...However, the rapidity of approval, and history of prior vaccination regimens resulting in neurological and other complications, creates concern surrounding widespread vaccination. This is particularly so in groups with pre-existing neurological conditions...

“Though neurological side effects were not more commonly observed following active vaccine over the extended follow-up period for any of the vaccines, a number of neurological complications of these vaccines are now being reported in the most comprehensive registry, the Vaccine Adverse Events Reporting System (VAERS) database. These include strokes, cranial neuropathies including Bell’s palsy, tinnitus and trigeminal neuralgia, peripheral neuropathies, dysautonomia, acute disseminated encephalomyelitis, transverse myelitis and AIDP. Case reports are also starting to emerge in the published literature, and the popular press. Most recently, the possibility of increased risk of AIDP in the weeks following vaccination was formally added to the label for the Johnson and Johnson vaccine. These complications are rare when compared to the large number of vaccinated individuals; however, it is too early to know the true incidence and risk factors for these complications. They are thought to be immune mediated and early recognition and treatment with immunomodulatory therapies might be warranted...

“Prior studies have shed light on the likelihood of neurological complications following vaccination. These data can be difficult to interpret and are often seen as controversial, suffering from potential reporting bias and lack of clear causality, but illustrate theoretical concerns for both patients and physicians and must be acknowledged.”
“If thrombocytopenia or thrombosis are present, recommend urgent consultation from hematologist with expertise in hemostasis. Avoid use of heparin until TTS has been ruled out or until an alternative other plausible diagnosis has been made. Knowledge about TTS continues to evolve, and updates will be made as new data become available.

“To date, TTS appears far more likely following AstraZeneca/Johnson and Johnson adenoviral vaccines than Moderna/Pfizer mRNA vaccines.”

Journal of the American Medical Association
Concerns for Myocarditis and Perimyocarditis Underreporting, review of 40 hospitals:
https://jamanetwork.com/journals/jama/fullarticle/2782900

MAYO CLINIC
COVID-19 Vaccine Precautions

“This vaccine may cause serious allergic reactions, including anaphylaxis, which can be life-threatening and requires immediate medical attention. Tell your doctor right away if you have a rash, itching, a fast heartbeat, trouble breathing, trouble swallowing, or any swelling of your hands, face, or mouth after receiving the vaccine.

“This vaccine may increase your risk of serious heart problems (eg, myocarditis, pericarditis), especially after you receive the second dose. Check with your doctor right away if you have anxiety, blue or pale skin, chest pain, possibly moving to the left arm, neck, or shoulder, fever, chills, a fast heartbeat, trouble breathing, or unusual tiredness or weakness.

“Fainting may occur after you receive this vaccine. You may also have vision changes, numbness or tingling in your arms, hands, or feet, or jerky movements of the arms and legs. Your doctor may want you to be observed after you get the injection to prevent and manage fainting.

“This vaccine may not protect everyone who receives it…”

GUIDANCE & CASE REPORTS C19VAXREACTIONS.COM
GOVERNMENT OF CANADA

Reported side effects following COVID-19 vaccination in Canada
(reported adverse events of special interest)
https://health-infobase.canada.ca/covid-19/vaccine-safety/

Auto-immune diseases: Guillain-Barré Syndrome, Thrombocytopenia (low blood platelets)
Cardiovascular system: Cardiac arrest, Cardiac failure, Myocardial infarction (heart attack), Myocarditis/Pericarditis (inflammation of the heart muscle and lining around the heart)
Circulatory system: Cerebral venous (sinus) thrombosis, Cerebral thrombosis, Cutaneous vasculitis, Deep vein thrombosis, Embolism, Haemorrhage (bleeding), Pulmonary embolism, Thrombosis (blood clot), Thrombosis with thrombocytopenia syndrome (blood clot with low platelets)
Hepato-gastrointestinal and renal system: Acute kidney injury, Glomerulonephritis (kidney inflammation) and nephrotic syndrome (kidney disorder), Liver injury
Nerves and central nervous system: Bell's Palsy/facial paralysis, Cerebrovascular accident (stroke), Transverse myelitis (inflammation of spinal cord) Anaphylaxis
Pregnancy outcomes: Fetal growth restriction, Spontaneous abortion
Respiratory system: Acute respiratory distress syndrome
Skin and mucous membrane, bone and joints system: Chilblains, Erythema multiforme (immune skin reaction)

NIH - National Institutes of Health

NIH encourages researchers to investigate reported changes in menstruation after COVID-19 vaccination

WORLD HEALTH ORGANIZATION


“Children and adolescents tend to have milder disease compared to adults, so unless they are part of a group at higher risk of severe COVID-19, it is less urgent to vaccinate them than older people, those with chronic health conditions and health workers.

