COSMETIC PROCEDURES UNDER SUPERVISION – ERYSIPELAS FOLLOWING A LYMPHATIC DRAINAGE PROCEDURE: A CASE REPORT

MARIA-ROXANA CAUNIC*, TEODORA ANDRONIC*, IOANA-LIVIA PITU-STANCIU*, DOINA NIȚESCU**, RODICA OLTEANU*

Summary

Erysipelas is an acute bacterial infection affecting the superficial dermis and lymphatic vessels, usually caused by group A β-hemolytic streptococci. It occurs through an entry point created by a minor skin fissure, and pre-disposing factors include impaired immunity, preexisting circulatory disorders, and poor hygiene. The condition presents as a well-demarcated, hot, erythematous rash, frequently located on the lower extremities, accompanied by fever and chills. The diagnosis is made clinically, and treatment consists of systemic antibiotics. We present the clinical case of a 56-year-old female patient who developed erysipelas following multiple lymphatic drainage sessions and experienced a favorable clinical outcome after appropriate antibiotic treatment. Skin infections are common and can progress to severe forms, and procedures such as lymphatic drainage may increase the risk of infections, highlighting the importance of proper patient evaluation and adequate hygiene prior to any cosmetic treatment.

Keywords: *erysipelas, cellulitis, systemic antibiotics, cosmetic procedures.*

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Introduction

Erysipelas is an acute bacterial infection primarily involving the dermis, which, through the lymphatic system, may lead to systemic involvement with potentially severe progression. It results from infection with group A beta-hemolytic streptococcus (i.e., *Streptococcus pyogenes)* due to disruption in the skin barrier, often in the context of an impaired immune status and/or associated conditions such as other dermatological disorders or vascular diseases.

The characteristic rash presents as a well-demarcated, edematous plaque with tenderness to palpation and associated inflammatory signs (rubor, calor, dolor), most frequently located on the lower extremities. Occasionally, it can affect the lymphatic system causing lymphangitis.

Patients with erysipelas may exhibit systemic symptoms including fever, chills, malaise, headache, and regional lymphadenopathy. Diagnosis is usually made clinically and it typically resolves with appropriate antibiotic treatment [1-3].

Clinical cases

We present the case of a 56-year-old female patient, with no significant past medical history, who presented to the emergency department complaining of a generally altered condition, nausea and vomiting, fever with temperatures reaching up to 39°C, chills and an intense frontal headache, all these symptoms beginning 2 days prior to admission. She denies any pre-existing

* Dermatology Clinic II,Colentina Clinical Hospital, Bucharest, Romania.
** Internal Medicine Clinic III, Colentina Clinical Hospital, Bucharest, Romania.

infection, prodromal signs or symptoms of respiratory infection or any use medication.

The physical examination upon admission revealed subfebrile state (37.5°C), obesity class I (BMI = 32.72 kg/m^2), blood pressure of 130/75 mmHg and a heart rate of 80 beats per minute. Abdominal physical examination did not reveal any tenderness or pain in the right hypochondrium or in the epigastric/hypogastric regions. On palpation and percussion, the liver was found to be enlarged, measuring 16 cm in its pre-hepatic diameter.

Dermatological examination of the lower extremities revealed numerous ecchymoses, telangiectasias, and reticular veins, consistent with early-stage venous insufficiency (corresponding to CEAP stage I).

Paraclinical investigations demonstrated a marked inflammatory syndrome, with elevated levels of fibrinogen - 592 mg/dL (normal values 200–400 mg/dL), C-reactive protein - 204 mg/dL (normal values <5 mg/L), procalcitonin - 4.25 ng/mL (normal values <0.05 ng/mL), and leukocytosis with neutrophilia. Additional functional and imaging tests (cerebral, thoracic, abdominal, and pelvic CT scans, ECG and echocardiography) revealed hepatic steatosis and a small gallbladder stone, which, however, does not correlate with the severity of the clinical symptoms or the inflammatory syndrome.

