

World Journal of *Clinical Cases*

World J Clin Cases 2021 September 26; 9(27): 7963-8279



EDITORIAL

7963 *Exophiala dermatitidis*

Usuda D, Higashikawa T, Hotchi Y, Usami K, Shimozawa S, Tokunaga S, Osugi I, Katou R, Ito S, Yoshizawa T, Asako S, Mishima K, Kondo A, Mizuno K, Takami H, Komatsu T, Oba J, Nomura T, Sugita M

REVIEW

7973 Gastric neuroendocrine neoplasms: A review

Köseoğlu H, Duzenli T, Sezikli M

MINIREVIEWS

7986 Coronavirus disease 2019 and renal transplantation

Nassar M, Nso N, Ariyaratnam J, Sandhu J, Mohamed M, Baraka B, Ibrahim A, Alfishawy M, Zheng D, Bhangoo H, Soliman KM, Li M, Rizzo V, Daoud A

7998 Impact of COVID-19 on liver

Su YJ, Chang CW, Chen MJ, Lai YC

ORIGINAL ARTICLE**Case Control Study**

8008 Association of gestational anemia with pregnancy conditions and outcomes: A nested case-control study

Sun Y, Shen ZZ, Huang FL, Jiang Y, Wang YW, Zhang SH, Ma S, Liu JT, Zhan YL, Lin H, Chen YL, Shi YJ, Ma LK

Retrospective Cohort Study

8020 Clinical stages of recurrent hepatocellular carcinoma: A retrospective cohort study

Yao SY, Liang B, Chen YY, Tang YT, Dong XF, Liu TQ

Retrospective Study

8027 Accuracy of ultrasonography in diagnosis of fetal central nervous system malformation

Pang B, Pan JJ, Li Q, Zhang X

8035 Analysis of ocular structural parameters and higher-order aberrations in Chinese children with myopia

Li X, Hu Q, Wang QR, Feng ZQ, Yang F, Du CY

8044 Radial nerve recovery following closed nailing of humeral shaft fractures without radial nerve exploration: A retrospective study

Yeh KL, Liaw CK, Wu TY, Chen CP

8051 Bridging therapy and direct mechanical thrombectomy in the treatment of cardiogenic cerebral infarction with anterior circulation macrovascular occlusion

Ding HJ, Ma C, Ye FP, Zhang JF

- 8061** Endu combined with concurrent chemotherapy and radiotherapy for stage IIB-IVA cervical squamous cell carcinoma patients

Zhao FJ, Su Q, Zhang W, Yang WC, Zhao L, Gao LY

CASE REPORT

- 8071** Primary pancreatic paraganglioma harboring lymph node metastasis: A case report

Jiang CN, Cheng X, Shan J, Yang M, Xiao YQ

- 8082** Retraction of lumbar disc herniation achieved by noninvasive techniques: A case report

Wang P, Chen C, Zhang QH, Sun GD, Wang CA, Li W

- 8090** Mixed neuroendocrine carcinoma of the gastric stump: A case report

Zhu H, Zhang MY, Sun WL, Chen G

- 8097** Diploic vein as a newly treatable cause of pulsatile tinnitus: A case report

Zhao PF, Zeng R, Qiu XY, Ding HY, Lv H, Li XS, Wang GP, Li D, Gong SS, Wang ZC

- 8104** Acute myocardial infarction and extensive systemic thrombosis in thrombotic thrombocytopenic purpura: A case report and review of literature

Şalaru DL, Adam CA, Marcu DTM, Şimon IV, Macovei L, Ambrosie L, Chirita E, Sascau RA, Statescu C

- 8114** Limited thoracoplasty and free musculocutaneous flap transposition for postpneumonectomy empyema: A case report

Huang QQ, He ZL, Wu YY, Liu ZJ

- 8120** Paraneoplastic focal segmental glomerulosclerosis associated with gastrointestinal stromal tumor with cutaneous metastasis: A case report

Zhou J, Yang Z, Yang CS, Lin H

- 8127** Acute coronary syndrome with severe atherosclerotic and hyperthyroidism: A case report

Zhu HM, Zhang Y, Tang Y, Yuan H, Li ZX, Long Y

- 8135** Gastric cancer with calcifications: A case report

Lin YH, Yao W, Fei Q, Wang Y

- 8142** Value of eosinophil count in bronchoalveolar lavage fluid for diagnosis of allergic bronchopulmonary aspergillosis: A case report

