CLINICAL IMAGE

Toxic epidermal necrolysis (Lyell syndrome) as a severe and fatal manifestation of multiple myeloma with amyloidosis in a patient with rapidly progressing end-stage renal disease

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Toxic epidermal necrolysis (Lyell syndrome) represents a rare but severe and life-threatening mucocutaneous reaction, mainly triggered by medications, with extensive necrosis and detachment of more than 30% of the epidermis.

We report a case of a 60-year-old man with a history of nasopharyngeal lymphoma who presented to our department with anuria and Lyell syndrome. Three months earlier, he was admitted to a regional hospital with a diagnosis of nephrotic syndrome (proteinuria, 10.52 g/d) with a borderline serum creatinine level of 1.13 mg/dl. Kidney biopsy was highly suggestive of immunoglobulin light-chain amyloidosis with κ-chain restriction. Adipose tissue showed no amyloid deposition, and there was no osteolysis on computed tomography. Hepatomegaly and splenomegaly were confirmed by ultrasonography. Echocardiography revealed no abnormalities. The patient was scheduled for chemotherapy with daratumumab, bortezomib, cyclophosphamide, and dexamethasone. However, based on the results of the kidney biopsy as well as considering hypotension and a rapid increase in serum creatinine levels to 3.09 mg/dl, the treatment was temporarily postponed and hemodialysis was started. Shortly after that, the patient developed *Staphylococcus aureus* pneumonia complicated by sepsis, which was successfully managed with cefuroxime and cefazolin.

On admission to our department, extensive skin and mucosal erythematous lesions with blisters and large painful dermoepidermal detachments were observed, together with cachexia, moderate ascites, and leg edema (FIGURE 1A–1F). Lyell syndrome was diagnosed. Blood cultures were negative. Parenteral nutrition and systemic steroids were started, and hemodialysis was continued. A clinical improvement in cutaneous and mucosal lesions was observed, but anuria persisted. After 2 weeks, the patient experienced severe abdominal pain, and his condition deteriorated with severe metabolic acidosis (pH, 7.14; HCO^{3-}, 9.5 mmol/l) and a subsequent shock. The patient died despite aggressive therapy with fluids, dobutamine, imipenem, and additional hemodialysis. Near the time of death, the patients' blood cultures were positive for *Pseudomonas aeruginosa* and multidrug-resistant *Acinetobacter baumanii*. In addition, bone marrow biopsy obtained after his death showed interstitial infiltrates of plasma $CD138^{+}$, $CD56^{+/-}$, and κ^{+} cells, which constituted about 15% of all cells. Thus, a postmortem diagnosis of multiple myeloma with amyloidosis was made. Immunofixation showed the presence of the κ light chain. The autopsy revealed focal interstitial fibrosis in the heart and lungs as well as advanced amyloidosis in the kidneys, liver, spleen, and bone marrow fat. Bone marrow plasma cell count was slightly increased but the growth rate of all 3 cell lines was maintained.

Although drugs are the leading triggers of Lyell syndrome, mainly during the first 8 weeks of the therapy, it should be stressed that active cancer,[1] in particular hematologic malignancy, increases this risk by 30- to 60-fold compared with the general population,[2] which is also associated with excessive mortality.[3] In the reported case, antibiotics or allopurinol might have triggered the development of Lyell syndrome,

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Received: July 25, 2019.
Revision accepted: August 14, 2019.
Published online: August 16, 2019.
Pol Arch Intern Med. 2019; 129 (11): 819-821
doi:10.20452/pamw.14932

FIGURE 1 Cutaneous and mucosal lesions on admission: **A** – neck; **B** – left foot; **C** – upper left limb; **D** – back; **E** – buttocks; **F** – lower limbs

but the underlying malignancy (which was not diagnosed in a timely manner and was therefore left untreated) could be another pathogenetic factor. Nevertheless, the prognosis of our patient was associated with a mortality rate of 90% (based on the SCORTEN [Score of Toxic Epidermal Necrolysis] score of 5 on the 5-point scale).[4] In 10% to 15% of patients, multiple myeloma coexists with primary amyloidosis, resulting in a much poorer prognosis.[5]

Importantly, this case highlights the significant role of cancer in the development of Lyell

syndrome. In particular, the presence of the syndrome may indicate active malignancy, which, in turn, could influence the decision making regarding the types of drugs offered to these patients.

ARTICLE INFORMATION

CONFLICT OF INTEREST None declared.

HOW TO CITE Kępska-Dzilińska M, Kohmann A, Kuriga M, et al. Toxic epidermal necrolysis (Lyell syndrome) as a severe and fatal manifestation of multiple myeloma with amyloidosis in a patient with rapidly progressing end-stage kidney disease. Pol Arch Intern Med. 2019; 129: 819-821. doi:10.20452/pamw.14932

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