

## Fat Embolism Syndrome as the Presenting Syndrome of Undiagnosed Sickle Cell Disease in a Middle-aged Adult

Jamie Allen DO

Lehigh Valley Health Network, Jamie.Allen@lvhn.org

Osman Z. Abbasi DO

Lehigh Valley Health Network, osman.abbasi@lvhn.org

Louis Morolla DO

Lehigh Valley Health Network, Louis.Morolla@lvhn.org

Andres Zirlinger MD

Lehigh Valley Health Network, Andres.Zirlinger@lvhn.org

Jeffrey M. Gesell DO

Lehigh Valley Health Network, Jeffrey\_M.Gesell@lvhn.org

*See next page for additional authors*

Follow this and additional works at: <https://scholarlyworks.lvhn.org/emergency-medicine>



Part of the [Emergency Medicine Commons](#)

---

### Published In/Presented At

Allen, J, Abbasi, O., Morolla, L., Zirlinger, A., Gesell, J., & Lin, B. (2020, October). *Fat Embolism Syndrome as the Presenting Syndrome of Undiagnosed Sickle Cell Disease in a Middle-aged Adult*. Poster Presented at: CHEST (American College of Chest Physicians) Annual Meeting, Virtual.

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact [LibraryServices@lvhn.org](mailto:LibraryServices@lvhn.org).

---

**Authors**

Jamie Allen DO, Osman Z. Abbasi DO, Louis Morolla DO, Andres Zirlinger MD, Jeffrey M. Gesell DO, and Benjamin Lin MS

# Fat Embolism Syndrome as the Presenting Syndrome of Undiagnosed Sickle Cell Disease in a Middle-aged Adult

Jamie Allen, DO,<sup>1</sup> Osman Z. Abbasi, DO,<sup>3</sup> Louis A. Morolla, DO,<sup>1</sup> Andres Zirlinger, MD,<sup>2</sup> Jeffrey M. Gesell, DO,<sup>1</sup> Benjamin Lin, MS<sup>3</sup>

<sup>1</sup>Department of Emergency and Hospital Medicine, <sup>2</sup>Critical Care Medicine, Pulmonology, Lehigh Valley Health Network/University of South Florida Morsani College of Medicine, Lehigh Valley Campus, Allentown, PA  
<sup>3</sup>Emergency Medicine, Vituity at Union Hospital Terre Haute, Terre Haute, IN

## Introduction

Fat embolism syndrome (FES) represents a myriad of clinical signs and symptoms that occur following the release of fat emboli into systemic circulation including hypoxemia, neurologic changes, petechial rash, and multi-organ dysfunction. FES often occurs post-orthopedic trauma but can be a complication of sickle cell disease (SS).<sup>1</sup>

## Case Report

An otherwise healthy, 44-year-old female presented to our emergency department (ED) with worsening, atraumatic back and knee pain after an ED visit three days prior where x-rays and blood-work were unremarkable. She was short of breath, hypoxic, tachycardic and hypotensive. Her mental and respiratory status deteriorated requiring intubation. Laboratory work was significant for hemoglobin 8.5 g/dL, hematocrit 24.0%, WBC 14.8x10<sup>9</sup>/L, and platelets 59x10<sup>9</sup>/L including 11% bands and 15% nRBCs (baseline CBC had no abnormalities). A chest x-ray revealed bilateral, fluffy infiltrates consistent with pulmonary

edema. Further blood-work revealed acute renal and liver failure, lactic acidosis, and troponinemia. CT imaging revealed patchy, widespread pulmonary disease and splenomegaly. She underwent resuscitation with fluid, blood products, vasopressor support, and broad spectrum antibiotics. All infectious disease workups were negative. The patient was ultimately transferred elsewhere for whole blood exchange but expired. Autopsy revealed vertebral and long-bone marrow infarction and evidence of FES. She was discovered to be hemoglobin SS post-mortem and no trigger for this episode, including infectious disease, was identified.

## Discussion

Sickle cell disease screening is routine in the United States but less standardized in other nations.<sup>2</sup> Most sickle cell disease patients exhibit disease signs by age 4-5 months making her middle-aged presentation uncommon.<sup>3</sup> Our patient, a Haitian immigrant, as well as her husband, adamantly denied prior SS symptoms or crisis. Moreover,

according to a recent systematic review, FES is a rare complication of sickle cell disease with a predilection for heterozygous patients.<sup>4</sup> Of all FES cases, only 15% of patients were homozygous SS (n = 13).<sup>3</sup> It is rare for FES to be the presenting syndrome of a previously undiagnosed, middle-aged, homozygous SS disease patient.

## Conclusion

We present a rare case of FES as the presenting syndrome of a previously undiagnosed, middle-aged, SS disease patient. Prompt consideration and treatment of FES should be initiated to avoid complications.

## References:

- <sup>1</sup>Akhtar S. Fat embolism. *Anesthesiol. Clin.* 2009; 27 (3):533-550.
- <sup>2</sup>Pecker, L and Naik, R. The Current State of Sickle Cell Trait: Implications for Reproductive and Genetic Counseling. *Blood.* 2018 Nov 29; 132(22): 2331-2338.
- <sup>3</sup>Center for Disease Control Sickle Cell Disease. Oct 2019. Retrieved from <https://www.cdc.gov/ncbddd/sicklecell>
- <sup>4</sup>Tsitsikas DA, May JE, Gangaraju R, Abukar J, Amos RJ, Marques MB. Revisiting Fat Embolism in Sickle Syndrome: Diagnostic and Emergency Therapeutic Measures. *British Journal of Haematology.* 2019 Aug; 186(4), 112-115.