Wang WY, Wan SH, Zheng YL, Zhou LM, Zhang H, Jiang LB

- 8147** Asymptomatic gastric adenomyoma and heterotopic pancreas in a patient with pancreatic cancer: A case report and review of the literature

Li K, Xu Y, Liu NB, Shi BM

- 8157** Successful treatment of gastrointestinal infection-induced septic shock using the oXiris® hemofilter: A case report

Li Y, Ji XJ, Jing DY, Huang ZH, Duan ML

- 8164** Streptococcal pneumonia-associated hemolytic uremic syndrome treated by T-antibody-negative plasma exchange in children: Two case reports
Wang XL, Du Y, Zhao CG, Wu YB, Yang N, Pei L, Wang LJ, Wang QS
- 8171** Subclavian steal syndrome associated with Sjogren's syndrome: A case report
Hao LJ, Zhang J, Naveed M, Chen KY, Xiao PX
- 8177** Metachronous mixed cellularity classical Hodgkin's lymphoma and T-cell leukemia/lymphoma: A case report
Dong Y, Deng LJ, Li MM
- 8186** Duodenal perforation after organophosphorus poisoning: A case report
Lu YL, Hu J, Zhang LY, Cen XY, Yang DH, Yu AY
- 8192** Surgical treatment of abnormal systemic artery to the left lower lobe: A case report
Zhang YY, Gu XY, Li JL, Liu Z, Lv GY
- 8199** Madelung's disease with alcoholic liver disease and acute kidney injury: A case report
Wu L, Jiang T, Zhang Y, Tang AQ, Wu LH, Liu Y, Li MQ, Zhao LB
- 8207** Anesthetic technique for awake artery malformation clipping with motor evoked potential and somatosensory evoked potential: A case report
Zhou HY, Chen HY, Li Y
- 8214** Multiple hidden vessels in walled-off necrosis with high-risk bleeding: Report of two cases
Xu N, Zhai YQ, Li LS, Chai NL
- 8220** Non-small-cell lung cancer with epidermal growth factor receptor L861Q-L833F compound mutation benefits from both afatinib and osimertinib: A case report
Zhang Y, Shen JQ, Shao L, Chen Y, Lei L, Wang JL
- 8226** Successful removal of two magnets in the small intestine by laparoscopy and colonoscopy: A case report
Oh RG, Lee CG, Park YN, Lee YM
- 8232** Acute lower extremity arterial thrombosis after intraocular foreign body removal under general anesthesia: A case report and review of literature
Jeon S, Hong JM, Lee HJ, Kim E, Lee H, Kim Y, Ri HS, Lee JJ
- 8242** Low-intensity extracorporeal shock wave therapy for midshaft clavicular delayed union: A case report and review of literature
Yue L, Chen H, Feng TH, Wang R, Sun HL
- 8249** Treatment of bilateral granulomatous lobular mastitis during lactation with traditional Chinese medicine: A case report
Li ZY, Sun XM, Li JW, Liu XF, Sun ZY, Chen HH, Dong YL, Sun XH
- 8260** Early acute fat embolism syndrome caused by femoral fracture: A case report
Yang J, Cui ZN, Dong JN, Lin WB, Jin JT, Tang XJ, Guo XB, Cui SB, Sun M, Ji CC

- 8268** Combined fascia iliaca compartment block and monitored anesthesia care for geriatric patients with hip fracture: Two case reports
Zhan L, Zhang YJ, Wang JX
- 8274** Bell's palsy after inactivated COVID-19 vaccination in a patient with history of recurrent Bell's palsy: A case report
Yu BY, Cen LS, Chen T, Yang TH

ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Sunil Kumar Gupta, MBBS, MD, Reader (Associate Professor), Department of Dermatology, Venereology and Leprology, All India Institute of Medical Sciences, Gorakhpur, Gorakhpur 273008, Uttar Pradesh, India. dr.sunil_30@yahoo.co.in

AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (*WJCC*, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING

The *WJCC* is now indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, PubMed, and PubMed Central. The 2021 Edition of Journal Citation Reports® cites the 2020 impact factor (IF) for *WJCC* as 1.337; IF without journal self cites: 1.301; 5-year IF: 1.742; Journal Citation Indicator: 0.33; Ranking: 119 among 169 journals in medicine, general and internal; and Quartile category: Q3. The *WJCC*'s CiteScore for 2020 is 0.8 and Scopus CiteScore rank 2020: General Medicine is 493/793.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Ji-Hong Lin; Production Department Director: Xiang Li; Editorial Office Director: Jin-Lai Wang.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Thrice Monthly

