

# Radial nerve motor palsy after COVID vaccination: A case report

Richard F. Radlberger<sup>1</sup>, Eugen Trinkka<sup>1,2,3,4</sup>, Stefan Leis<sup>1</sup>

<sup>1</sup>Department of Neurology, Christian-Doppler University Hospital, Paracelsus Medical University, Centre for Cognitive Neuroscience, Member of EpiCARE, Salzburg, Austria, <sup>2</sup>Neuroscience Institute, Christian Doppler Medical Centre, Paracelsus Medical University, Salzburg, Austria, <sup>3</sup>Department of Public Health, Health Services Research and Health Technology Assessment, UMIT – University for Health Sciences, Medical Informatics and Technology, Austria, <sup>4</sup>Karl Landsteiner Institute of Neurorehabilitation and Space Neurology, Salzburg, Austria

### ABSTRACT

Vaccinations are one of the most effective ways in primary prevention of infectious diseases. Due to the SARS-CoV-2 vaccination, an extensive public discussion considering possible side effects has been started. In this report, we present a patient with a radial nerve motor palsy after a vaccination with tozinameran (Comirnaty®).

**Keywords:** Complications, SARS-CoV-2, side effects, vaccination

### Introduction

One of the great challenges in human medicine is handling infectious diseases. In the last years, the outbreak of the severe acute respiratory syndrome coronavirus type 2 (SARS-CoV-2) caused a worldwide pandemic<sup>[1]</sup> which promoted the development of new vaccinations such as the mRNA vaccines Comirnaty®<sup>[2]</sup> and Spikevax®.<sup>[3]</sup> Since its approval billions of people have been vaccinated<sup>[4]</sup> and safety seemed not to be an issue even in those with comorbidities.<sup>[5]</sup> Furthermore, evidence starts to emerge that many lives have been saved due to these vaccinations.<sup>[6]</sup> Besides hesitancy and uncertainty, possible side effects that every medication has, have been discussed publicly.<sup>[7]</sup> Primary care physicians are the first contact for people seeking information and finally giving the shot. For the injections, the following case report shows the importance of a careful choice of the

injection site to prevent possible complications as well as further reservations.

### Case Report

A 91-year-old woman came to our outpatient clinic due to a weakness in her left arm since the day before. Three days earlier, in the evening after the second booster vaccination with tozinameran (Comirnaty®), she developed pain at the site of the injection, which spread out over the whole arm. The pain slowly faded away followed by a weakness in the arm that reached its maximum that morning. Since then she was not able to lift up her fingers, wrist or forearm. A sensibility loss was negated as well as other symptoms. Her medical history contained atrial fibrillation why she took rivaroxaban (Xarelto®) daily. She took no sleeping pills, especially benzodiazepines, drank no alcohol and had no trauma in the last days.

Physical examination revealed a prominent bulge over the left shoulder joint but there was no hematoma or even tenderness on palpation or passive movement of the joints. There was no sensibility loss concerning light touch or pain. In the further

**Address for correspondence:** Dr. Richard F. Radlberger, A-5020, Salzburg, Ignaz-Harrer-Str. 79, Austria. E-mail: dr.radlberger@gmx.net

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neurological examination, we found a distally pronounced motor palsy for the extension of wrist and fingers and reduced brachioradialis reflex response on the left upper extremity. Hence, on a clinical perspective the radial nerve should have been affected. To further discriminate the height of the lesion, we performed a nerve conduction study.

As shown in Figure 1, motor nerve conduction block was found after axillary stimulation. Stimulation distally of this point resulted in normal values comparable to the other side. With inching, we could determine the beginning of the affection about 6–7 cm proximal to the stimulation at the spiral groove. For further diagnostics, we performed a computed tomography that is presented in Figure 2.

Here we detected a hematoma underneath the deltoid muscle that was displacing the muscles around the shoulder upwards and forward resulting in the bulge visible in the inspection.