More evidence is needed on the use of the different COVID-19 vaccines in children to be able to make general recommendations on vaccinating children against COVID-19.”
Cardiac Disorders: myocarditis, pericarditis
Gastrointestinal Disorders: diarrhea, vomiting
Immune System Disorders: severe allergic reactions, including anaphylaxis, and other hypersensitivity reactions (e.g., rash, pruritus, urticaria, angioedema)
Musculoskeletal and Connective Tissue Disorders: pain in extremity

CDC - CLINICAL CONSIDERATIONS

People with a history of Guillain-Barré syndrome
“Reports of adverse events following use of the Janssen COVID-19 vaccine under EUA suggest an increased risk of GBS during the 42 days following vaccination. No increased risk of GBS has been identified with mRNA vaccines during use under EUA.”

People with a history of Bell’s palsy
“Cases of Bell's palsy (acute peripheral facial nerve palsy) were reported following vaccination of participants in the COVID-19 vaccine clinical trials...people with a history of Bell’s palsy may receive any currently FDA-authorized COVID-19 vaccine.”

People with a history of dermal filler use
“Infrequently, people who have received dermal fillers might experience swelling at or near the site of filler injection (usually face or lips) following administration of a dose of an mRNA COVID-19 vaccine... The swelling appears to be temporary and resolves with medical treatment, including corticosteroid therapy.”

People with a history of thrombosis or risk factors for thrombosis
“Although the etiology of TTS associated with the Janssen COVID-19 vaccine is unclear, it appears to be similar to another rare immune-mediated syndrome, heparin-induced thrombocytopenia (HIT). Until more information becomes available, experts advise that people with a history of an episode of an immune-mediated syndrome characterized by thrombosis and thrombocytopenia, such as HIT, should be offered another currently FDA-authorized COVID-19 vaccine (i.e., mRNA vaccine) if it has been ≤90 days since their TTS resolved. After 90 days, patients may be vaccinated with any currently FDA-authorized COVID-19 vaccine.”
Venous thromboembolism (VTE), defined as deep vein thrombosis, pulmonary embolism, or both, are common. The biologic mechanisms for VTE (as well as arterial thrombi) differ from the underlying immune-mediated mechanism for HIT…

People with a history of myocarditis or pericarditis
“Myocarditis (inflammation of the heart muscle) or pericarditis (inflammation of the lining around the heart) have occurred in some people following receipt of mRNA COVID-19 vaccines (Pfizer-BioNTech and Moderna)… Cases of myocarditis or pericarditis have occurred predominantly in males aged 12-29 years within a few days after receiving the second dose of vaccine. Most patients have required hospitalization with resolution of acute symptoms. Follow-up is ongoing to identify and understand potential long-term outcomes among cases.
“There are limited data on the safety and efficacy of COVID-19 vaccines in people with a history of myocarditis or pericarditis...
“Myocarditis or pericarditis after receipt of the first dose of an mRNA COVID-19 vaccine series but before administration of the second dose… It is unclear if people who developed myocarditis or pericarditis after a first dose of an mRNA COVID-19 vaccine may be at increased risk of further adverse cardiac effects following a second dose of the vaccine. Until additional safety data are available, experts recommend that people who develop myocarditis or pericarditis after a first dose of an mRNA COVID-19 vaccine defer receiving the second dose.
“People with a history of myocarditis or pericarditis who choose to receive the second dose of an mRNA COVID-19 vaccine should wait at least until their episode of myocarditis or pericarditis has completely resolved.”