EDITORS-IN-CHIEF

Dennis A Bloomfield, Sandro Vento, Bao-Gan Peng

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

September 26, 2021

COPYRIGHT

© 2021 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>

Bell's palsy after inactivated COVID-19 vaccination in a patient with history of recurrent Bell's palsy: A case report

Bin-Yan Yu, Lu-Sha Cen, Ting Chen, Tian-Hong Yang

ORCID number: Bin-Yan Yu 0000-0001-6680-5133; Lu-Sha Cen 0000-0001-7223-340X; Ting Chen 0000-0001-5194-7606; Tian-Hong Yang 0000-0002-1325-2149.

Author contributions: Yu BY and Cen LS reviewed the literature and contributed to manuscript drafting; Chen T interpreted the data; Yang TH analyzed and interpreted the testing findings; all authors approved the final article and assured all the questions regarding the accuracy of the article.

Supported by Zhejiang Provincial Administration of Traditional Chinese Medicine, No. 2020ZT001.

Informed consent statement: Informed written consent was obtained from the patient for publication of this report and any accompanying images.

Conflict-of-interest statement: The authors declare that they have no conflicting interests.

CARE Checklist (2016) statement: The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and

Bin-Yan Yu, Department of Acupuncture and Moxibustion, The First Affiliated Hospital of Zhejiang Chinese Medical University (Zhejiang Provincial Hospital of Traditional Chinese Medicine), Hangzhou 310006, Zhejiang Province, China

Lu-Sha Cen, Department of Ophthalmology, The First Affiliated Hospital of Zhejiang Chinese Medical University, Hangzhou 310006, Zhejiang Province, China

Ting Chen, Department of Ultrasonography, The First Affiliated Hospital of Zhejiang Chinese Medical University, Hangzhou 310006, Zhejiang Province, China

Tian-Hong Yang, Department of Acupuncture and Moxibustion, The First Affiliated Hospital of Zhejiang Chinese Medical University, Hangzhou 310006, Zhejiang Province, China

Corresponding author: Bin-Yan Yu, MD, Attending Doctor, Department of Acupuncture and Moxibustion, The First Affiliated Hospital of Zhejiang Chinese Medical University (Zhejiang Provincial Hospital of Traditional Chinese Medicine), No. 54 Youdian Road, Hangzhou 310006, Zhejiang Province, China. 20103034@zcmu.edu.cn

Abstract

BACKGROUND

With rapid and extensive administration of inactivated coronavirus disease 2019 (COVID-19) vaccine to the general population in China, it is crucial for clinicians to recognize neurological complications or other side effects associated with COVID-19 vaccination.

CASE SUMMARY

Here we report the first case of Bell's palsy after the first dose of inactivated COVID-19 vaccine in China. The patient was a 36-year-old woman with a past history of Bell's palsy. Two days after receiving the first dose of the Sinovac Life Sciences inactivated COVID-19 vaccine, the patient developed right-side Bell's palsy and binocular keratoconjunctivitis. Prednisone, artificial tears and fluorometholone eye drops were applied. The patient's symptoms began to improve by day 7 and resolved by day 54.

CONCLUSION

As mRNA COVID-19 vaccine trials reported cases of Bell's palsy as adverse events, we should pay attention to the occurrence of Bell's palsy after inactivated COVID-19 vaccination. A history of Bell's palsy, rapid increase of immunoglobulin M and immunoglobulin G-specific antibodies to severe acute respiratory

fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

Manuscript source: Unsolicited manuscript

Specialty type: Medicine, research and experimental

Country/Territory of origin: China

Peer-review report's scientific quality classification

Grade A (Excellent): 0
Grade B (Very good): 0
Grade C (Good): 0
Grade D (Fair): 0
Grade E (Poor): 0

Received: June 13, 2021

Peer-review started: June 13, 2021

First decision: June 25, 2021

Revised: June 28, 2021

Accepted: July 28, 2021

Article in press: July 28, 2021

Published online: September 26, 2021

P-Reviewer: Syahputra DA

S-Editor: Wang LL

L-Editor: Filipodia

P-Editor: Yuan YY



syndrome coronavirus 2 may be risk factors for Bell's palsy after COVID-19 vaccination.

