



Literature review and case of necrotizing soft tissue infection without superficial skin findings

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History: 58 year old male presented to a large tertiary care hospital with four days of worsening atraumatic lower extremity pain. His past medical history included hypertension, diabetes mellitus, Chronic Kidney Disease, atrial fibrillation, and Heart failure with reduced Ejection Fraction with a last known ejection fraction of 21%. Upon presentation he denied subjective fevers or chills. He had no history of injection drug use. He was on anticoagulation for his atrial fibrillation. He was not taking immunosuppressants. His past surgical history included a right 1st toe amputation secondary to a large non healing diabetic foot ulcer. At baseline, he exhibited a low functional status, requiring help with multiple activities of daily living.



Discussion:

- Two systematic reviews have been published evaluating the diagnostic utility of multiple clinical metrics^{1,2}
 - While the presence of bullae, hypotension, and a LRINEC above 8 had pooled sensitivities at or greater than 95%, the rest of the clinical indicators showed low pooled specificity and sensitivity
 - A history of Diabetes Mellitus was present in 44.5% of cases, and swelling, pain and erythema were only present in 80%, 79%, and 71% of cases respectively.
 - In this case, the patient was diabetic, but lacked other historical factors that predispose patients to NSTI (injection drug use, immune suppression). Also, there were no external signs of lower extremity NSTI, other than hypotension and moderate, not out of proportion, pain. On the other hand, biochemical indicators were present, particularly a lactic acid of 6.6 and LRINEC score of 9.

Conclusions:

- These findings could emphasize the need to weigh laboratory findings, particularly the described LRINEC score greater than 6, more heavily compared to clinical signs diagnosing NSTI
- Recommend evaluating pain out of proportion and more dynamic clinical indicators such failure to improve on antibiotics.

References:

1. Fernando SM, Tran A, Cheng W, Rochweg B, Kyeremanteng K, Seely AJE, et al. Necrotizing Soft Tissue Infection: Diagnostic Accuracy of Physical Examination, Imaging, and LRINEC Score: A Systematic Review and Meta-Analysis. *Ann Surg*. 2019 Jan;269(1):58-65. Epub 2018/04/20.
2. Goh T, Goh LG, Ang CH, Wong CH. Early diagnosis of necrotizing fasciitis. *Br J Surg*. 2014 Jan;101(1):e119-25. Epub 2013/12/18.

Labs:

On admission:
CRP 146, WBC 23.8, Hb 94, Na 132, LRINEC 9
Lactate was 6.6

Imaging:

None

Micro:

Blood cultures grew Group A strep (Strep Pyogenes)

