

BACKGROUND

In May of 2021, the FDA authorized the Pfizer-BioNTech COVID-19 vaccine for emergency use for adolescents aged 12-15. Since then, an association has been observed between the mRNA vaccine and myocarditis, especially among male adolescent and young adults. As of November 24, 2021, the CDC and the FDA have confirmed 1,071 cases of myocarditis or pericarditis among people who received the mRNA COVID-19 vaccine reported to VAERS. Limited data is available regarding COVID-vaccination associated myocarditis (CVAM) in pediatric patients with rheumatologic disease.

PURPOSE

This case report highlights a case of CVAM in an 18-year-old female with systemic-onset juvenile idiopathic arthritis (SoJIA) and discusses the clinical presentation, laboratory data, imaging, complications, and 8-month follow-up.

CASE DESCRIPTION

18-year-old female with so-JIA presented with 2-days of acute left-sided chest pain and shortness of breath following 1-day after the second dose of the Pfizer COVID vaccine. Admission vitals were significant for tachycardia and hypertension. Physical examination was notable for left episcleritis, arthritis of bilateral hips and left ankle, and erythema nodosum of bilateral shins..

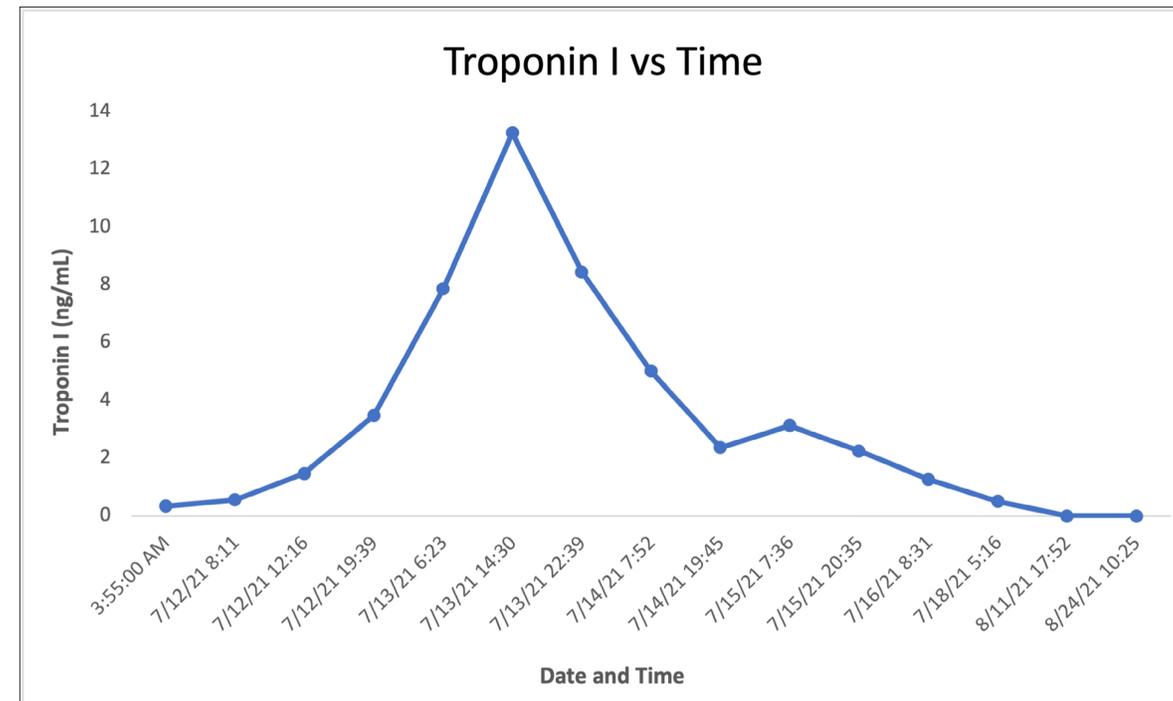


Fig 1: Troponin I vs time



Fig 2: Erythema nodosum of lower extremity.

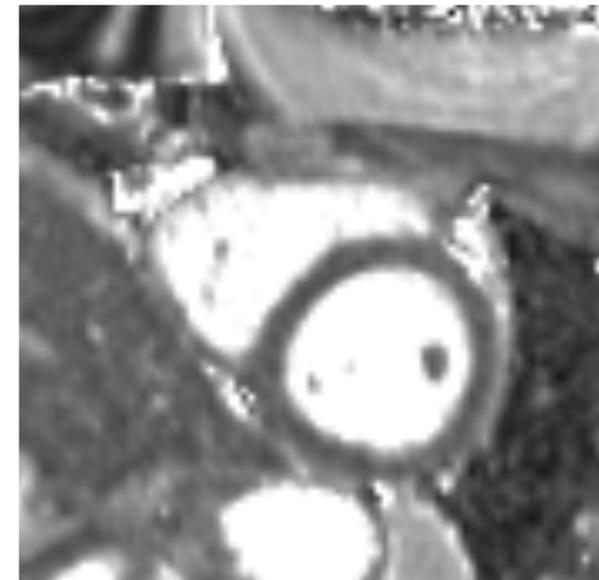


Fig 4: Cardiac MRI with evidence of regional myocardial edema

RESULTS & TREATMENT

- **Labs:** leukocytosis (30.04), absolute neutrophil count (26,180), troponin (0.036), fibrinogen (234). ESR, CRP, ferritin and platelets within normal limits.
- **ECG:** sinus tachycardia
- **Imaging:** normal chest x-ray and echocardiogram with normal biventricular function and no effusion.
- Negative infectious myocarditis work-up.
- Negative ANCA, MPO, and PR3.
- **Treatment:** initially treated with scheduled ibuprofen. Troponins continued to increase, so treated with 80 g of IVIG.
- Readmitted 2 days after discharged with SoJIA flare.

CONCLUSION

- This is the first case report discussing COVID-19 vaccination-associated myocarditis in a patient with SoJIA, complicated by a prolonged flare of her JIA.
- Further studies are needed in order to further characterize the immune response to the mRNA COVID-19 vaccine in patients with active rheumatologic disease.
- More data is also necessary to further understand the mechanism of injury of COVID-19 vaccination-associated myocarditis in these patients, the association with autoimmune condition flares, and duration of immune protection

SELECTED REFERENCE

1. Dimopoulou, D., Spyridis, N., Vartzelis, G., Tsolia, M. N., & Maritsi, D. N. (2022). Safety and tolerability of the COVID-19 messenger RNA vaccine in adolescents with juvenile idiopathic arthritis treated with tumor necrosis factor inhibitors. *Arthritis & rheumatology* (Hoboken, N.J.), 74(2), 365–366.