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Toxic epidermal necrolysis secondary to ceftriaxone use: A case report

Seftriakson kullanımı sonucu gelişen toksik epidermal nekrolizis: Bir olgu sunumu

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ABSTRACT

Toxic epidermal necrolysis (TEN) is a rare, life-threatening condition that is usually associated with medication use and characterized by separation of epidermis and dermis and a scalded skin appearance. A 71-year-old man presented to emergency department with fever, malaise, and hyperemic skin eruptions and bullae. Skin lesions covered more than 70% of total body surface area. Nikolsky sign was positive. He had been begun ceftriaxone for pneumonia before. TEN was considered as the initial diagnosis; the medication he used was stopped, appropriate supportive treatment was begun, and the patient was admitted to intensive care unit. He was discharged on 8th day after skin epithelization occurred. Toxic epidermal necrolysis is a highly fatal syndrome, in which early diagnosis, stopping the offensive drug, and administering appropriate supportive treatment are important components of the management.

Key words: Toxic epidermal necrolysis, ceftriaxone, life threatening

INTRODUCTION

Toxic epidermal necrolysis (TEN) is a rare condition with a poor prognosis which is characterized by diffuse separation of epidermis from dermis and requires urgent diagnosis and treatment. It was first described by Ritter con Rittershain in 1878, but as Lyell fully described the characteristics findings of 4 cases having an appearance of “scalded skin” in 1956, it was also known as Lyell syndrome ever since [1]. Its annual incidence ranges between 0.4 and 1.3 cases per million and its mortality varies between 10% and 30% [2]. Idiosyncratic drug reactions is the most common factor in its etiology [3].

ÖZET

Toksik epidermal nekrolizis (TEN) nadir görülen, hayatı tehdit eden, ciltte epidermis dermis ayrışması yapan ve haşlanmış deri görünümü veren, genellikle ilaç kullanımı ile ilişkili bir klinik durumdur. Acil servise 71 yaşında erkek hasta ateş, halsizlik, ciltte hiperemik erüpsiyonlar ve büller ile başvurdu. Cilt lezyonları total vücut alanının %70’inden fazlaydı. Nikolsky bulgusu pozitif. Hastaya 3 gün önce pnömoni tanısıyla seftriakson başlanmıştı. Hastada TEN düşünüldü. Kullandığı ilaç kesildi. Uygun destek tedavisi başlandı. Yoğun bakım ünitesine yatırıldı. Hasta 8. günde ciltte epitelizeasyon gelişince tabucu edildi. TEN mortalitesi yüksek bir sendrom olup acil serviste erken tanı, sebep olan ilacın erken kesilmesi ve uygun destek tedavisinin verilmesi önemlidir.

Anahtar kelimeler: Toksik epidermal nekroliz, seftriakson, hayatı tehlike

Main drugs causing TEN are antibiotics, anticonvulsants, nevirapine, abacavir, nonsteroidal anti-inflammatory drugs, allopurinol, and lamotrigine [3].

Herein, we discussed an emergency approach to a case of TEN secondary to ceftriaxone.

CASE REPORT

A 71-year-old man was admitted because of peeling of the skin around the neck, anterior torso, and upper and lower extremities (figure 1). He had developed fever, cough, dispne, and weakness 4 days earlier. Two days after the onset of these symptoms

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he was diagnosed as having a “pneumonia” and was treated with ceftriaxone. The next three day he awoke with a rash over his back, abdomen, groin, proximal segment of all four extremities, and his neck. His BP was 110/70 mmHg, HR 80 bpm, and temperature was 39.5 °C. The physical examination was unremarkable except for a generalized, painful, extensive, morbilliform eruption of the skin, with confluence of some lesions forming bullae, and areas denuded of epithelium and a positive Nikolsky’s sign (desquamation of the epidermis with light digital pressure). The lesions involved more than 70% of the body surface area (BSA). His oral mucosa was intact.



