



# More than skin deep: Ecthyma gangrenosum, a cutaneous manifestation of systemic infection

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## Introduction

*Pseudomonas aeruginosa* is one of the most common and virulent infectious agents in immunocompromised patients

Many patients present with minor skin and soft tissue infections that can most often be treated with an uncomplicated I&D or antibiotic course

**Ecthyma gangrenosum** represents a unique skin finding in that it can be a sign of a more serious systemic infection

## Case Presentation

### Brief History:

- ❑ 55 year old woman with breast cancer
- ❑ Recently completed a cycle of doxorubicin, cyclophosphamide, and paclitaxel
- ❑ Has tunneled Port-a-Cath

- ❑ CC: painful scalp lesion

### Physical Exam:

BP 120/56, HR 122, T 39.2 C, RR 20, SpO2 95% on RA,

Skin Exam: purpuric bullae measuring 2 cm by 1 cm with surrounding erythema was noted on the left frontal scalp

Other: Port-a-Cath in place without complications

### Labs:

- WBC 0.30
- ANC 180
- CRP 185
- Pro-calcitonin 5.24
- Lactate 1.8

## Differential Diagnosis

- Abscess
- Warfarin-induced skin necrosis
- Calciphylaxis
- Septic emboli
- disseminated intravascular coagulation
- diabetic microangiopathy
- cocaine-induced skin necrosis
- Pyoderma gangrenosum

## Physical Exam Findings



Table 1. Organisms isolated in patients with EG

Gram-negatives	Gram-positives	Fungi
<i>Escherichia coli</i>	<i>Staphylococcus aureus</i>	<i>Aspergillus fumigatus</i>
<i>Klebsiella pneumoniae</i>	<i>Streptococcus pyogenes</i>	<i>Candida albicans</i>
<i>Morganella morganii</i>		<i>Fusarium solani</i>
<i>Neisseria gonorrhoea</i>		<i>Meterhizium anisopliae</i>
<i>Serratia marcescens</i>		<i>Mucor pusillus</i>
<i>S. maltophilia</i>		

## Discussion

- ❖ Ecthyma gangrenosum (EG) starts as an erythematous or purpuric macule that rapidly progresses into a **hemorrhagic bulla**.
- ❖ The bulla will often rupture, becoming an **infarcted gray lesion with surrounding erythema** that evolves into a **necrotic black eschar**.
- ❖ EG is classically associated with *Pseudomonas aeruginosa* bacteremia, although other gram negative bacterial species and even fungi have been identified as possible etiologies of EG.
- ❖ Many patients that present with EG are **immunocompromised**.
- ❖ EG is caused by **invasion of venules by microorganisms**, resulting in secondary arterial thrombosis, tissue edema, and separation of the epidermis.
- ❖ Can be a **single lesion or multiple** widespread lesions
- ❖ Most common in the **gluteal and perineal regions** or extremities, but can occur anywhere.
- ❖ Diagnosis is clinical, though **blood cultures** and sometimes skin biopsy are optimal for precise diagnosis.
- ❖ Management involves **aggressive empiric antibiotic treatment of the underlying systemic infection**, with **coverage for Pseudomonas** being critical.
- ❖ In some cases, **surgical debridement** of the necrotic lesions is also necessary.

## Take Home Points

- ✓ Immunocompromised patient?
- ✓ Unusual appearing skin lesion (hemorrhagic bulla)?
- ✓ Consider Ecthyma gangrenosum
- ✓ Get blood cultures
- ✓ Treat for *Pseudomonas* bacteremia!

## References

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