Key Words: Recurrent; Bell's palsy; Keratoconjunctivitis; Inactivated COVID-19 vaccination; Case report

©The Author(s) 2021. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: Bell's palsy has been reported as an adverse event in coronavirus disease 2019 (COVID-19) mRNA vaccine trials, but no cases have been seen following administration of inactivated COVID-19 vaccines. Here we report a case of Bell's palsy in a patient with a history of recurrent Bell's palsy following one dose of inactivated COVID-19 vaccine. Because of a rapid increase of immunoglobulin M- and immunoglobulin G-specific antibodies to severe acute respiratory syndrome coronavirus 2 and keratoconjunctivitis of both eyes after vaccination, we assumed that the humoral immune system was intensively activated, causing local inflammation of the facial nerve and cornea. A history of Bell's palsy and rapid increase of specific antibodies may be risk factors for Bell's palsy after COVID-19 vaccination.

Citation: Yu BY, Cen LS, Chen T, Yang TH. Bell's palsy after inactivated COVID-19 vaccination in a patient with history of recurrent Bell's palsy: A case report. *World J Clin Cases* 2021; 9(27): 8274-8279

URL: <https://www.wjgnet.com/2307-8960/full/v9/i27/8274.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v9.i27.8274>

INTRODUCTION

The ongoing coronavirus disease 2019 (COVID-19) pandemic has had a huge impact on people's health, daily life, and on the economy worldwide. To control the spread of the epidemic and to meet the coming opening of China, COVID-19 vaccination was initiated for the public from the end of 2020. Currently three types of COVID-19 vaccines have been granted emergency use and marketing authorization by National Medical Products Administration of China. According to the different techniques used for vaccine design, they can be divided into inactivated, live-vectored mRNA, and recombinant COVID-19 vaccines. Of those vaccines, the inactivated vaccine has been the most widely administered in China and is manufactured by two companies, Sinopharm China National Biotec Group and Sinovac Life Sciences. Phase III clinical trials of the inactivated vaccines are underway[1]. Initial efficacy and safety data on the inactivated vaccine have been reported[2,3]. To the best of our knowledge, there is no mention of facial paralysis in the literature describing the efficacy and safety of the inactivated vaccine.

Bell's palsy is an acute, unilateral facial paralysis. In the general population, the incidence ranges from 11.5-53.3 per 100000[4]. The cause of facial palsy is still unclear. It is reported that the incidence of Bell's palsy increased in vaccine trials[5,6]. The correlation between Bell's palsy and vaccination should receive attention. Here we report a case of 36-year-old Chinese woman with a previous history of Bell's palsy, who developed Bell's palsy 2 d after receiving inactivated COVID-19 vaccine.

CASE PRESENTATION

Chief complaints

A 36-year-old woman presented at our outpatient department 2 d after receiving inactivated COVID-19 vaccine, with the chief complaints of eye discomfort and right-side facial weakness.

History of present illness

She received the first dose of Sinovac Life Sciences (Beijing, China) COVID-19 vaccine,

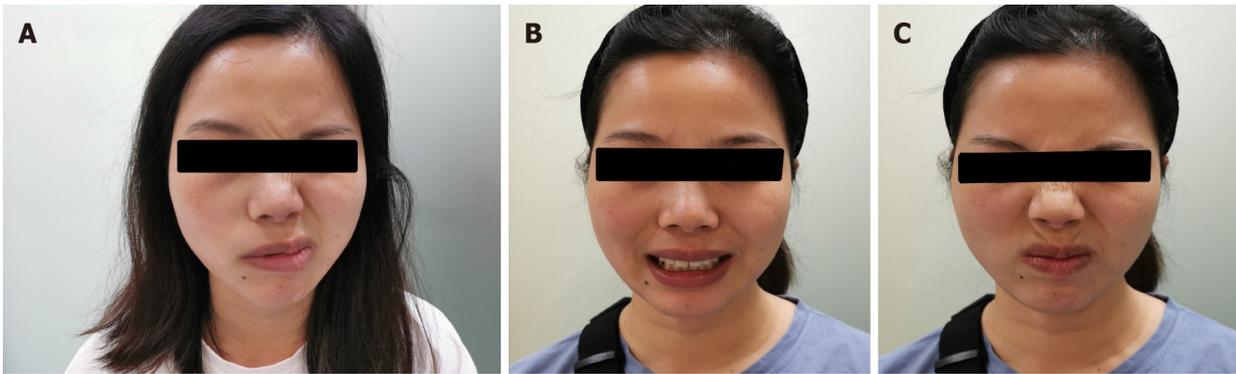


Figure 1 Changes in right-side facial expression muscle function before and after treatment. A: Patient with a right facial droop before treatment; B and C: Patient with normal right-side facial expression muscle function after treatment.