Figure 1. Skin findings of the patient

Serum sodium was 127mEq/L, chloride 97 mEq/L, and urea nitrogen (BUN) and creatinine were 45 and 0.87 mg/dL, respectively, glucose was 105 mg/dL, and hemoglobin 9.9 g/dL. An electrocardiogram showed normal sinus rhythm. A double lumen catheter (7 Fr) was placed in the right jugular vein. During his stay in emergency room (ER), his fluid replacement consisted of crystalloids at the rate of 150 mL/hr. A urinary catheter is placed and wound care was done using Thiocilline® pomad (Bacitracin and Neomicin). The patient was admitted from the ER to burn intensive care unit (ICU). He developed bullous lesions in oral mucosa during his ICU stay. At ICU he was administered support-

ive treatment in the form of crystalloid fluid infusion at 150 mL/hour, skin dressings with Thiocilline® pomad, antibiotic treatment (moxifloxacin 400 mg vials), and gastroprotective medication (sucralfate suspension). He developed no complications during his treatment and he was discharged after skin epithelization occurred.

DISCUSSION

There occurs a prodromal period lasting for 48-72 hours characterized by fever, malaise, loss of appetite, throat pain, conjunctivitis, rinorrhea, diarrhea, and myalgia [3,4]. Painful macular exanthema is symmetrically distributed over the face, neck, and extremities [4]. Skin bullae are formed and the Nikolsky sign becomes positive - the test is considered positive when epidermis slips and separates from the basal layer upon gentle pressure [4]. In the present case there were skin signs and Nikolsky sign positivity of TEN.

Drug reactions are an important cause of TEN [3]. Among antibiotics, sulfonamids (typically trimethoprim/sulfamethoxazole), B-lactams, tetracyclins, and quinolones (typically ciprofloxacin) may cause TEN [3]. TEN starts after a mean of 13.6 days (standard deviation 8.4 days) [5]. In a patient it developed 4 days after the use of ceftriaxone [6]. In the present case the time to the emergence of TEN after the administration of B-lactam antibiotic ceftriaxone was below the average duration reported in the literature but it was in accordance with the literature data.

Toxic epidermal necrolysis and Stevens-Johnson Syndrome (SJS) are known as separate variants of the same entity [4]. The condition is called SJS when the affected skin area is below 10%; overlap TEN when it is between 10% and 30%; and TEN when it is above 30% of the total body surface area [4]. The reported case was also considered TEN as the affected skin surface area was more than 30% of the total body surface area.

Bastuji-Garin et al. [7] developed a disease scale known as SCORTEN predict mortality rate in patients with TEN (Table 1). Stopping the offensive medication early during the course, early diagnosis, treatment, and intensive care at a dedicated unit reduces mortality of the disease [8,9]. Early diagnosis

at the emergency department, stopping of the offensive drug, starting supportive treatment, care at an intensive care unit, and a low calculated SCORTEN score (2 points) may have reduced mortality in the reported case.

Table 1. SCORTEN scale for patients with toxic epidermal necrolysis to estimate the mortality rate [7].

SCORTEN (Total score)	Mortality rate
0-1	3.2%
2	12.2%
3	35.3%
4	58.3%
≥5	90%
Parameter	Score
Age > 40 years	No=0, Yes=1
TBSA involved > 10%	No=0, Yes=1
Heart rate > 120 beats per minute	No=0, Yes=1
Glucose level > 252 mg/dl	No=0, Yes=1
Serum urea level > 28 mg/dl	No=0, Yes=1
Bicarbonate level < 20 mEq/l	No=0, Yes=1
Presence of cancer/hematologic malignancy	No=0, Yes=1

An ideal management of the disease requires a multidisciplinary approach consisting of an early diagnosis, stopping the offending drug, supportive treatment, and specific treatments [3]. Supportive treatment consists of intravenous fluid replacement in the form of crystalloid infusion, maintaining fluid and electrolyte balance, parenteral nutrition as needed, wound care, and antibiotherapy [3,4]. Specific treatments include systemic corticosteroids, immunosuppressants (cyclophosphamide, cyclosporin), antitumor necrosis factor alpha agents, plasmapheresis, and intravenous immunoglobulin (IVIG) [3,4,10]. In the present case supportive therapy alone sufficed and complications such as wound infection or sepsis did not occur.

In conclusion, toxic epidermal necrolysis is a rare clinical condition with high mortality, which is typically seen after drug reactions and characterized by epidermis-dermis separation. It requires a multidisciplinary approach at emergency department. At emergency department, a timely diagnosis, stopping the offending drug, starting appropriate supportive treatment, admitting the patient to intensive care unit are important steps of an ideal care for these patients.

Conflict of Interest: No conflict of interest was declared by the authors.

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