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Case Report

Complete Remission in a TEMPI Syndrome Treated with a Daratumumab, Lenalidomide, and Dexamethasone-Based Regimen: A Case Report

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Keywords
TEMPI syndrome · Lenalidomide · Daratumumab · MGRS · Case report

Abstract
Introduction: TEMPI syndrome is a rare and acquired condition which is characterized by five classical features: telangiectasias, erythrocytosis with elevated erythropoietin, monoclonal gammopathy, perinephric fluid collections, and intrapulmonary shunting. The classical treatment is based on bortezomib which can achieve variable responses. Relapse or refractory disease may occur, so other treatment strategies can be proposed. ***Case Presentation:*** We describe the case of a 54-year-old male followed for a refractory TEMPI syndrome who achieved complete remission after a second-line therapy composed of daratumumab-, lenalidomide-, and dexamethasone-based regimen (DLd). He achieved a complete remission with dramatic improvement of his renal function, restitution of a normal blood oxygen, and disappearance of polycythemia. ***Conclusion:*** This case highlights the effectiveness of an association of DLd to treat refractory TEMPI syndrome. We also provide arguments for an association between TEMPI syndrome and monoclonal gammopathy of renal significance.

Author Luc Montfort was not available to confirm co-authorship, but the corresponding author Pierre-Yves Sansen affirms that author Luc Montfort contributed to the paper, had the opportunity to review the final version to be published, and guarantees author Luc Montfort's co-authorship status and the accuracy of the author contribution and conflict of interest statements.

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Introduction

The TEMPI syndrome is a rare and acquired condition which is characterized by five classical features: telangiectasias, erythrocytosis with elevated erythropoietin, monoclonal gammopathy, perinephric fluid collections, and intrapulmonary shunting [1]. To our knowledge, twenty-two cases have been reported in the literature [2]. The classical treatment is based on bortezomib which can achieve variable responses. Relapse or refractory disease may occur, so other treatment strategies can be proposed. To our knowledge, an association of daratumumab, lenalidomide, and dexamethasone has never been described in TEMPI syndrome. Daratumumab as a monotherapy has previously shown interesting results with complete remission in 1 case [3]. Lenalidomide has demonstrated potent immunomodulatory effect in the field of multiple myeloma, but its role in clinical manifestations associated with MGUS remains elusive [4, 5]. The CARE Checklist has been completed by the authors for this case report, attached as online supplementary material (for all online suppl. material, see https://doi.org/10.1159/000535551).

Case Report

A 54-year-old Caucasian male was first seen in consultation in 2017 with telangiectasias, hypoxemia, and renal failure. The biology showed a secondary polycythemia with a monoclonal peak composed of IgG kappa (2 g/L). The gas sample examination showed a PaO_2 of 50 mm Hg without oxygen supply. The presence of IgG kappa monoclonal gammopathy was confirmed by the bone marrow aspiration analysis, showing 5% of plasma cells. Perinephric fluid collections were seen on MRI with no renal insufficiency at this time. Giving these signs, we concluded to TEMPI syndrome. Perinephric fluid collections were corrected by surgical drainage. He received first three cycles of a bortezomib-based regimen with no significant clinical or hematological improvement. The treatment was stopped. His condition declined with worsening hypoxemia, increase of polycythemia, and monoclonal protein. A moderate renal insufficiency progressively appeared with Bence-Jones proteinuria. Unfortunately, the patient refused any renal biopsy. At this time, the bone marrow showed 7% of anarchic plasma cells. In this context, we proposed an association of daratumumab, lenalidomide, and dexamethasone as a second-line therapy. The dose of daratumumab was 16 mg/kg intravenously plus 40 mg of dexamethasone weekly for 8 weeks and then every 15 days for 4 months and finally once a month. The doses of lenalidomide were reduced because of renal failure (5 mg for 21 days). The response was assessed after each cycle of treatment. After two cycles of treatment, we observed a dramatic fall in the monoclonal protein level and free light chain ratio (Fig. 1, 2). Clinical improvement was marked by a significant decrease in oxygen requirement and disappearance of telangiectasias. Serum protein electrophoresis and immunofixation were negative after nine cycles of treatment, so we conclude to complete remission according IMWG criteria 2016 [6]. Kappa light chains dramatically felt too, and the free light chain ratio normalized in the same time (kappa/lambda ratio: 2:1, i.e., <4:1). Renal improvement was slower but significantly improved after six cycles of treatment (Fig. 3), supporting the hypothesis of an associated MGRS. Unfortunately, our patient refused renal biopsy to confirm this hypothesis, but the normalization of renal function increases the clinical suspicion.

