Letter to the Editor / Editöre Mektup

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Turk J Osteoporos

Improper injection depth and localization during vaccination may cause shoulder pathologies: A few patients from the Covid Pandemic

Aşılamada yanlış enjeksiyon derinliği ve lokalizasyonu omuz patolojilerine neden olabilir: Kovid Pandemisinden birkaç hasta

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Dear Editor;

Shoulder injury linked to vaccine administration (SIRVA), is a well-known but underreported problem phenomenon within the medical literature. It is defined as shoulder pain and/or decreased range of motion subsequent to the receipt of a vaccination intended for intramuscular administration within the upper arm. It's hypothesized to ensue when vaccination is inadvertently injected into the shoulder joint or subdeltoid bursa, triggering an inflammatory cascade that damages the surrounding structures (1). It has been seen following tetanus, pneumococcus, and papillomavirus vaccinations, and has been recorded more frequently with influenza vaccinations due to their widespread utilization (2).

In the wake of a pandemic that necessitated widespread vaccination campaigns on a global scale, SIRVA has emerged as a subject of significant concern. A spectrum of shoulder pathologies like subacromial and subdeltoid bursitis ,supraspinatus tendinitis, massive shoulder effusion and synovitis, calcific tendinitis, Parsonage-Turner syndrome, Quadrilateral space inflammation are reported afterward. (3, 4).

We want to mention individuals who presented with the complaint of shoulder pain to our outpatient clinic between January and June 2022, among 1352 patients documented through international classification of diseases codes related to shoulder pain, a subset of 14 patients have reported an onset of shoulder pain subsequent to receiving the COVID-19 vaccine. Eight out of 14 patients were male and the mean age was 51.7 years. All of the patients had left shoulder involvement. Three patients had limited shoulder range of motion in addition to shoulder pain. The mean and standard deviation of pain intensity evaluated by visual analouge scale was 6.64±1.44. Regarding the temporal aspects of these cases, the initiation of shoulder pain exhibited a range spanning from a few hours to a duration of 4 weeks, with a calculated mean onset time of 7.6 days. The mean interval between the onset of pain and the point of hospital presentation was noted to be 5.7 months. None of the patients described a history of rigorous and strenuous activity prior to the manifestation of their shoulder pain. They had no prevaccination shoulder pain or shoulder pathology proven by clinical examination or imaging. Only two patient had inactivated virus vaccination. For the remaining individuals, the mRNA vaccination was the cause of their shoulder pain. Six patients reported that their shoulder pain began after receiving the second dosage of the immunization, and three patients reported that their shoulder pain began following the first and third doses of the vaccination. Supraspinatus, subscapularis, bicipital tendinosis and bursitis are the most common abnormalities which were found in the majority of our patients evaluated with shoulder magnetic resonance imaging (MRI). Reactive arthritis manifested solely in one patient. This individual exhibited tenderness in the acromioclavicular joint, without any concomitant limitations in range of motion. Laboratory analysis yielded unremarkable results. MRI findings were evaluated as compatible with reactive arthritis of the acromioclavicular joint (Figure 1).

In light of the extensive vaccination campaigns precipitated by the COVID-19 pandemic, SIRVA is highlighted, as a condition that can potentially manifest following various immunization interventions. Within the scope of routine public health practice, it is important to maintain awareness of SIRVA as a possible complication arising from vaccination. To mitigate risk, healthcare

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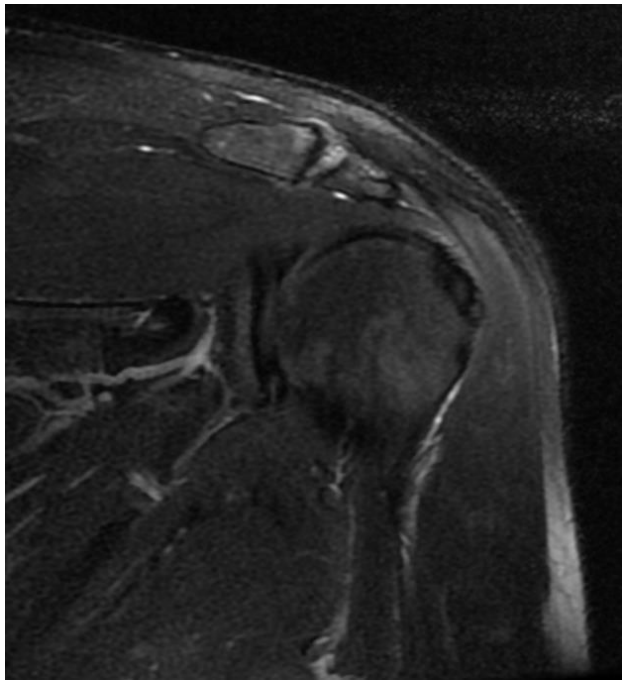

Figure 1. Reactive arthritis was diagnosed based on the increased effusion in the Acromioclavicular joint shown in the shoulder MRI.

practitioners are encouraged to rigorously adhere to the protocols outlined in guidelines regarding to the administration of intramuscular vaccines. Of particular import is the selection of an appropriate needle size in accordance with the recipient's physiological constitution. Furthermore, it is advised to refrain from administering the vaccine into the upper third of the deltoid muscle, opting for injection placement that aligns with a 90-degree angle relative to the surface of the skin. By upholding these recommended practices, healthcare professionals can contribute to the minimization of SIRVA occurrences and ensure the safe and effective administration of vaccines (1, 5).

Keywords: COVID-19, shoulder, sirva, vaccine
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Ethics

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Footnotes

Authorship Contributions

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Design: S.S.Ö., E.Y., Data Collection or Processing: E.Y., B.G., Analysis or Interpretation: S.S.Ö., E.Y., B.G., Literature Search: S.S.Ö., E.Y., Writing: S.S.Ö., E.Y., B.G.
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