A Rare Dermatologic Manifestation of COVID-19

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Introduction

Greater than 600 dermatologic lesions reported with COVID-19.[1]

Interface dermatitis and vasculopathic features have been reported in isolation with COVID-19 infection but never together

Case Presentation

Brief History:

A 59-year-old unvaccinated man with hypertension, diabetes, follicular lymphoma s/p rituximab and bendamustine on maintenance IVIG who was admitted for acute hypoxic respiratory failure in the setting of COVID-19 ARDS.

Hospital Course

- Transferred from OSH for worsening hypoxia x 7 days. Intubated prior to transfer.
- Neutropenic fever from aspiration pneumonia (resolved with vancomycin + cefepime).
- Right SVC and cephalic vein thrombus (on therapeutic enoxaparin).
- Scheduled for percutaneous tracheostomy on hospital day #21 (7 from OSH + 14 at current).

Post-Operative Day #1

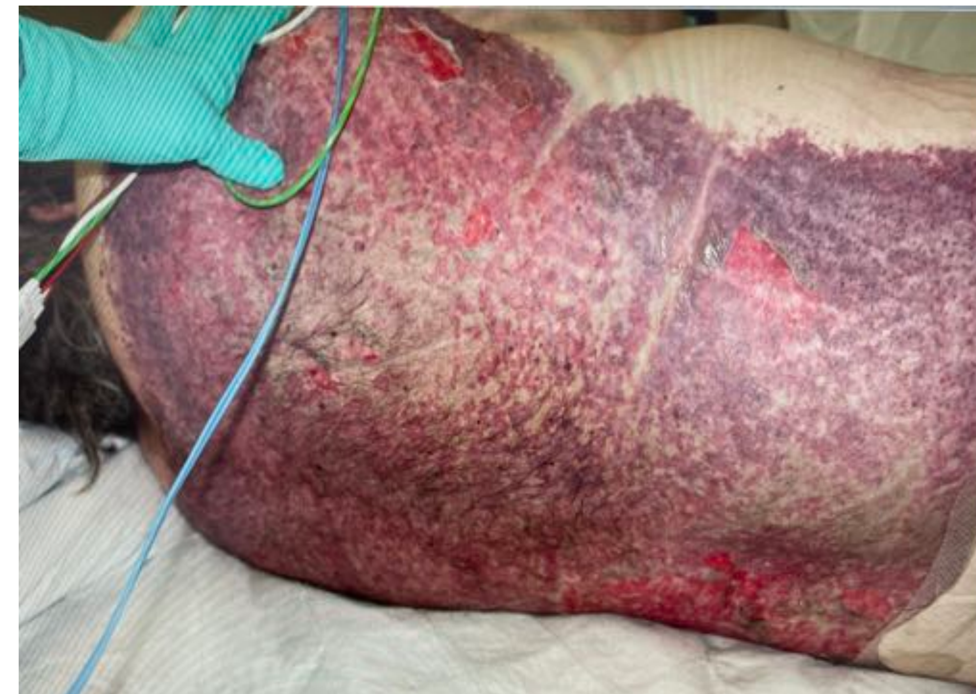
- Hypotensive, started on norepinephrine (s/p 1L IVF)
- Decreased hourly urine output
- Hypoglycemic, refractory to D50 boluses, on D10 drip
- Therapeutic heparin re-started (enoxaparin held x 24 hours prior to tracheostomy)
- Pan-cultured, started on empiric vancomycin + cefepime + hydrocortisone due to concern for septic shock vs adrenal insufficiency
- Arterial line replaced from R radial → R femoral

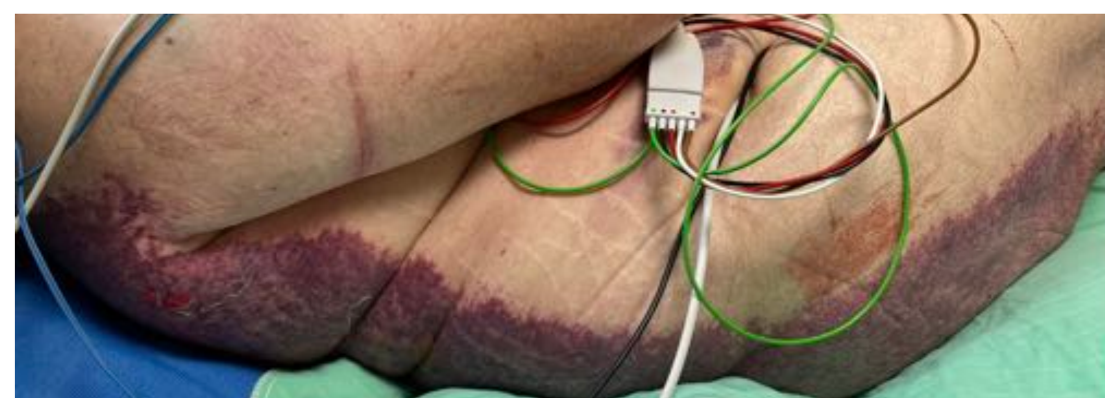
Medication Timeline

Completed prior to tracheostomy:
10 days of dexamethasone
5 days of remdesivir
7 days of cefepime
5 days of piperacillin-tazobactam
5 days of vancomycin
2 days of G-CSF