which contains 3 µg/0.5 mL of inactivated severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus (equivalent to 600 SU per dose) at 5 pm April 15, 2021 in Hangzhou, Zhejiang Province, China. Following injection in the right upper arm, she felt mild soreness, but no localized erythema and swelling were seen at the injection site. The next morning, she complained of eye discomfort, with dryness and foreign-body sensation, especially in her right eye. Two days later, she found that the right side of her face drooped, the forehead wrinkle had disappeared, and her eyelid did not close completely. Her body temperature was 36.7 °C. There was no inducing factor such as fatigue, influenza, or cold stimulation. She had no symptoms of respiratory tract infection and no symptoms of the Melkersson-Rosenthal syndrome triad.

History of past illness

The patient suffered from left-side Bell's palsy in 2003. She recovered after 1 mon of treatment with prednisone and acupuncture. She denied any other nervous disease or other chronic diseases.

Personal and family history

The patient had no particular individual or family history.

Physical examination

Her body weight was 52 kg. She was oriented and coherent. Cranial nerve (CN) examination was significant for House-Brackmann (H-B) grade III isolated right CN 7 palsy (Figure 1). Her motor, sensory, and cerebellar examinations were normal.

Laboratory examinations

Blood immunoglobulin M (IgM) and immunoglobulin G (IgG)-specific antibodies to SARS-CoV-2 whole-virion were positive. In addition, there were no positive findings in routine, blood biochemistry, serum immunoglobulin A, IgM, and IgG.

Imaging examinations

There was no positive finding in a computed tomography scan of the brain.

FINAL DIAGNOSIS

She was diagnosed with Bell's palsy and keratoconjunctivitis.

TREATMENT

Prednisone (40 mg/d) was administered for 1 wk. Artificial tears and fluorometholone eye drops (Santen, Osaka, Japan) were prescribed four times daily. Acupuncture therapy was applied three times weekly beginning of April 24, 2021 (Figure 2).