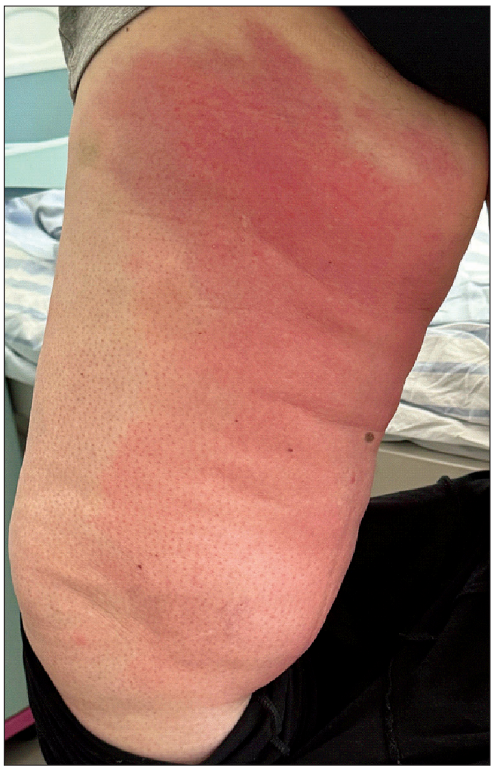

Figure 1. Clinical presentation of the patient – an erythematous and edematous plaque, warm to the touch, located on the anteromedial aspect of the right thigh.

Initially, in the absence of systemic manifestations other than digestive symptoms, without evidence of angiocholitis, and in the presence of an inflammatory syndrome refractory to non-steroidal anti-inflammatory drugs, a possible infection of gastrointestinal origin was considered, and antibiotic treatment with ceftriaxone 2 g/day was initiated. Nevertheless, the clinical course under treatment was unfavorable, with a progressive increase in inflammatory markers and procalcitonin, although blood cultures performed were all negative.

Yet, 24 hours post admission, a well-demarcated, an erythematous and edematous plaque was noted on the anteromedial aspect of the right thigh. The lesion was warm, tender to palpation and rapidly extending during the same day (Fig. 1). The eruption was accompanied by chills and a febrile episode reaching a maximum of 39.5°C. Although its evolution was rapid and marked by pronounced symptoms, it was not considered the cause of the preexisting condition.

However, a more detailed history revealed that in the past 14 days, the patient had undergone several sessions of lymphatic drainage (via graded compression) at an aesthetic clinic to alleviate jet lag discomfort, with the most recent session occurring just one day prior to admission. The patient also reported that the last session was more painful relative to the others due to increased pressure applied to the thigh area.

Consequently, a clinical diagnosis of erysipelas was established, likely due to the entry of the infectious agent through skin lesions on the right thigh caused by the overly intensive lymphatic drainage procedure. The systemic anti biotic therapy was changed to clindamycin 900 mg every 8 hours for 7 days, in conjunction with local treatment consisting of wet compresses with boric acid. The outcome was favorable, with complete resolution of the symptoms.

Discussions

Skin and soft tissue infections include a variety of pathological conditions affecting the skin, the underlying subcutaneous tissue, fascia, or muscles, ranging from simple superficial infections to severe necrotizing infections [9]. Differentiating between these conditions is crucial for selecting the appropriate treatment, preventing complications, and ensuring proper patient management.

The two major types of bacterial skin infections are erysipelas and cellulitis, both of which present with similar clinical features, including erythema, edema, and tenderness of the affected skin [6]. Erysipelas involves the superficial dermis and the superficial lymphatics, whereas cellulitis affects the deeper dermis and the subcutaneous fat [1–3].

While individuals of any age can develop erysipelas/cellulitis, these infections are most commonly seen in middle-aged and elderly adults. They are frequent, particularly in the lower extremities, but may also affect other parts of the body. Predisposing factors include disruption of the skin barrier (abrasion, ulcer, eczema, tinea pedis, interdigital intertrigo, insect/animal bites), circulatory disorders such as chronic venous insufficiency or lymphedema, obesity, poor hygiene, and a compromised immune system [1,2,8].

