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Short Communication

# Sensory Guillain-Barre syndrome following the ChAdOx1 nCov-19 vaccine: Report of two cases and review of literature

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ABSTRACT

Massive vaccination against COVID-19 has become a global priority. Simultaneously, concerns regarding the safety of vaccines are growing. We describe two patients who developed sensory Guillain-Barre syndrome (GBS) shortly after the first dose of the ChAdOx1 vaccine. We also summarize 12 published cases of GBS after ChAdOx1 vaccination, highlighting their unique clinical and paraclinical features. We propose a possible association between the risk of GBS and the ChAdOx1 vaccine and recommend surveillance for GBS following vaccination. Population-based studies are needed to determine causality and whether specific subpopulations are susceptible.

## 1. Introduction

Massive vaccination against severe acute respiratory coronavirus-2 (SARS-CoV-2) has become a global priority. However, concerns regarding the safety of COVID-19 vaccines are growing. For example, a causal relationship between the ChAdOx1 vaccine and thrombotic immune thrombocytopenia was recently established (Cines and Bussel, 2021). Among the four major COVID-19 vaccines: ChAdOx1, BNT162b2 mRNA, mRNA-1273, and Ad26.COV2·S; ChAdOx1 is the most used in South Korea, administered to >60% of people who have received ≥1 dose of any COVID-19 vaccine (Agency KDCaP, n.d). We describe two patients who developed sensory Guillain-Barre syndrome (GBS) shortly after receiving the first dose of the ChAdOx1 vaccine. Further, we provide a summary of published post-ChAdOx1 vaccine-GBS cases, highlighting their unique features (Allen et al., 2021; Maramattom et al., 2021; Patel et al., 2021).

## 2. Case presentations

### 2.1. Case 1

A 58-year-old man with unremarkable medical history and no recent infections experienced focal aching pain on his right toes three days after the first dose of the ChAdOx1 vaccine. Over the next week, he developed severe burning and tingling sensations on both feet, which modestly improved with gabapentin (900 mg per day). Neurological examination on the 15th day post-vaccination revealed mild hypoesthesia in vibration, temperature, and pain on both feet. The Modified Research Council (MRC) grades and deep tendon reflexes (DTR) were normal in all four limbs. A nerve conduction study (NCS) revealed decreased sensory nerve action potential amplitudes on both sural nerves, temporal dispersion on the left peroneal nerve, and absent peroneal motor responses on the right (Fig. 1D). A skin biopsy in the right distal leg (10 cm above the lateral malleolus) revealed an abnormal decrease in intraepidermal nerve fiber density (IENFD) (Fig. 1A). On magnetic resonance imaging (MRI), no abnormal signal changes, enhancement, or enlargement were noted in the spinal cord and nerve roots. Cerebrospinal fluid (CSF) analysis revealed albuminocytologic dissociation (2 white blood cells/μL and protein 70 mg/dL). IgG and IgM for GM1, GD1b, GQ1b as well as IgM for myelin-associated glycoprotein (MAG) tested negative. Nasopharyngeal swabs were negative for SARS-CoV-2 on the reverse transcription-polymerase chain reaction (RT-PCR) test.

### 2.2. Case 2

A 37-year-old woman without any previous medical history and infections developed tingling sensations over both lower extremities four days after receiving her first dose of the ChAdOx1 vaccine. Afterwards,

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