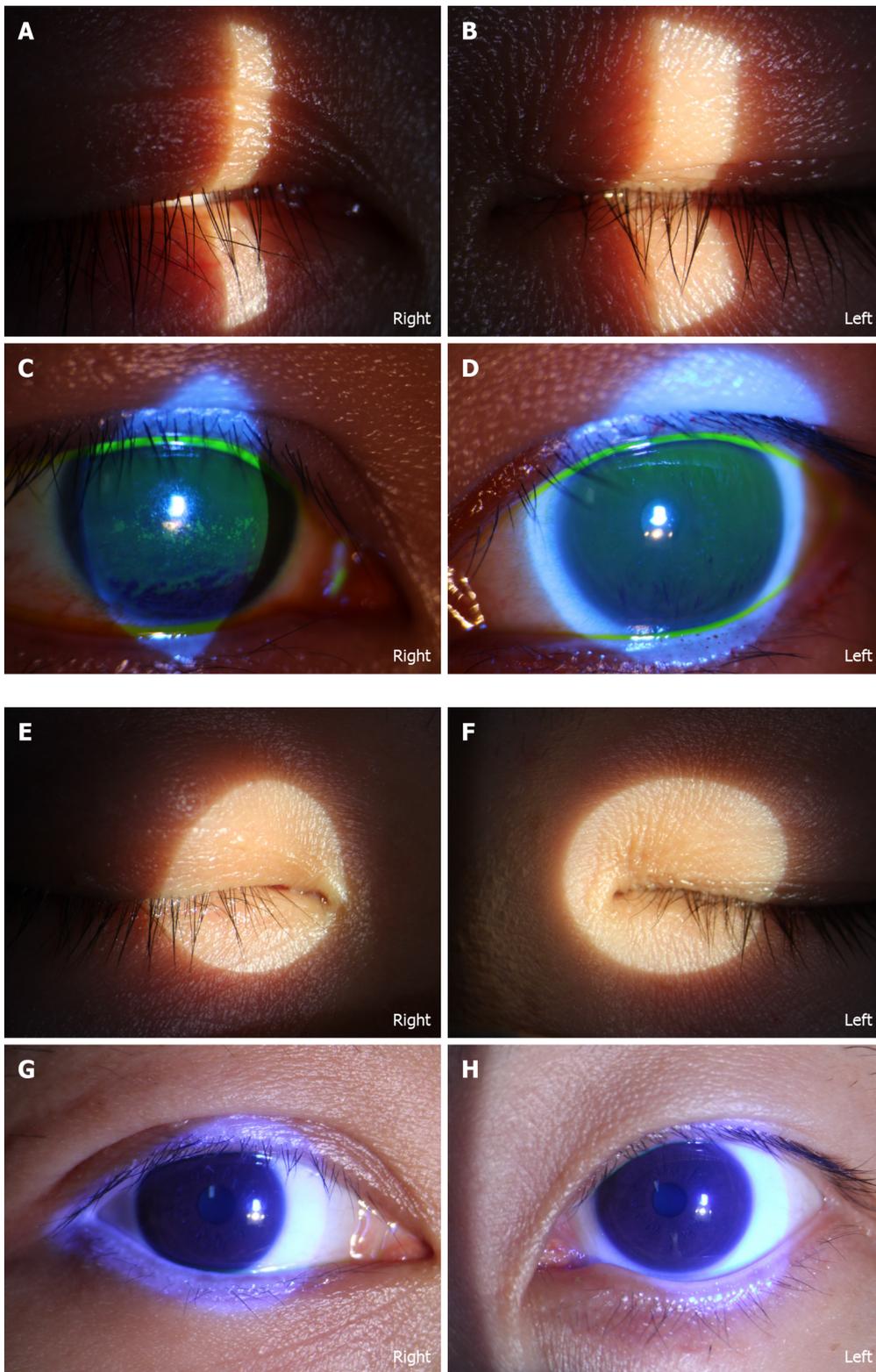


Figure 2 Ophthalmologic changes of both eyes before and after treatment. A and B: Slit lamp inspection shows that the right eyelid could not completely close and that the left one could close normally; C and D: Conjunctival and scleral vessels are slightly congested. The central corneal epithelium of both eyes was punctate with opacity; E and F: Slit lamp inspection shows that both eyelids could close normally; G and H: Conjunctival and scleral vessels were not congested. Central corneal epithelium of both eyes had recovered.

OUTCOME AND FOLLOW-UP

The patient's symptoms began to improve by day 14, and by July 10, 2021, the patient's facial expression and eye symptoms were significantly improved. The H-B grade decreased to grade I.

DISCUSSION

This is the first case of Bell's palsy in a patient with a previous history of Bell's palsy following one dose of inactivated COVID-19 vaccine. Bell's palsy has been reported after administration of a COVID-19 mRNA vaccine[7,8] and patients with a history of Bell's palsy had a three and a half to seven times higher morbidity than the general population[5]. The incidence of Bell's palsy may also be increased following injection of other inactivated vaccines including quadrivalent meningococcal conjugate[5], H1N1, and other seasonal influenza vaccines[6].

Inactivated vaccines are the classic form used to protect against viral infection by inducing specific T cell and neutralizing antibody responses[5]. A clinical trial of inactivated COVID-19 vaccine indicated that the immune responses were induced after two doses of vaccine[3]. However, IgM- and IgG-specific antibodies to the SARS-CoV-2 whole virion tested positive after first dose of vaccine in our case. Keratoconjunctivitis is a typical manifestation of COVID-19 infection[9]. The patient's left eye could close completely, but keratoconjunctivitis was present. We assumed that her humoral immune system was intensively activated, causing local inflammation of the facial nerve and cornea. Repajic *et al*[8] also reported a case of Bell's palsy after mRNA COVID-19 vaccination in a patient with a history of Bell's palsy. The association between Bell's palsy history and COVID-19 vaccination could be of importance, and pathophysiological evidence needs further investigation.

CONCLUSION

Based on the analysis of this case and other COVID-19 related cases, we consider that patients with a history of Bell's palsy may be at risk of recurrence after COVID-19 vaccination by mRNA or inactivated vaccines and physicians need to be vigilant about that. The absence of cerebrospinal fluid examination may be a limitation for this case as it is necessary to make it clear whether there was any infection in the cerebrospinal fluid. The rapid increase of IgM and IgG-specific antibodies to SARS-CoV-2 after vaccination may be a related observable factor.

