

A survey of adverse reactions to COVID-19 vaccines in peer-reviewed papers

1 Introduction

This paper presents a non-exhaustive survey of adverse reactions to COVID-19 vaccines, as observed and reported by physicians in peer-reviewed papers.

2 Vaccine adverse reactions

Myocarditis Following mRNA COVID-19 Vaccine. A growing number of adolescents are being diagnosed with acute myocarditis following mRNA COVID-19 vaccinations[1].

Takotsubo Cardiomyopathy After mRNA COVID-19 Vaccination[2]. Epidemiology of Acute Myocarditis/Pericarditis in Hong Kong Adolescents Following Comirnaty Vaccination[3]. There is a significant increase in the risk of acute myocarditis/pericarditis following Comirnaty vaccination among Chinese male adolescents, especially after the second dose. Shedding the Light on Post-Vaccine Myocarditis and Pericarditis in COVID-19 and Non-COVID-19 Vaccine Recipients [4].

Myocarditis-induced sudden death after BNT162b2 mRNA COVID-19 vaccination in Korea: Case report focusing on histopathological findings [5].

Aphasia seven days after second dose of an mRNA-based SARS-CoV-2 vaccine[6].

A case of acute demyelinating polyradiculoneuropathy with bilateral facial palsy after ChAdOx1 nCoV-19 vaccine[7].

Gastroparesis After Pfizer-BioNTech COVID-19 Vaccination has been identified[8].

Intracerebral hemorrhage associated with vaccine-induced thrombotic thrombocytopenia following ChAdOx1 nCOVID-19 vaccine in a pregnant woman[9]. Intracerebral Hemorrhage due to Thrombosis with Thrombocytopenia Syndrome after Vaccination against COVID-19: the First Fatal Case in Korea[10]. Clinical Features of Vaccine-Induced Immune Thrombocytopenia and Thrombosis[11]. Vaccine-induced immune thrombocytopenia and thrombosis (VITT) is a new syndrome associated with the ChAdOx1 nCoV-19 adenoviral vector vaccine against severe acute respiratory syndrome coronavirus 2.

Acute Retinal Necrosis from Reactivation of Varicella Zoster Virus following BNT162b2 mRNA COVID-19 Vaccination[12].

A 59-year-old woman with extensive deep vein thrombosis and pulmonary thromboembolism 7 days following a first dose of the Pfizer-BioNTech BNT162b2 mRNA COVID-19 vaccine[13].

Observational Findings of PULS Cardiac Test Findings for Inflammatory Markers in Patients Receiving mRNA Vaccines[14]. The mRNA vacs numerically increase the markers IL-16, Fas, and

HGF, all markers previously described by others for denoting inflammation on the endothelium and T cell infiltration of cardiac muscle.

Immune-mediated hepatitis with the Moderna vaccine, no longer a coincidence but confirmed[15].

Hepatitis C virus reactivation following COVID-19 vaccination—A case report[16].

Maternal COVID-19 Vaccination and Its Potential Impact on Fetal and Neonatal Development[17]. Most COVID-19 vaccine reactions include injection site erythema, pain, swelling, fatigue, headache, fever and lymphadenopathy, which may be sufficient to affect fetal/neonatal development. In this review, we have explored components of the first-generation viral vector and mRNA COVID-19 vaccines that are believed to contribute to adverse reactions and which may negatively impact fetal and neonatal development.

Genital necrosis with cutaneous thrombosis after COVID-19 mRNA vaccination[18].

Rapid progression of angioimmunoblastic T Cell lymphoma following BNT162b2 mRNA vaccine booster shot: a case report[19].

COVID-19 mRNA vaccination leading to CNS inflammation: a case series[20]. All patients experienced new neurologic symptoms, occurring 1–21 (mean 13.7) days after vaccination, attributable to involvement of the optic nerve, brain, and/or spinal cord, including visual loss, dysmetria, gait instability, paresthesias, sphincter disturbance, and limb weakness. COVID-19 vaccination may carry a short-term risk of CNS demyelination.

Acute bilateral optic/chiasm neuritis with longitudinal extensive transverse myelitis in long-standing stable multiple sclerosis following vector-based vaccination against the SARS-CoV-2[21].

Intracellular Reverse Transcription of Pfizer BioNTech COVID-19 mRNA Vaccine BNT162b2 In Vitro in Human Liver Cell Line[22]. BNT162b2 mRNA is reverse transcribed intracellularly into DNA in as fast as 6 h upon BNT162b2 exposure.

COVID-19 vaccination induced lymphadenopathy in a specialized breast imaging clinic in Israel: Analysis of 163 cases[23].

Acute autoimmune-like hepatitis with atypical anti-mitochondrial antibody after mRNA COVID-19 vaccination: A novel clinical entity[24].

Fatal cerebral venous sinus thrombosis after COVID-19 vaccination[25].

Cerebral venous sinus thrombosis 2 weeks after the first dose of mRNA SARS-CoV-2 vaccine[26].

Erythema Multiforme Major following SARS-CoV-2 vaccine[27].

Persistent Cardiac MRI Findings in a Cohort of Adolescents with post COVID-19 mRNA vaccine myopericarditis[28].

