Sequential Myelomatous Pleural and Pericardial Effusions in Multiple Myeloma: A Case Report Demonstrating Extended Survival with Teclistamab

Abdulrahman Al-Mashdali[a], Deena Mudawi[a], Ahmad Tawalbeh[b] , Lajos Szabados[c] , Dina Sameh Soliman[d], Mohammed Abdulagayoom, Rita Ahmade[e], ,Shehab Fareed[a]

a Division of Hematology, National Center for Cancer Care & Research (NCCCR), Hamad Medical Corporation (HMC), Qatar
b Department of Medical Education, Hamad Medical Corporation (HMC), Qatar
c Department of Radiology, Hamad Medical Corporation (HMC),Qatar
d Department of Laboratory Medicine and Pathology, National Center for Cancer Care and Research (NCCCR), Hamad Medical Corporation (HMC), Qatar
e Department of Medicine, University of North Dakota, USA

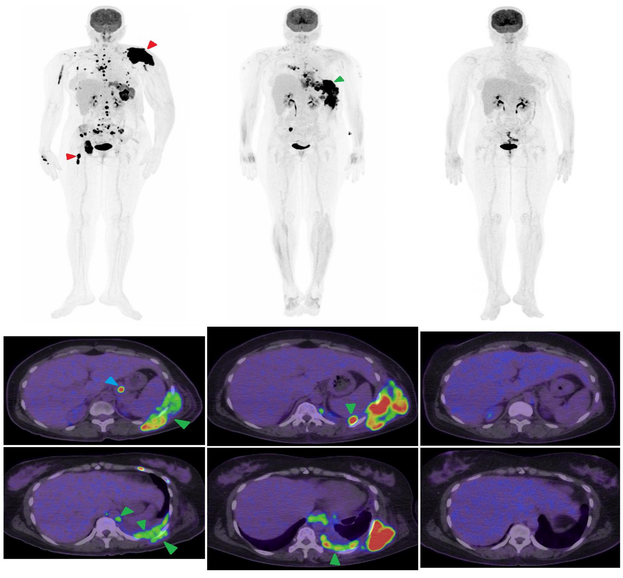
المركز الوطني لعلاج وأبحاث السرطان
National Center for Cancer Care & Research
عضو في مؤسسة حمد الطبية
A Member of Hamad Medical Corporation

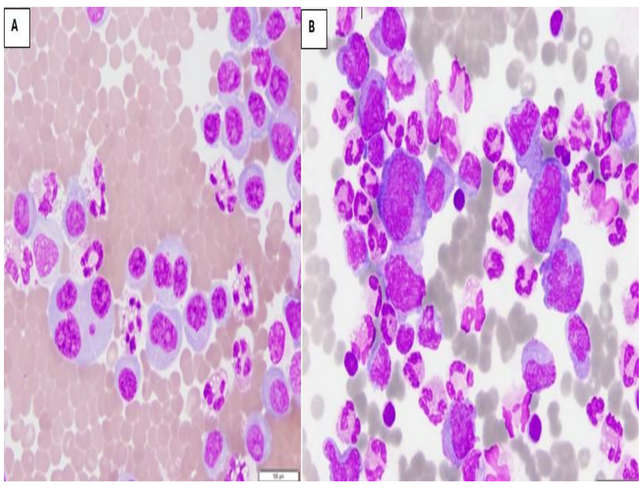
Introduction

Myelomatous pleural effusion (MPE) occurs in less than 1% of cases, while pericardial involvement is even rarer, with median survival historically limited to weeks or months. The advent of novel therapies, such as BCMA-targeted agents like teclistamab, offers potential for improved outcomes in these aggressive manifestations.

Objectives

This case report aims to describe a unique presentation of sequential myelomatous plural and pericardial effusions in a patient with relapsed/refractory MM (RRMM), highlighting the diagnostic challenges, therapeutic response to teclistamab, and the evolving landscape of extramedullary disease(EMD)management.





Case Presentation

A 42-year-old Asian female with IgG lambda MM and extensive extramedullary disease initially presented with left shoulder pain and swelling. Diagnostic workup revealed osteolytic lesions, a large shoulder mass, and 25-30% bone marrow plasma cell infiltration. First-line therapy with D-VRD (daratumumab, bortezomib, lenalidomide, dexamethasone) induced a partial bone marrow response but was complicated by discordant PET-CT progression. Second-line KPD-PACE (carfilzomib, pomalidomide, dexamethasone with cisplatin, doxorubicin, cyclophosphamide, etoposide) failed to control disease progression, prompting consideration of novel therapies.
The patient subsequently developed MPE with complete left lung collapse. Pleural fluid analysis by flow cytometry confirmed myelomatous involvement. For this triple-class refractory patient, teclistamab was initiated using step-up dosing. The treatment was well-tolerated with no observed cytokine release syndrome (CRS) or neurotoxicity. Remarkably, within two months, PET-CT confirmed complete metabolic and morphological remission, with resolution of pleural effusion and chest wall masses. Serial monitoring showed sustained biochemical response (IgG monoclonal band reduction from 22 g/L to 5 g/L, normalized lambda free light chains). After 10 months of remission, the patient relapsed with pericardial tamponade. Echocardiography-guided pericardiocentesis identified malignant plasma cells, prompting bridge therapy with daratumumab while awaiting T-cell recovery for subsequent anti-GPRC5D therapy (talquetamab). Unfortunately, the patient passed away before talquetamab could be initiated.

Conclusion

This case highlights both the aggressive nature of serous cavity EMD, evidenced by sequential pleural and pericardial progression despite initial teclistamab response, and the transformative potential of BCMA-targeted therapy achieving 10-month remission, far exceeding historical MPE survival. While relapse underscores EMD's persistent challenges, this outcome demonstrates that novel immunotherapies can significantly alter prognosis in high-risk myeloma. This dual narrative of progress and unmet needs reshapes expectations for managing aggressive extramedullary manifestations.

Reference

No conflict of interest to declare