevens Johnson syndrome (SJS), hyperacute grade 4 GvHD and paraneoplastic pemphigus. A skin biopsy was taken from the neck which showed mild lymphocytic

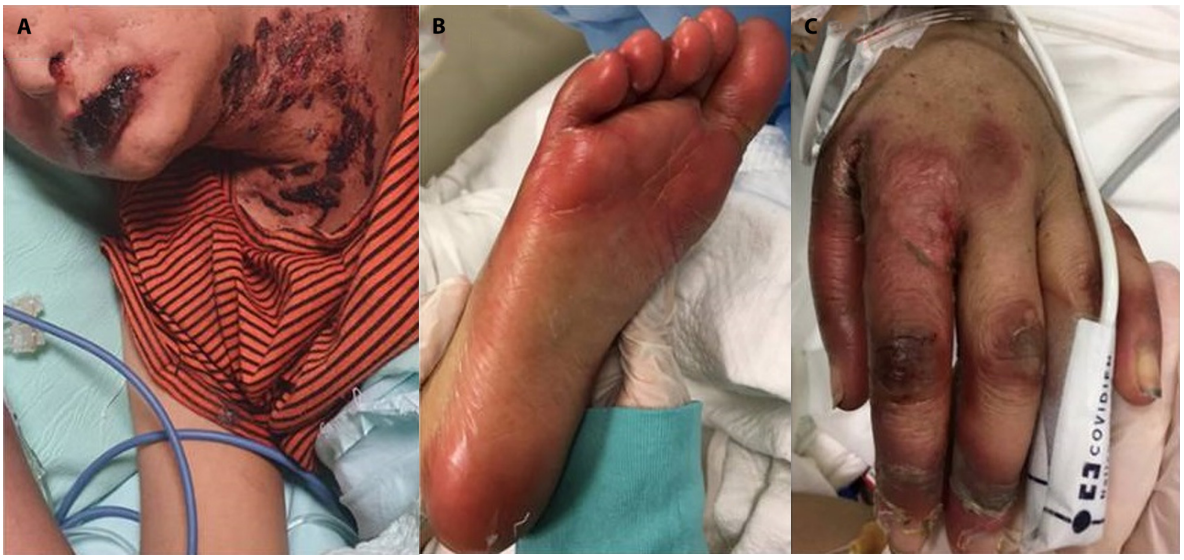

Figure 1. (A) Initial dermatologic examination at the first consultation revealed diffuse hemorrhagic encrusting of the lips spreading beyond the vermillion border, diffuse ulcerative-hemorrhagic crusted plaques covering entire anterolateral neck. (B) Diffuse plantar erythema and edema. (C) Acral and palmar peeling along with erythema.

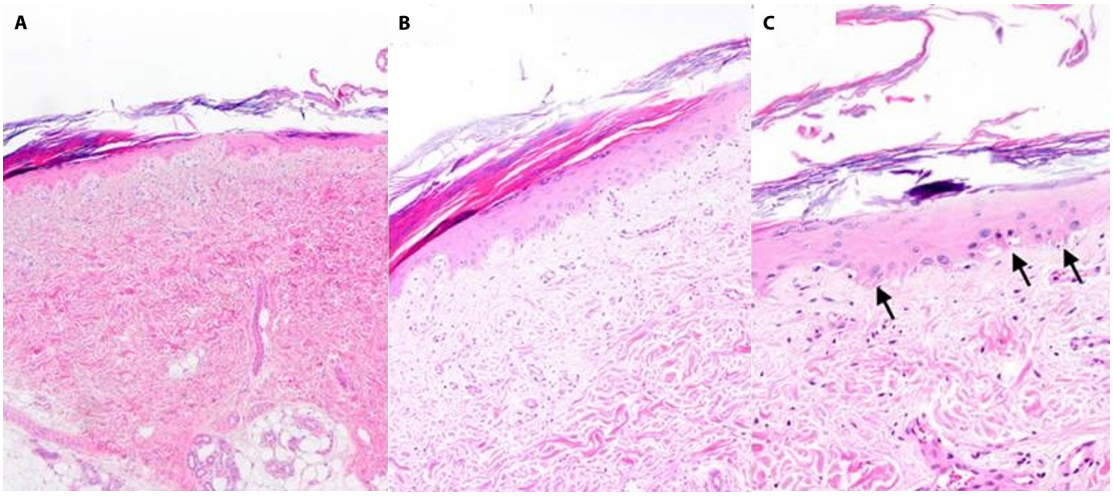

Figure 2. (A) Biopsy shows hyperkeratinization and basal membrane irregularity (H&E, 40x). (B) Basal keratinocytes show vacuolar degeneration due to mild lymphocytic infiltrate (H&E, 100x). (C) Higher power reveals damaged basilar keratinocytes which show hydropic degeneration with eosinophilic cytoplasm and single cell necrosis (arrows) (H&E, 200x).

inflammation and vacuolar change at the epidermal-dermal junction, dyskeratosis in basal layer keratinocytes (Figure 2). Direct immunofluorescence assay was negative. She continued to have intractable diarrhea and gradually increasing levels of acute phase reactants, alkaline phosphatase (ALP), gamma-glutamyl transferase (GGT) and of total/direct bilirubin levels. Anti-skin specific antibodies were negative. With clinical, laboratory and histopathological findings, as the diagnosis was hyperacute grade 4 GvHD (the beginning of the rash was within the first week of HSCT) according to consensus grading of hyperacute/acute GVHD [1]. IV methylprednisolone was started as maintenance treatment. Cyclosporine and mycophenolate mofetil were switched to tacrolimus. Since SJS was could not be excluded on clinical grounds, recently administered antibiotic drugs teicoplanin and meropenem were changed to cefepime. However, she succumbed to death 5 weeks after HSCT.

Discussion

GvHD is a severe systemic complication most commonly occurring after allogeneic HSCT even though GvHD cases have also been reportedin association with solid organ transplantation and non-irradiated blood product transfusion. Dermatological presentation may range from maculopapular eruption to generalized erythroderma and epidermal sloughing mimicking toxic epidermal necrolysis [1]. This severe dermatological presentation is accepted as stage 4 and grade 4

GvHD [1]. Schultz et al reported a case of grade 4 GvHD who developed extensive macular rash along with mucosal ulceration within weeks of liver transplantation [1]. Similar to the letter by Klein et al, our patient developed severe mucocutaneous eruption with epidermal sloughing within the second week of HSCT [2]. Distinctively, she had diarrhea and progressive elevation in bilirubin, ALP and GGT levels favoring the gastrointestinal involvement of acute GvHD.

Conclusions

In all patients with a prior history of allogeneic HSCT, hyperacute/acute GvHD should be considered in the differential diagnosis when severe mucositis, palmoplantar involvement, and epidermal detachment similar to SJS are observed.

References

1. Schulz JT 3rd, Sheridan RL. Severe desquamating disorder after liver transplant: toxic epidermal necrolysis or graft versus host disease? *J Burns Wounds*. 2006 Jan 28;5:e1.PMID: 16921414. PMCID: PMC1687152.
2. Klein B, Kolm I, Nair G, Nägeli MC. TEN-like acute cutaneous GvHD in a stem cell recipient- A diagnostic dilemma. *J Eur AcadDermatolVenereol*. 2021;35(9):e585-e587. . DOI: 10.1111/jdv.17310. PMID: 33914967.