Non-Pseudomonal Ecthyma Gangrenosum

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ABSTRACT

Ecthyma gangrenosum (EG) is a cutaneous infection commonly associated with pseudomonal sepsis but may be associated with other infectious agents. We are presenting a woman who developed ecthyma gangrenosum caused by *Echerichia coli* with septic shock. Septic shock still confers a high mortality rate, especially when diagnosis and therapy is delayed. All foci of infection should be closely inspected. Skin and soft tissue lesions may also be the cause. For treatment success, source control is indispensible and surgical intervention should not be delayed if needed.

Key Words: Septic shock, ecthyma gangrenosum, critical illness

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ÖZET

Ektima gangrenozum (EG) çoğunlukla pseudomonal sepsis ile izlenen bir kütanöz enfeksiyon olmakla beraber başka enfeksiyöz ajanlarla da birlikte izlenebilmektedir. Bizler; *Echerichia coli* enfeksiyonuna bağlı ektima gangrenozum ve septik şok tanısıyla takip ettiğimiz hastayı sunmayı amaçladık. Septik şok halen özellikle tanı ve tedavisi geciktiğinde yüksek mortalite hızına sahip bir tablodur. Tüm enfeksiyon odaklarının dikkatle gözden geçirilmesi gerekmektedir. Deri ve yumuşak doku enfeksiyonlarının da odak olabileceği unutulmamalıdır. Tedavinin başarısı için; odak kontrolü vazgeçilmezdir ve gerektiğinde cerrahi uygulama geciktirilmemelidir.

Anahtar Sözcükler: Septik şok, ektima gangrenozum, kritik hastalık

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INTRODUCTION

Ecthyma gangrenosum (EG) is a rare and characteristic cutaneous infection commonly associated with pseudomonal sepsis. EG is a well-recognized manifestation of pseudomonal septicemia in immuncompromised patient. Although EG development is commonly associated with Pseudomonas aeruginosa, other organisms have been identified less often as the cause.

We are presenting a woman with the history of amyloidosis, adrenal failure and end stage renal failure on chronic hemodialysis who developed ecthyma gangrenosum on her forearm caused by *Echerichia coli* with septic shock.

CASE REPORT

A 65-year-old woman presented to the emergency department with the complaints of somnolence, hypotension and erythema on her left forearm. Her past medical history included that ulcerative colitis and total colectomy for ulcerative colitis in 1999. Several years with the diagnosis of amyloidosis she was using colchicine 1x 0.5 mg, Behçet's disease since 1985. For 15 years she had primary adrenal insufficiency for which she had been taking prednisolone 20 mg per day and since 2010 she was on hemodialysis program for end-stage renal failure. She was also using anti-phosphate 3x2 tablet and PPI 1x1 capsule for her medication.

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She was admitted to the intensive care unit with septic shock. Physical examination revealed that there was no site for an infection, only she had an ecchymosed lesion on her forearm. The size of the lesion was approximately 1x1 centimeter. Her vital signs were as follows: blood pressure 111/75 mm Hg (under 0.7 mcg/kg/min noradrenalin infusion); heart rate, 140 beats per minute, respiratory rate, 28 breaths per minute and body temperature 36.5°C.

She was hemodynamically unstable at the first day. She could not transfer for any radiological assessment. On the second day before the surgical debridement cranial and thorax computed tomography was performed. There was no site for an infection or other pathologies in the radiological studies. Blood cultures were drawn. Lactate level was 6.5mEq/L. White blood cell count was 34,000/mL. Procalcitonin level was 12 ng/ml, C-reactive protein level was 84.5 mg/l. Table 1 shows the progress of patient's infection markers.

Table 1.

	19/09/2016 Admission to ER	19/09/2016 Admission to ICU	21/09/2016 Pre-operative	22/09/2016 Post-operative	27/09/2016 Discharge
C-reactive protein	31	84	238	184	12,4
Procalcitonin	12	16	23	13	1,5
White blood count	21300	30850	29900	26540	10200
Lactate	4,3	6,8	2,1	0,9	0,7

Fluid resuscitation was started according to sepsis guideline with the dose of 30 ml/kg (totally 1500ml) crystalloids. Steroids were started with the diagnosis of septic shock and adrenal failure, we did not perform confirming test because she has had the diagnosis of primary adrenal insufficiency and has been under treatment for this diagnosis. Intravenous empirical treatment with meropenem 1x500 mg, teicoplanin 1x400mg and ciprofloxacin 2x200mg were started after blood cultures were drawn. The skin lesion progressed over hours, extending to the wrist and upper arm (Figure 2). Necrotic areas were observed.

