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Extensive Ulcerative Skin Disease Presenting with Persistent Systemic Inflammation: A Diagnostic Dilemma

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Abstract

Introduction:

Extensive ulcerative skin disease in patients with morbid obesity presents significant diagnostic and management challenges, particularly when accompanied by systemic inflammatory response syndrome (SIRS). Distinguishing true severe soft tissue infection from inflammatory conditions such as hidradenitis suppurativa (HS) is clinically difficult in this population, where body habitus limits both physical examination and cross-sectional imaging. We report this case to illustrate how morbid obesity may constrain diagnostic tools and complicate clinical decision making, particularly with regards to antimicrobial stewardship.

Case Description:

A 36-year-old male with class III obesity (BMI 61.7) presented with widespread ulcerative lesions involving the bilateral lower extremities, scrotum, pubic region, sacrum, flanks, and bilateral chest folds. The patient met SIRS criteria on arrival and was treated empirically for presumed severe soft tissue infection with possible bacteremia. Initial blood cultures grew skin flora in single sets, with subsequent repeat cultures showing no growth. CT imaging to evaluate for possible deep abscess or necrotizing infection was not feasible due to body habitus. Skin biopsy was requested but deferred due to lack of imaging.

Despite broad-spectrum antibiotics and clinical improvement of cellulitic changes, the patient developed progressive leukocytosis peaking at 34.0 × 10^3/μL without an identifiable infectious source, normalizing spontaneously to 6.7 × 10^3/μL at discharge without any new antimicrobial therapy. The hospital course was further complicated by vancomycin associated acute kidney injury with uremic encephalopathy, and a significant upper gastrointestinal bleed requiring endoscopic intervention.

Infectious Disease was consulted throughout and ultimately concluded that the polymicrobial isolates represented contaminants, with the overall clinical picture most likely consistent with severe hidradenitis suppurativa.

Discussion:

This case underscores three actionable lessons for clinicians managing complex inpatient presentations in morbidly obese patients.

First, when intertriginous abscesses are accompanied by leukocytosis disproportionate to clinical wound appearance and unresponsive to antibiotics, hidradenitis suppurativa should be included in the differential early. Delaying this recognition risks prolonged and potentially harmful antibiotic exposure.

Second, with regard to diagnostic anchoring, once a sepsis framework is established, it can persist long after the supporting evidence has weakened. This case illustrates the importance of constantly revisiting the working diagnosis when cultures are unrevealing, leukocytosis is antibiotic-refractory, and the clinical trajectory does not match the presumed infectious etiology.

Third, this case reinforces that vancomycin pharmacokinetics in Class III obesity are inherently unpredictable. A trough of 2 mcg/mL followed by 64 mcg/mL within 48 hours illustrates how conventional dosing assumptions break down in this population, and highlights AUC-guided monitoring as the preferred strategy