Liver transplantation following severe acute respiratory syndrome-coronavirus-2 vaccination—induced liver failure[29].

COVID-19 vaccine and autoimmunity. A new case of autoimmune hepatitis and review of the literature[30].

A neurologist’s rhombencephalitis after comirnaty vaccination. A change of perspective[31].

Autopsy Histopathologic Cardiac Findings in Two Adolescents Following the Second COVID-19 Vaccine Dose[32]. Autopsy Histopathologic Cardiac Findings in Two Adolescents Following the Second COVID-19 Vaccine Dose: Cytokine storm, hypersensitivity, or something else[33]. Therefore, according to this classification, one of these boys might have suffered hypersensitivity myocarditis with subepicardial/transmural fibrosis and the other boy may have had hypersensitivity myocarditis with no subepicardial injury.

SARS-CoV-2 Vaccination and Myocarditis in a Nordic Cohort Study of 23 Million Residents [34]. Results of this large cohort study indicated that both first and second doses of mRNA vaccines were associated with increased risk of myocarditis and pericarditis.

A case of acute necrotising pancreatitis following the second dose of Pfizer-BioNTech COVID-19 mRNA vaccine[35].

Vulvar Aphthous Ulcer in an Adolescent After Pfizer-BioNTech (BNT162b2) COVID-19 Vaccination[36]. Post COVID-19 Vaccination Vulvar Aphthous Ulcers: An Unpopular Case Series[37].

Fatal cerebral haemorrhage after COVID-19 vaccine[38].

Intracerebral haemorrhage twelve days after vaccination with ChAdOx1 nCoV-19[39].

Innate immune suppression by SARS-CoV-2 mRNA vaccinations: The role of G-quadruplexes, exosomes, and MicroRNAs[40]. These disturbances potentially have a causal link to neurodegenerative disease, myocarditis, immune thrombocytopenia, Bell's palsy, liver disease, impaired adaptive immunity, impaired DNA damage response and tumorigenesis.

SARS-CoV-2 vaccination can elicit a CD8 T-cell dominant hepatitis[41].

Systemic lupus erythematosus and antiphospholipid syndrome after COVID-19 vaccination. A case report[42].

Cutaneous hypersensitivity reaction with acute hepatitis following COVID-19 vaccine[43].

Severe de novo liver injury after Moderna vaccination—not always autoimmune hepatitis[44].

Autoimmune hepatitis developing after COVID 19 vaccine[45]. Three cases of 80, 73 and 68 years old women who developed severe AIH after COVID 19 vaccination with no history of auto-immune disease. The first case received two doses of Pfizer-BioNTech, the second one dose of Moderna and the third one dose of AstraZeneca Covid 19 vaccine. AIH onset was rapid, with diagnosis of hepatitis, 10, 21 and 20 days after vaccination, respectively.

Pancreatic Injury after COVID-19 Vaccine [46]. Acute pancreatitis that occurred shortly after administering the Pfizer BioNTech COVID-19 mRNA vaccine to a young and healthy patient, a healthy woman, breastfeeding mother who did not consume alcohol or drugs.

Cognitive deficits and memory impairments after COVID-19 (Covishield) vaccination[47].

Immune thrombocytopenic purpura and acute liver injury after COVID-19 vaccine[48].

Varicella-zoster virus reactivation after SARS-CoV-2 BNT162b2 mRNA vaccination: Report of 5 cases[49]. Reactivation of varicella zoster virus after vaccination for SARS-CoV-2[50].

Herpes zoster after inactivated SARS-CoV-2 vaccine in two healthy young adults[51]

Kikuchi-Fujimoto disease can present as delayed lymphadenopathy after COVID-19 vaccination[52].

Autoimmune mucocutaneous blistering diseases after SARS-Cov-2 vaccination: A Case report of Pemphigus Vulgaris and a literature review[53].

Guillain-Barré syndrome following ChAdOx1 nCoV-19 COVID-19 vaccination: A case series[54]. AstraZeneca COVID-19 vaccine and Guillain-Barré Syndrome in Tasmania[55]. Guillain-Barré syndrome following the first dose of Pfizer-BioNTech COVID-19 vaccine: case report and review of reported cases[56]. A Novel Case of Bifacial Diplegia Variant of Guillain-Barré Syndrome Following Janssen COVID-19 Vaccination[57].

A Case of Ulcerative Colitis Relapse after COVID-19 Vaccination[58].

SIRVA (Shoulder Injury Related to Vaccine Administration) following mRNA COVID-19 Vaccination[59].

Organ Donation From a Brain Dead Donor With Vaccine-induced Immune Thrombotic Thrombocytopenia After Ad26.COV2.S: The Risk of Organ Microthrombi[60].

Informed consent disclosure to vaccine trial subjects of risk of COVID-19 vaccines worsening clinical disease[61]. COVID-19 vaccines may sensitise vaccine recipients to more severe disease than if they were not vaccinated, via antibody-dependent enhancement (ADE). Medical ethics standards required that, given the extent of evidence in the medical literature, the risk of ADE should be clearly and emphatically distinguished in the informed consent from other risks.

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