A Case of IgA Nephropathy Complicated by Necrotizing Soft Tissue Infection

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Background

Introduction

Necrotizing fasciitis is a rare skin and soft tissue infection that causes rapid destruction of the muscle fascia and subcutaneous fat. It is important to have a high index of suspicion for this disease as both the diagnosis and treatment hinge on prompt surgical intervention and broad-spectrum antimicrobial therapy.

Learning Objectives

- Recognize the clinical features of necrotizing soft tissue infections
- Discuss the diagnosis and management of necrotizing soft tissue infections

Case Report

A 46-year-old man with PMH of Crohn's disease, gout, and alcohol use disorder with prior withdrawal seizures presented to the ED with left arm swelling, pain, and numbness for two days. His symptoms began simultaneously and resulted in decreased range of motion. He denied arm trauma or recent travel. Associated symptoms included bilateral leg swelling, dark urine, an intermittent diffuse rash, and unintentional 10 lb weight loss over several weeks. The patient worked as a carpenter. He smoked 1 ppd and drank 6 beers daily.

Physical Exam

Temp 97.4F, HR 108, BP 162/103, RR 20, SpO2 94% on room air
Gen: Sitting in bed, no acute distress
Abd: Soft. Nondistended. Mild RLQ tenderness to palpation. No rebound or guarding.
MSK: Left shoulder and wrist swelling and warmth w/o erythema. ROM limited by pain
Ext: Trace bilateral LE edema
Skin: Generalized petechial rash
Neuro: A&Ox4

Laboratory Studies

7.8	16.9	200
	50.3	

136	102	26	107
2.5	23	**2.52**	

AST – **56**
ALT – 16
Alk Phos – **111**
Total Protein – **4.9**
Albumin – **1.7**
ESR – **40**
CRP – **49.89**
Uric Acid – **12.8**

URINALYSIS	
CLOUDY ↑	Appearance, Ur
yellow	Color, Ur
5.0	pH, Ur
1.012	Specific Gravity, Ur
negative	Bilirubin, Ur
3+ ↑	Blood, Ur
negative	Glucose, Ur
negative	Ketones, Ur
negative	Leukocytes Est, Ur
negative	Nitrite Level, Ur
>=600 ↑	Protein, Ur
negative	Urobilinogen, Ur
42 ^	WBC, Ur
>180 ^	RBC, Ur
moderate	Squam Epithel, Ur
FEW ↑	Bacteria, Ur
PRESENT ↑	Mucus, Ur
10 ^	Hyaline Casts, Ur

Hospital Course

HD 1
- Nephrology was consulted, felt there were features of both nephrotic and nephritic syndrome but were most concerned for IgA nephropathy
- Patient was started on pulse-dose steroids

HD 4-7
- Renal biopsy showed IgA deposits within glomerular mesangium and capillary walls
- Creatinine worsened, then plateaued
- Patient received IV cyclophosphamide. Steroids were continued.
- Worsening anasarca despite diuresis with leg and scrotal pain requiring opiates

HD 8
- Urology was consulted for scrotal edema. Ultrasound showed significant bilateral scrotal thickening and hyperemia suggestive of cellulitis
- Cefazolin started overnight but this was discontinued given low concern for infection

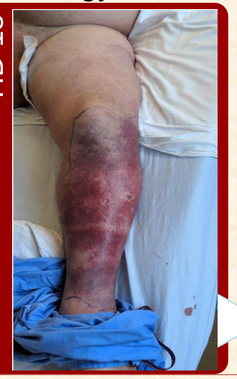
HD 9-14
- Anasarca was felt to be secondary to nephrotic syndrome
- Continued steroids and diuretics

HD 15: Overnight RN notes severe LLE rash with pruritus and pain

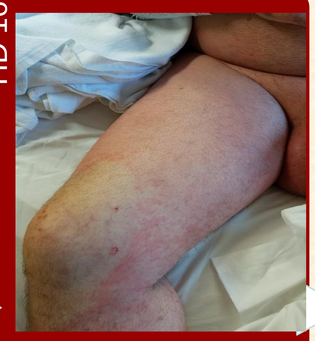
HD 16:
- Cefazolin was started for cellulitis.
- Overnight the rash spread to his RLE and right flank.
- He became hypotensive and hypoxic requiring 2 L NC. He was given IVF and treated for possible anaphylaxis to cefazolin w/o improvement. Cefazolin was changed to clindamycin. He was started on pressors and transferred to the MICU

HD 17:
- Escalated to three pressors.
- Vancomycin, meropenem, and micafungin added to clindamycin
- Blood cultures grew GNR (later Serratia marcescens)
- Urology, General surgery consulted for NSTI/Fournier's gangrene

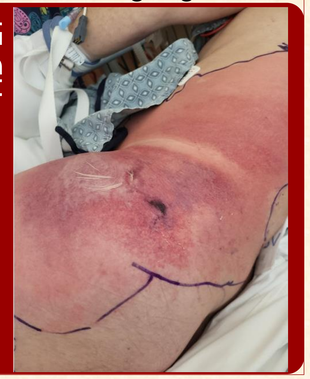
HD 15



HD 16



HD 17



Discussion

The diagnosis of NSTI can be difficult as early signs and symptoms are similar to those seen in cellulitis or abscess. Features that are more suggestive of NSTI include bullae, skin ecchymosis that precedes skin necrosis, cutaneous anesthesia, and the presence of gas in the tissues on exam or radiography. NSTI should be considered in cases with pain out of proportion to exam or systemic toxicity. Risk factors include skin or mucosal breach, traumatic wounds, diabetes, and immunosuppression. Early and aggressive surgical exploration and debridement is the cornerstone of diagnosis and management. Initial antimicrobial therapy should be directed against gram-positive, gram-negative, and anaerobic organisms.

Follow Up

- The patient went to the OR emergently for extensive debridement
- Operative findings included extensive necrotizing soft tissue infection of the scrotum, bilateral groins/thighs, RLE, and bilateral flanks
- OR cultures grew *Serratia marecscens* and *Staphylococcus lugdenensis*
- Postoperatively developed multi-system organ failure. His family elected for comfort measures and he passed away

Selected References

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