Urgent surgical exploration, tissue sampling for cultures and histopathological examination and debridement of necrotic areas were performed. There was not any complication while performing surgery or anesthesia. After surgery negative pressure wound therapy system used for surgical area (Figure 3). Patient condition improved over days and she was discharged on the 7th day. Blood cultures were negative. Tissue cultures revealed *E.coli* and histopathological examination was reported as ecthyma gangrenosum. Antibiotic therapy deescalated to appropriate treatment after positive cultures revealed.

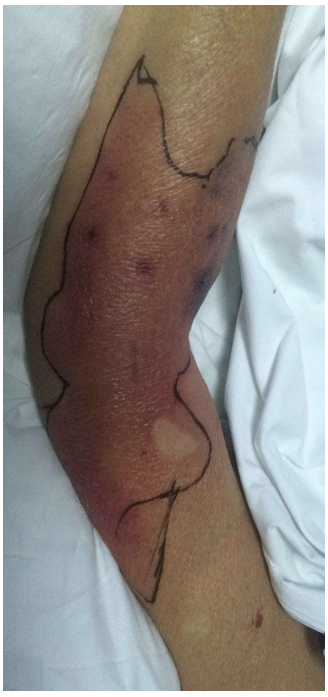

Figure 1: Day 1 in ICU

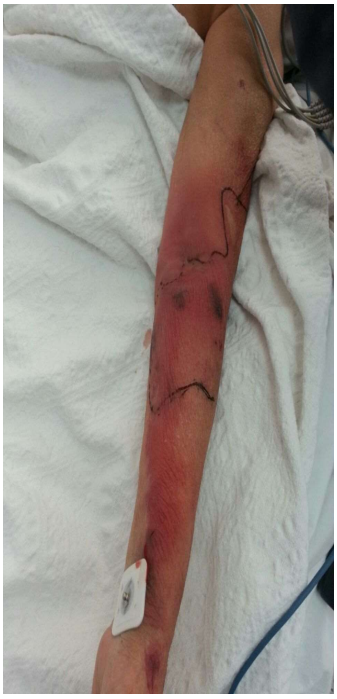

Figure 2: Day 2 in ICU, lesion progression can be observed

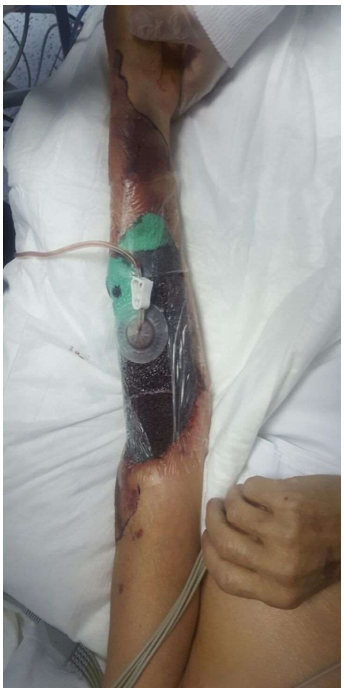

Figure 3: After surgical debridement with negative pressure wound therapy

DISCUSSION

Septic shock still confers a high mortality rate, especially when diagnosis and therapy is delayed. For treatment success, source control is indispensible and surgical intervention should not be delayed if needed. In septic patients, all foci of infection should be closely inspected. Skin and soft tissue lesions may also be the cause of septic shock. In the first hour empirical broad-spectrum antibiotics must be started. Early fluid resuscitation is started as 30 ml/kg with crystalloids.

Ecthyma begins as painless erythematous macules, with or without vesicles, which soon become indurated with variable pain and evolve to haemorrhagic blisters (1). This patient had been initially evaluated as cellulitis however upon follow up rapid progress over hours alerted the team for a more agressive infection. And as suspected histopathological evaluation of tissue sample was reported as EG.

EG was first described by Barker in 1897 (2). It is the characteristic lesion of P. aeruginosa sepsis and is seen almost exclusively in immunocompromised patients. Although pseudomonas thought to be the main causative agent of EG, it may be seen in association with infections caused by other gram-negative bacteria and fungi and can rarely be caused by gram-positive organisms such as Staphylococcus and Streptococcus species (3,4). In tissue cultures from the lesion on the fore arm revealed a highly sensitive E. Coli.

The presence of EG usually heralds a poor prognosis and mortality rates are high, ranging between 38% and 96% in patients with septicaemia (5). Fortunately she was discharged from intensive care unit with stable position on the seventh day.

Conflict of interest

No conflict of interest was declared by the authors.

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