Beta-hemolytic streptococci, usually group A Streptococcus (S. pyogenes), cause most cases of erysipelas and are the most common cause of cellulitis. Other bacteria implicated include Staphylococcus aureus (including methicillin-resistant S. aureus [MRSA]), Streptococcus pneumoniae, Klebsiella pneumoniae, and Haemophilus influenzae [4].

Patients with erysipelas generally experience an acute onset of symptoms with systemic manifestations — including fever, chills, severe malaise, and headache — which may precede the appearance of local inflammatory signs and symptoms by a few hours to 1–2 days. In erysipelas, there is a clear demarcation between the affected and unaffected skin, with a raised, advancing border. In cellulitis, the area of erythematous skin is less well defined and is often dark red or slightly purplish. Both conditions are characterized by local tenderness and pain. In cases of significant inflammation, vesicles or bullae may be observed. Another possible finding is regional lymphadenopathy and lymphangitis [3,6,10].

Severe clinical presentation with systemic toxicity, as well as bilateral limb involvement, suggest an alternative diagnosis and warrant investigation for other causes of infection. The differential diagnosis thus includes necrotizing fasciitis, toxic shock syndrome, and gas gangrene. Non-infectious processes that are often misdiagnosed as cellulitis/erysipelas include stasis dermatitis, lymphedema, and deep venous thrombosis [3,4,7].

The diagnosis of cellulitis or erysipelas is primarily clinical, and laboratory tests are generally unnecessary for patients without comorbidities or uncomplicated infections, as they tend to be non-specific. Local bacterial cultures or blood cultures are warranted in severe cases and help guide appropriate antibiotic therapy [3].

Treatment includes antibiotic therapy with a spectrum covering both streptococci and staphylococci and, in severe cases, agents effective against methicillin-resistant Staphylococcus aureus (MRSA). Treatment regimens include oral administration in mild cases or parenteral administration of penicillin G, flucloxacillin, co-amoxiclav, or cephalosporins (ceftriaxone). For severe cases and MRSA coverage, an antibiotic from the macrolide class, vancomycin, or clindamycin is considered [5,11]. Patients typically experience clinical improvement within 24 to 48 hours after initiating antimicrobial therapy [10].

Conclusions

Bacterial skin infections are common and can potentially progress to severe outcomes. They arise from the combination of impaired skin integrity and predisposing factors that compromise the body's natural defense mechanisms [1,2].

Cosmetic procedures such as lymphatic drainage can increase the risk of skin infection by causing microtraumas to the skin. When these procedures are performed under suboptimal conditions, they may destabilize the lymphatic system and temporarily decrease local immunity.

Coupled with poor hygiene and the presence of preexisting circulatory disorders as well as obesity, a seemingly low-risk cosmetic procedure can evolve into a condition requiring urgent medical evaluation and intervention.

The particularity of this case lies in the severe systemic symptoms, which began three days prior to the appearance of skin lesions, making it difficult to interpret the inflammatory signs that indicated imminent sepsis. Additionally, the case highlights the importance of obtaining a detailed medical history to establish the context of disease onset and to guide the correct diagnosis. Daily skin assessments can be lifesaving in uncertain clinical scenarios, and treatment should be guided by all relevant factors.

Therefore, any cosmetic procedure should be preceded by a thorough patient evaluation, conducted under optimal hygienic conditions and appropriate technical parameters, to ensure patient safety. Moreover, physicians must remain vigilant regarding any paramedical interventions that carry associated risks.

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Conflict of interest
NONE DECLARED

Correspondance address: Maria Roxana Caunic
Dermatology Clinic II, Colentina Clinical Hospital, Bucharest, Romania
maria.caunic@umfcd.ro