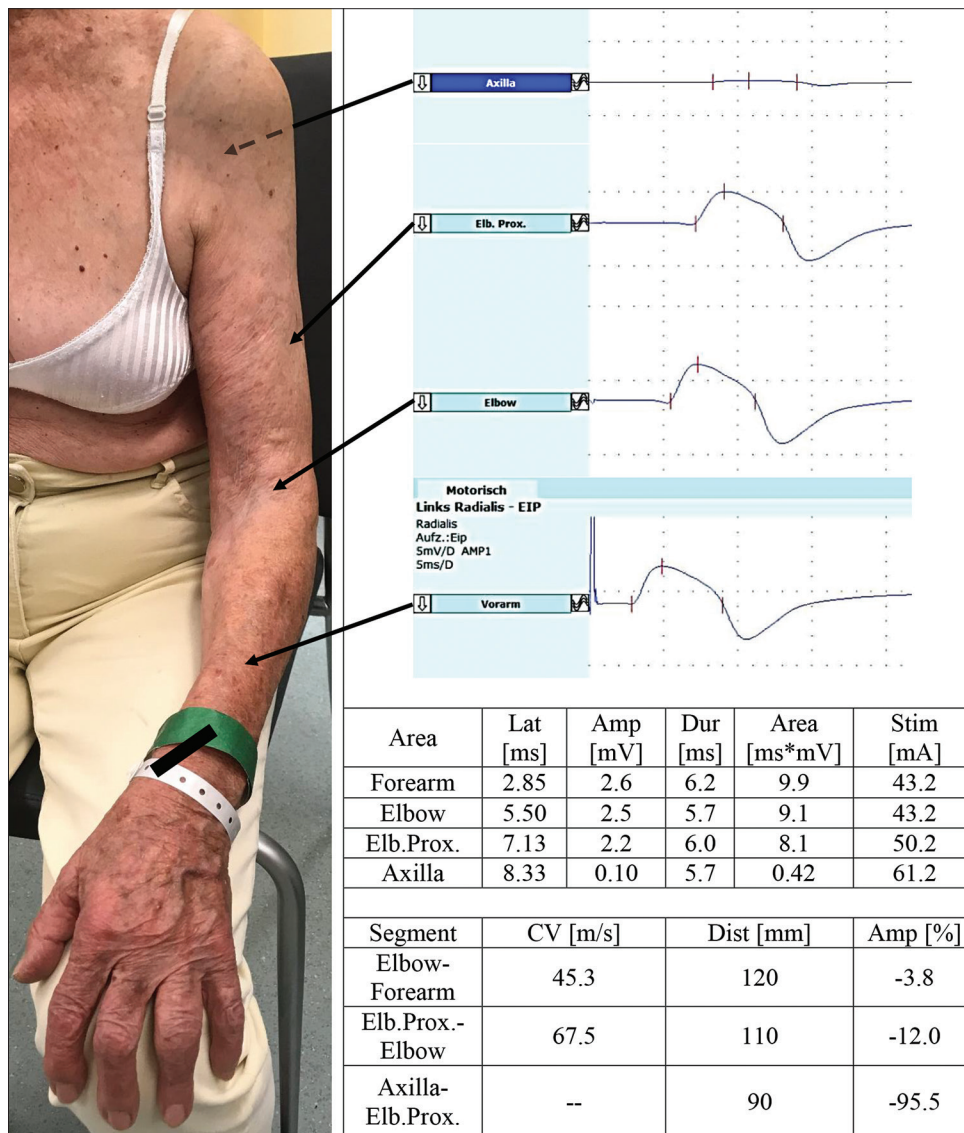
Furthermore, the hematoma applied pressure on the radial nerve. Therefore, we called our surgeons to perform a puncture.

## Discussion

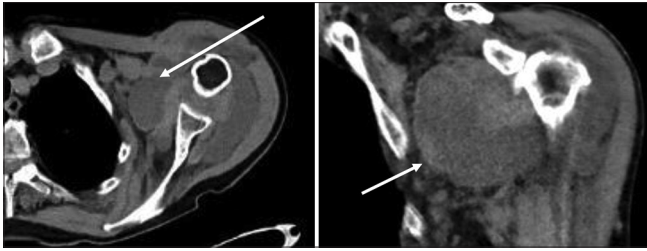
It is important to differentiate between a complication as presented here and a side effect as discussed publicly. The important point for the primary care physicians here is to prevent contributing to these reservations. Moreover using this case, we illustrated a complication in the context of an oral anticoagulation therapy. To avoid this, one should rely on well-established site selection methods for example as described by Cook<sup>[8]</sup> to avert injuries related to vaccinations. Special caution is recommended in the case of oral anticoagulation therapy.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/



**Figure 1:** Shows the results of the nerve conduction study on the motor radial nerve. The black rectangle shows the deduction site and the arrows the site of stimulation



**Figure 2:** Shows an axial and a coronary CT image of the left shoulder. The arrows mark the border of the hematoma

their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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