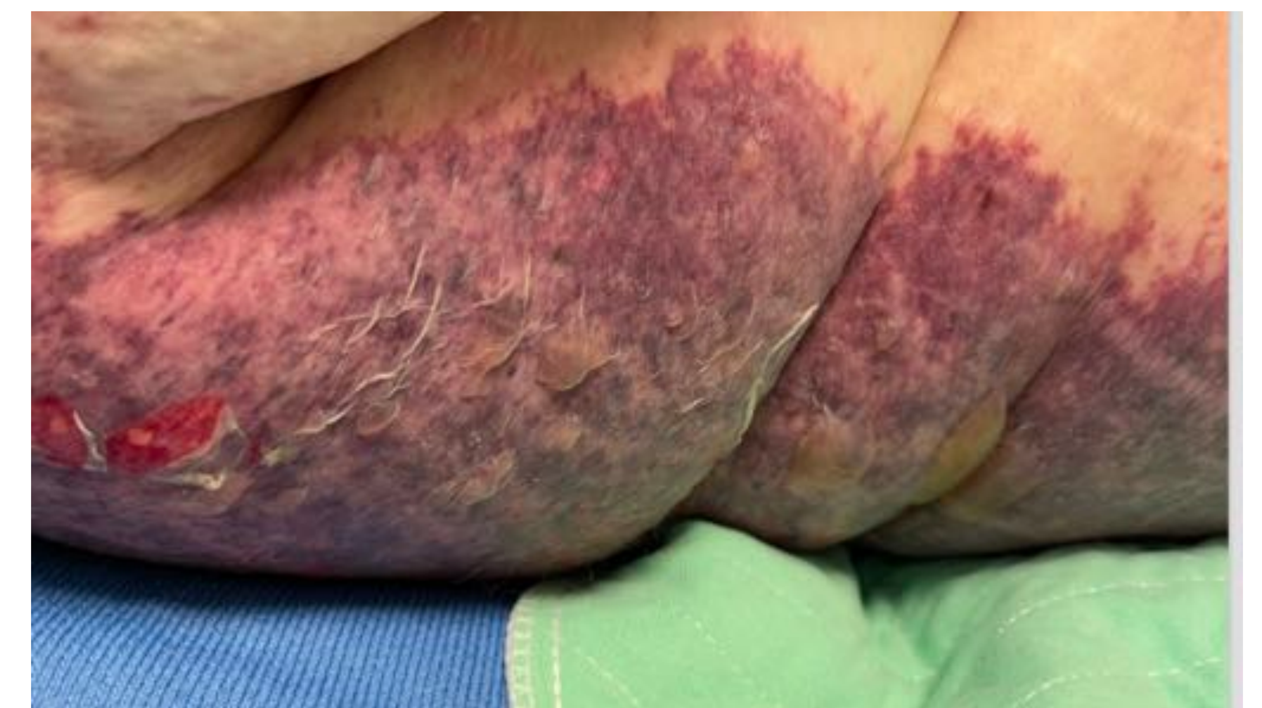
Current medications:
Anticoagulation (enoxaparin→heparin)
Intermittent diuresis with furosemide

Exam





Purpuric + pink macules and papules coalescing into a diffuse purpuric plaque with a sharp line of demarcation over the back, buttocks, upper thighs. Borders of the plaque are retiform in appearance with overlying 1-3 cm bullous and erosions in dependent areas. No lesions in oral or ocular mucosa.



Differential Diagnosis

- Heparin Induced Thrombocytopenia
- Disseminated Intravascular Coagulation
- Stevens Johnson Syndrome/TEN
- Vancomycin Flushing Syndrome
- Vasculitis
- Retroperitoneal Hematoma (from A line placement)

→ Skin Biopsy with Dermatology → **Noninflammatory Thrombotic Coagulopathy with pathologic evidence of Stevens Johnson/TEN**

Lab	Day 0 (Trach)	Day 1 (Pre-Rash)	Day 1 (Post-Rash)	Day 2	Day 3
WBC	5	9.5	14.5	18.2	13.6
HGB	10.1	10.7	10.8	10.4	8
PLT	112	125	143	107	69
Creatinine	0.9	1.6	2.0	1.9	1.7
Coagulation Panel		PT/INR 13.8/1.04	Fibrinogen 878 PT/INR19.3/1.59	PT/INR 15.6/1.22	
AST/ALT	101/54	x	3001/712	2091/674	1381/543
Lactate Other	x	x	3.58 PF4 Antibody Negative	3.28 Normal C3, C4	2.15

Rash progressed distally, but no oral lesions seen. Declined from burn center. Discussed ominous sign with family and ultimately made comfort care.

Discussion

- Unique case of **thrombotic microangiopathy coupled with pathologic findings of TEN** (without oral or ocular lesions) from COVID-19.
- **First to our knowledge**, that interface dermatitis and vasculopathic features seen **together** on punch biopsy with no clear medication contributing, likely a manifestation of COVID-19
- Pathophysiology involves **complement activation and persistent platelet activation.**[2]
- Sacral retiform purpuric lesions could be **ominous sign** for severe disease due to persistent viral replication and release of SARS-CoV-2 protein and interleukin-6.[3]

References

1. Conforti, C., et al., *Cutaneous Manifestations in Confirmed COVID-19 Patients: A Systematic Review.* Biology (Basel), 2020. **9**(12).
2. Magro, C.M., et al., *The differing pathophysiologies that underlie COVID-19-associated perniosis and thrombotic retiform purpura: a case series.* Br J Dermatol, 2021. **184**(1): p. 141-150.
3. McBride, J.D., et al., *Development of sacral/buttock retiform purpura as an ominous presenting sign of COVID-19 and clinical and histopathologic evolution during severe disease course.* J Cutan Pathol, 2021. **48**(9): p. 1166-1172.