REFERENCES

- 1 **Palacios R**, Patiño EG, de Oliveira Pirelli R, Conde MTRP, Batista AP, Zeng G, Xin Q, Kallas EG, Flores J, Ockenhouse CF, Gast C. Double-Blind, Randomized, Placebo-Controlled Phase III Clinical Trial to Evaluate the Efficacy and Safety of treating Healthcare Professionals with the Adsorbed COVID-19 (Inactivated) Vaccine Manufactured by Sinovac - PROFISCOV: A structured summary of a study protocol for a randomised controlled trial. *Trials* 2020; **21**: 853 [PMID: 33059771 DOI: 10.1186/s13063-020-04775-4]
- 2 **Xia S**, Zhang Y, Wang Y, Wang H, Yang Y, Gao GF, Tan W, Wu G, Xu M, Lou Z, Huang W, Xu W, Huang B, Wang W, Zhang W, Li N, Xie Z, Ding L, You W, Zhao Y, Yang X, Liu Y, Wang Q, Huang L, Xu G, Luo B, Liu P, Guo W. Safety and immunogenicity of an inactivated SARS-CoV-2 vaccine, BBIBP-CorV: a randomised, double-blind, placebo-controlled, phase 1/2 trial. *Lancet Infect Dis* 2021; **21**: 39-51 [PMID: 33069281 DOI: 10.1016/S1473-3099(20)30831-8]
- 3 **Zhang Y**, Zeng G, Pan H, Li C, Hu Y, Chu K, Han W, Chen Z, Tang R, Yin W, Chen X, Liu X, Jiang C, Li J, Yang M, Song Y, Wang X, Gao Q, Zhu F. Safety, tolerability, and immunogenicity of an inactivated SARS-CoV-2 vaccine in healthy adults aged 18-59 years: a randomised, double-blind, placebo-controlled, phase 1/2 clinical trial. *Lancet Infect Dis* 2021; **21**: 181-192 [PMID: 33217362 DOI: 10.1016/S1473-3099(20)30843-4]
- 4 **Zhang W**, Xu L, Luo T, Wu F, Zhao B, Li X. The etiology of Bell's palsy: a review. *J Neurol* 2020; **267**: 1896-1905 [PMID: 30923934 DOI: 10.1007/s00415-019-09282-4]
- 5 **Ozonoff A**, Nanishi E, Levy O. Bell's palsy and SARS-CoV-2 vaccines. *Lancet Infect Dis* 2021; **21**: 450-452 [PMID: 33639103 DOI: 10.1016/S1473-3099(21)00076-1]
- 6 **Lee GM**, Greene SK, Weintraub ES, Baggs J, Kulldorff M, Fireman BH, Baxter R, Jacobsen SJ, Irving S, Daley MF, Yin R, Naleway A, Nordin JD, Li L, McCarthy N, Vellozzi C, Destefano F, Lieu TA; Vaccine Safety Datalink Project. H1N1 and seasonal influenza vaccine safety in the vaccine safety datalink project. *Am J Prev Med* 2011; **41**: 121-128 [PMID: 21767718 DOI: 10.1016/j.amepre.2011.04.004]
- 7 **Colella G**, Orlandi M, Cirillo N. Bell's palsy following COVID-19 vaccination. *J Neurol* 2021 [PMID: 33611630 DOI: 10.1007/s00415-021-10462-4]
- 8 **Repajic M**, Lai XL, Xu P, Liu A. Bell's Palsy after second dose of Pfizer COVID-19 vaccination in a patient with history of recurrent Bell's palsy. *Brain Behav Immun Health* 2021; **13**: 100217 [PMID: 33594349 DOI: 10.1016/j.bbih.2021.100217]

- 9 **Douglas KAA**, Douglas VP, Moschos MM. Ocular Manifestations of COVID-19 (SARS-CoV-2): A Critical Review of Current Literature. *In Vivo* 2020; **34**: 1619-1628 [PMID: [32503820](#) DOI: [10.21873/invivo.11952](#)]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA
Telephone: +1-925-3991568
E-mail: bpgoffice@wjgnet.com
Help Desk: <https://www.f6publishing.com/helpdesk>
<https://www.wjgnet.com>

