Shocked to Discover Lupus: Rapid Progression of Effusions and Renal Failure in Undiagnosed Systemic Lupus Erythematosus

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Background

- **Systemic Lupus Erythematosus (SLE)** is a rheumatologic disease that can affect **multiple organ systems** with a wide **variation** in **manifestations** and **time course** of symptoms
- **Pleural involvement** and **pericarditis** with or without **effusion** occur in about **93%** and **25%** of patients, respectively
- **Renal involvement** is present in about **50%** of cases
- The above manifestations typically take **several months** to cause significant **morbidity** or **mortality**

Case Overview

- **22-year old female** patient with **no known SLE history** who presented initially with mild **acute kidney injury (AKI)** and **small pleural/pericardial effusions**
- **SLE workup** was sent on initial hospitalization with **positive results** but the patient **did not follow up** as an outpatient with rheumatology
- She was subsequently hospitalized only **6 weeks later** with **life-threatening effusions** and **hyperkalemia** with resulting **cardiac arrest**
- Patient also suffered **renal failure** requiring **hemodialysis**

Initial Presentation

- **22-year-old female** admitted for evaluation of **hypertension** and **hypothyroid** as well as **AKI** and **metabolic acidosis**, also positive for Covid-19
- **Small, non-concerning** pericardial and pleural **effusions** identified (see images)
- Serum **creatinine** was **1.46** mg/dL with **eGFR** of **52** mL/min/1.73m^2 on presentation
- **Creatinine** was **normal** with **eGFR** at **82** at discharge
- **Initial SLE Antibody workup:**
  - **Positive ANA** with **1:640** titer and speckled pattern
  - **Positive anti DNA Ab multiplex**
  - **C_3 21** mg/dL (normal range 87-200)
  - **C_4 < 8** mg/dL (normal range 19-52)
  - Indeterminate p-ANCA

Repeat Admission

- About **6 weeks** later she presented to the **ED** with **SOB** associated with **cough**, **fever**, and **diarrhea**; she was in **respiratory failure** with active **vomiting** and suspected **aspiration** after which she **lost consciousness** and was found to be **pulseless**
- **Ventricular fibrillation** was identified and shock administered; patient achieved **ROSC** with **CPR**
- Post-arrest **EKG did not suggest ischemia**
- **Creatinine** at this time was **1.72** with **eGFR** at **43**; **potassium** was **8.6**
- **CT** of the chest showed **large bilateral pleural effusions** with **complete collapse of the lung** on the left, as well as **large pericardial effusion** and small abdominal ascites
- Patient spent **2 days** in the **MICU** during which her **effusions** were drained and **hemodialysis** was initiated
- **Renal biopsy** revealed **diffuse proliferative glomerulonephritis** with **membranoproliferative** features consistent with **lupus nephritis class IV**
- Further **immunologic workup**:
  - RNP IgG >8.0
  - Ro IgG 4.3
  - Scl IgG 1.3, Sm IgG at >8.0

Resolution

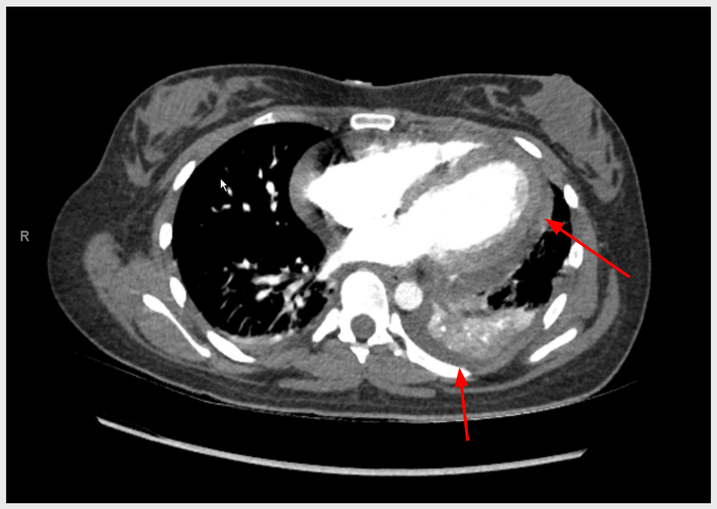
- On further questioning, patient reported history of **malar rash**, **oral ulcer**, and **alopecia**
- She was initially treated with **IV solu-medrol** and discharged on **high-dose oral prednisone** as well as **mycophenolate mofetil** and **hydroxychloroquine** with instructions to follow up with **rheumatology**
- On discharge, **eGFR** was **65** with potassium at **4.1**. Patient was discharged **without** further need for **dialysis**

Discussion

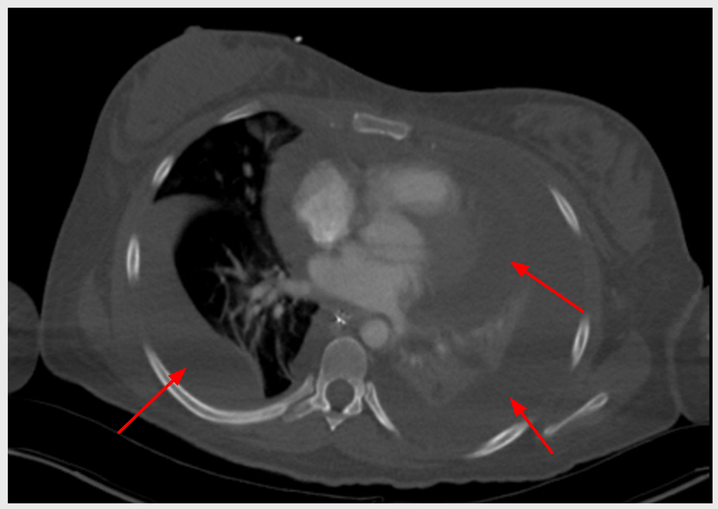
- While **significant pleural/pericardial effusions** and **fulminant renal failure** can develop in patients with **SLE**, it is **rare** for **all three** to develop **rapidly** over the course of **weeks**
- This patient was found to have **relatively mild AKI** with **small, non-concerning pericardial** as well as **unilateral pleural effusions** on initial presentation with **positive ANA**, **low complement** levels and **anti DNA Ab**
- Only **six weeks later** she was diagnosed with **massive bilateral pleural effusions** and **large pericardial effusion**, as well as **renal failure** requiring **hemodialysis**
- Patient also suffered **cardiac arrest** secondary to **hypoxia vs. hyperkalemia vs. cardiac tamponade**
- **SLE** is a **highly variable** disease with a multitude of presentations and **no standard time course**
- This case, while it represents an **unusual disease course**, demonstrates the **importance** of **rapid identification** and **treatment** of **complications** of the disease with **close follow-up** following **positive results** on **initial workup**

Images

Initial Presentation - CTA chest PE protocol



Repeat Admission - CTA chest



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