

10-1-2020

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### Recommended Citation

Jean, MD, Joseph; Lee, Elizabeth M; and Zhang, Xiao Chi, "Sudden shoulder swelling in an elderly man after the flu shot." (2020). *Department of Emergency Medicine Faculty Papers*. Paper 125. <https://jdc.jefferson.edu/emfp/125>

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## IMAGES IN EMERGENCY MEDICINE

## Musculoskeletal

# Sudden shoulder swelling in an elderly man after the flu shot

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**FIGURE 1** A 99-year-old male presenting with atraumatic left shoulder swelling (black arrow) after receiving the influenza vaccine (\*) earlier during the same day

A 99-year-old man presented to the emergency department (ED) with sudden left shoulder pain hours after receiving the influenza vaccine. His vital signs were normal; his left shoulder was noticeably swollen without overlying erythema (Figure 1). There was tenderness to palpation over his left deltoid muscle with limited range of motion at the shoulder due to pain.

## 1 | DIAGNOSIS

### 1.1 | Aseptic inflammatory arthritis secondary to influenza vaccination

Orthopedics performed a blind bedside arthrocentesis in the emergency department that showed 149,781 RBC count, 59,235 WBC count, negative crystals, and no bacterial growth on fluid analysis and subsequent cultures. He was then admitted to the ED observation unit overnight for a magnetic resonance imaging study that revealed an intramuscular fluid collection in the left deltoid

muscle thought to be a result of vaccine administration. Consequently, the fluid collection was drained by orthopedics at bedside and the fluid sent for culture showed no bacterial growth. The patient was ultimately discharged with routine outpatient follow-up.

The influenza vaccine likely triggered an acute inflammatory arthritis because of the temporal and anatomical relationship of vaccine administration and localized joint swelling. Vaccines contain adjuvant stimuli that have been proposed to cause a spectrum of immune-mediated phenomena called Autoimmune/inflammatory Syndrome Induced by Adjuvants (ASIA).<sup>1</sup> The aluminum component of the influenza vaccine may have led to the development of adjuvant-induced autoimmunity responsible for the various post-vaccination sequelae seen clinically. Furthermore, vaccine injection creates a depot of antigens that are released slowly, creating a sustained stimulation of the immune system, activating the inflammatory cascade and exacerbating the swelling.<sup>2</sup>

Influenza vaccination is an essential preventive measure in the interest of public health, yet it is important to recognize and consider the potential harm to the individual and weigh that risk against the public health benefit.

## REFERENCES

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**How to cite this article:** Jean JJ, Lee EM, Zhang XC. Sudden shoulder swelling in an elderly man after the flu shot. *JACEP Open.* 2020;1:1135. <https://doi.org/10.1002/emp2.12213>