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3 **Bell's palsy following the Ad26.COV2.S COVID-19 vaccination**
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Learning point:

We describe a case of Bell's palsy after Janssen COVID19 (Ad26.CoV2.S) vaccination. To the best of our knowledge, this is the first case report describing an incidence of Bell's palsy after the injection of Ad26.CoV2.S vaccination, and we highlight this case to further discussion and review.

Case presentation:

A 62-year-old Pilipino female with a past medical history of type 2 diabetes mellitus, hypertension, and hyperlipidemia presented to the emergency department with a 2 day history of right facial droop 20 days following the Ad26.COVID2.S vaccination. The patient denied prior history of stroke, transient ischemic attack, Bell's palsy, or other unexplained neurological symptoms. She also denied any recent viral infection or facial trauma. At the time of presentation, she denied tingling, ear pain, hearing loss, dysgeusia, drooling, vision problems, or rashes. Her physical examination was notable for near-complete paralysis of the right lower face and significant paralysis of the right upper face with incomplete eye closure, consistent with a House-Brackmann score 4 Bell's Palsy (Figure 1). Her motor, sensory, gait, and cerebellar examination were otherwise normal. Head computed tomography (CT) and brain magnetic resonance imaging (MRI) were unremarkable, without infarct, demyelination or peripheral nerve enhancement. She was diagnosed with Bell's Palsy related to COVID-19 vaccination.

Discussion:

Although most cases are idiopathic, peripheral facial nerve palsy can be observed in the context of viral infection, trauma, pregnancy and other inflammatory, autoimmune and

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3 neoplastic conditions. Facial nerve palsy has also been reported as an adverse event following
4 vaccination, most often following the influenza vaccine.^{1,2} We report a patient who developed
5 facial nerve palsy 20 days after the administration of the Janssen coronavirus (Ad26.COV2.S)
6 vaccine. Although we cannot directly attribute our patient's presentation to the vaccine, her
7 presentation was temporally related. We believe that this case can bring awareness to a potential
8 adverse effect, and we highlight this case to further discussion and review.
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17 The Coronavirus Disease 2019 (COVID-19) pandemic has caused substantial morbidity
18 and mortality around the world, and the development of vaccines has drawn the global attention
19 to stop the spread of the virus. The Ad26.COV2.S vaccine has been issued emergency use
20 authorization by the U.S. Food and Drug Administration (FDA) as a third vaccine against
21 COVID-19 on February 27, 2021 with a relatively benign side effect profile.³ Although the phase
22 3 clinical trial for Ad26.COV2.S reported 3 cases of Bell's palsy, this was not significantly
23 different from placebo and there is no evidence to support a causal relationship between the
24 vaccine and facial nerve palsy.⁴ However, given the expedited production of the vaccine and the
25 novelty associated with its production, side effects and adverse effects are still under
26 investigation. Some recent studies have supported an association of Bell's palsy after the mRNA
27 COVID-19 vaccines, even after the FDA's phase 3 trial did not find the frequency of Bell's palsy
28 above the general population.⁵ A review of the Vaccine Adverse Event Reporting System
29 (VAERS) database for reporting of adverse effects report a significantly higher rate of Bell's
30 Palsy after the mRNA vaccines than after the Ad26.COV2.S COVID-19 vaccination. Although
31 rare thrombotic complications have been reported after the injection of Ad26.COV2.S COVID-
32 19 vaccination⁶, relatively few reports of Bell's Palsy have been described.
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3 We present the first case report describing an incidence of Bell's Palsy after the Janssen
4 Ad26.COVS.2.S vaccination. This case highlights the importance of continuing to monitor for
5 side effects and complications on an individual basis following this novel vaccine.
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12 **Patient consent:**

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15 accompanying images.
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Conflict of interest:

None declared.

References:

1. Rath B, Gidudu JF, Anyoti H, Bollweg B, Caubel P, Chen YH et al. Brighton Collaboration Bell's Palsy Working Group. Facial nerve palsy including Bell's palsy: Case definitions and guidelines for collection, analysis, and presentation of immunisation safety data. *Vaccine*. 2017;35(15):1972-1983.
2. Mutsch M, Zhou W, Rhodes P, Bopp M, Chen RT, Linder T et al. Use of the inactivated intranasal influenza vaccine and the risk of Bell's palsy in Switzerland. *N Engl J Med*. 2004;350(9):896-903.
3. Food and Drug Administration. Fact sheet for healthcare providers administering vaccine (vaccination providers) Emergency Use Authorization (EUA) of the Janssen COVID-19 vaccine to prevent coronavirus disease (COVID-19). Silver Spring, MD: Food and Drug Administration; 2019. Available from <https://www.fda.gov/media/146304/downloadexternal icon>. [Accessed 3 May 2021].
4. Sadoff J, Gray G, Vandebosch A, Cárdenas V, Shukarev G, Grinsztejn B et al; ENSEMBLE Study Group. Safety and Efficacy of Single-Dose Ad26.COV2.S Vaccine against Covid-19. *N Engl J Med*. 2021.

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3 5. Colella G, Orlandi M, Cirillo N. Bell's palsy following COVID-19 vaccination. *J Neurol*.
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5 2021;1–3.
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10 6. Muir KL, Kallam A, Koepsell SA, Gundabolu K. Thrombotic Thrombocytopenia after
11
12 Ad26.COV2.S Vaccination. *N Engl J Med*. 2021;NEJMc2105869.
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17 **Figure 1:** Right-side facial nerve paralysis. Note that the patient was unable to close her right
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19 eye.
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Figure 1: Right-side facial nerve paralysis. Note that the patient was unable to close her right eye.

Definition for acronyms:

COVID-19: Coronavirus Disease 2019

CT: Computed tomography

MRI: Magnetic resonance imaging

FDA: Food and Drug Administration

VAERS: Vaccine Adverse Event Reporting System