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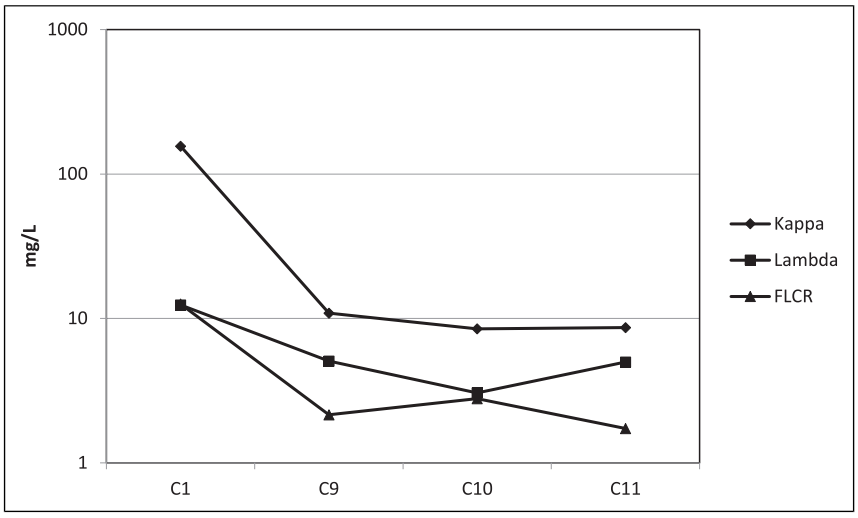

Fig. 1. Evolution of light chain levels during treatment.

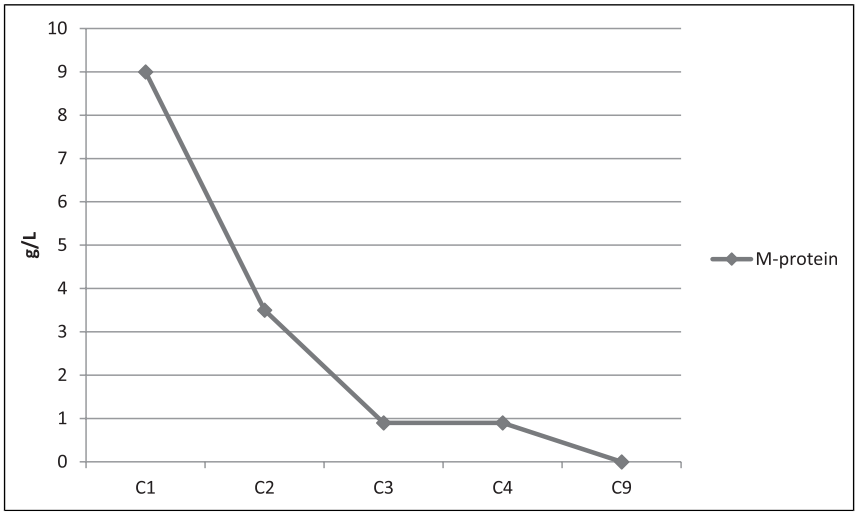

Fig. 2. Evolution of the monoclonal protein level during treatment.

Discussion

This case highlights the effectiveness of daratumumab, lenalidomide, and dexamethasone association to treat TEMPI syndrome and can lead to complete remission. This association has become a standard of care in case of multiple myeloma but has never been described in the field of TEMPI syndrome. A strategy using daratumumab in monotherapy has already been described, but the remission time was longer [3]. We believe that lenalidomide improves the quality of response and should be considered as a second-line therapy. This article also provides arguments for an association between TEMPI syndrome and MGRS. However, we were not allowed to perform renal biopsy which is mandatory for this diagnosis.

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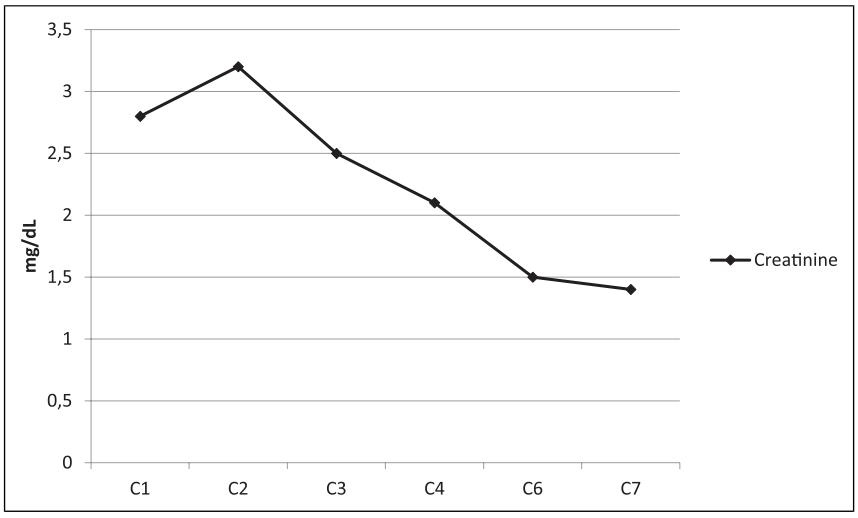

Fig. 3. Evolution of creatinine levels during treatment.

Statement of Ethics

Ethical approval is not required for this study in accordance with local or national guidelines. Written informed consent was obtained from the patient for publication of the details of their medical case and any accompanying images.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

P.-Y. Sansen and H. Vellemans wrote the manuscript with support from L. Montfort, A. Nanquette, and J. Depaus. All data were collected by P.-Y. Sansen. All the authors reviewed the results and approved the final version of the manuscript.

Data Availability Statement

All data generated or analyzed during this study are included in this article and its supplementary material files. Further inquiries can be directed to the corresponding author.

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