

Peer Review

Review of: "Multifaceted Management of Severe Pancytopenia in a Diabetic Patient: A Case of MRSE-Induced Bone Marrow Suppression"

Yarden Zohar¹

1. department of surgical urology, Ben-Gurion University of the Negev, Israel

Referee Review for: " Multifaceted Management of Severe Pancytopenia in a Diabetic Patient: A Case of MRSE-Induced Bone Marrow Suppression "

The manuscript presents an interesting case of severe pancytopenia in a diabetic patient with a methicillin-resistant *Staphylococcus epidermidis* (MRSE) infection. The case is well-documented; however, there are several areas that require revision for clarity, consistency, and completeness. Below are specific comments and recommendations for improvement.

Corrections and Revisions:

1. Terminology & Formatting Issues:

- Correct all instances of "eltrombopag" to "Eltrombopag."
- Reference formatting needs consistency, particularly in the section "*Role of Methicillin-Resistant Staphylococcus epidermidis*" - Ensure a uniform citation style.
- Consider including an abbreviation table to maintain consistency throughout the text. Abbreviations such as MRSE, WBC, Hb, etc., should be used consistently after the first mention.

2. Introduction:

- Typographical error: In the second paragraph, correct "*a common pathogen in in immunocompromised patients...*" to "*a common pathogen in immunocompromised patients...*"

The sentence: "*Moreover, the chronic inflammatory state associated with diabetes may exacerbate the bone marrow suppression observed in infections, contributing to severe pancytopenia.*"

- This section should include all mechanisms of immunosuppression in diabetes before discussing chronic inflammation.
- Clarify the mechanism by which uncontrolled diabetes leads to chronic inflammation.
- Specify the chemokines involved in bone marrow suppression for a more comprehensive understanding of disease progression and management.

HbA1C Value: The statement “...consistent with his history of poorly controlled DM..” lacks the HbA1C value, which is necessary to substantiate the claim.

3. Case Presentation:

- Provide an explanation for the **exclusion of endoscopy** in the diagnostic workup of a patient with severe anemia and melena.
- Table 1 is referenced in the text but lacks a title; ensure that all tables have appropriate headings.
- The rationale for ordering Crimean-Congo hemorrhagic fever (CCHF) serology should be clearly explained.
- If CCHF is common in the authors’ geographical region, mention its prevalence.
- If this approach differs from international guidelines, discuss the additional serological workup performed to justify the decision.
- Inclusion of an image depicting the cellulitis would significantly enhance the clinical presentation.
- Clearly state which oral medications were prescribed upon discharge.

4. Histopathological and Bone Marrow Findings:

- Maintain consistency in presenting the diagnostic timeline by specifying findings in relation to the days of hospitalization.
- Provide a histopathological image to support the findings and improve the manuscript’s quality.
- The statement “...it was recommended to rule out potential chronic infections, inflammatory conditions, nutritional deficiencies, or drug-induced causes contributing to the serous atrophy and fibrosis...” should mention whether additional laboratory tests (e.g., folic acid, vitamin B12 levels, extended serological panels) were performed.

5. Discussion:

- Opening sentence: Change “...this case highlights...” to “...this case presents...” for improved readability.

Pathophysiology of Pancytopenia in the Context of Infection and Diabetes:

- The discussion on uncontrolled diabetes should include the patient's HbA1C value.
- A chart illustrating the patient's glucose levels and response to anti-diabetic medications during hospitalization would provide valuable insight.
- Address whether diabetic complications (e.g., peripheral neuropathy, nephropathy) were present, as these could contribute to the cellulitis and MRSE infection.

Bone Marrow Suppression and Infectious Etiologies:

- The statement "*...this is in line with previous studies that have demonstrated that bone marrow fibrosis can be a sequela of chronic infections and systemic inflammation.*" references only one study. If multiple studies are being referenced, include additional citations.
- The sentence "*...it is well established that cytokines such as TNF- α , IL-6, and IL-1 play a pivotal role in the suppression of bone marrow progenitors.*"
 - Specify the exact mechanism by which these cytokines suppress hematopoiesis.
 - Explain how these cytokines also influenced the patient's disease course and treatment response.

Role of Methicillin-Resistant Staphylococcus epidermidis:

- The second paragraph of this section has an inconsistent reference style; please standardize formatting.

Final Recommendations:

1. Ensure consistency in terminology, citation style, and formatting.
2. Provide missing clinical details, including HbA1C, rationale for serological tests, and a discharge medication list.
3. Strengthen the discussion on immunosuppression mechanisms in diabetes and bone marrow suppression.
4. Include histopathological and clinical images to enhance manuscript clarity.
5. Provide a table for abbreviations to improve readability.

With these revisions, the manuscript will offer a clearer, more comprehensive, and well-supported discussion of the case.

Overall Recommendation: Major Revision Required.

Declarations

Potential competing interests: No potential competing interests to declare.