Considerations involving pregnancy, lactation, and fertility
“…women aged <50 years should be aware of the rare risk of TTS after receipt of the Janssen COVID-19 vaccine and the availability of other currently FDA-authorized COVID-19 vaccines (i.e., mRNA vaccines) for which this risk has not been seen…There is no evidence that any of the COVID-19 vaccines affect current or future fertility.”

COVID VACCINES ARE NOT FREE OF NEUROLOGICAL SIDE EFFECTS
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8206845/
“…The most common neurological symptoms included dizziness, headache, pain, muscle spasms, myalgia and paresthesias, which are expected to occur as acute, transient effects of the vaccination. Rare cases of tremor, diplopia, tinnitus, dysphonia, seizures and reactivation of herpes zoster have been also reported. There were also cases of stroke, GBS, facial palsy, transverse myelitis and acute disseminated encephalomyelitis (ADEM) in the VAERS
In the coronavirus vaccine trial, 2 patients with **transverse myelitis** were reported. **Facial palsy** has been also reported in a study of patients undergoing a SARS-CoV-2 vaccination with mRNA-based vaccines. There is also one report about a **deep venous thrombosis (DVT)** following the second dose of an mRNA vaccine. Since DVT is a potential risk factor for ischemic stroke in case of a patent foramen ovale (PFO), we should recognize that venous thrombosis as a potential side effect of SARS-CoV-2 vaccines may secondarily concern also the neurologist.

“In addition to these publications, we observed several patients with **neurological compromise**, in whom it was conceivable that neurological compromise was causally related to a recent SARS-CoV-2 vaccination.”

**PUBLISHED CASE STUDIES:**

**Neurological:**


CNS inflammation after COVID-19 mRNA vaccination: a case series [https://link.springer.com/article/10.1007/s00415-021-10780-7?fbclid=IwAR22vEfDaXjBmRmyFuUBbVzVfev4aFywwJNHarqGVCzUqsvNyPUEj_LuP0](https://link.springer.com/article/10.1007/s00415-021-10780-7?fbclid=IwAR22vEfDaXjBmRmyFuUBbVzVfev4aFywwJNHarqGVCzUqsvNyPUEj_LuP0)

POTS: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8101507/?fbclid=IwAR1DWjqDhAUyig3U1B6kMvJLBiiLoo5UB58_i4NTyo51pFZRzTKtldj_aj8](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8101507/?fbclid=IwAR1DWjqDhAUyig3U1B6kMvJLBiiLoo5UB58_i4NTyo51pFZRzTKtldj_aj8)

General Neuro side effects: [https://onlinelibrary.wiley.com/doi/full/10.1111/ane.13451?fbclid=IwAR1CemFwLUsPSMK19GMZa_xPF775Q4B0lksbrzIzKUplRzXhYR5cDQFfVAQ](https://onlinelibrary.wiley.com/doi/full/10.1111/ane.13451?fbclid=IwAR1CemFwLUsPSMK19GMZa_xPF775Q4B0lksbrzIzKUplRzXhYR5cDQFfVAQ)

18 cases of idiopathic sensorineural hearing loss, tinnitus, and/or vertigo following Moderna/Pfizer: [https://pubmed.ncbi.nlm.nih.gov/34267103/](https://pubmed.ncbi.nlm.nih.gov/34267103/)


Tinnitus/Hearing Disturbances: [https://jamanetwork.com/journals/jamaotolaryngology/fullarticle/2780288](https://jamanetwork.com/journals/jamaotolaryngology/fullarticle/2780288)

Two cases of encephalopathy and seizures following Moderna: https://pubmed.ncbi.nlm.nih.gov/34367780/

Acute disseminated encephalitis following Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8294707/


Acute encephalitis, myoclonus, and sweet syndrome after mRNA vaccine: https://pubmed.ncbi.nlm.nih.gov/34312136/

Aseptic Meningitis following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34378098/


Trigeminal Neuralgia and cervical radiculitis after Pfizer: https://pubmed.ncbi.nlm.nih.gov/34155020/

Amyotrophic neuralgia secondary to AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34330677/

Neuralgic amyotrophy following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34347105/


Acute Myelitis following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34392078/


Bilateral facial weakness with paresthesia variant of GBS following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34261746/

Facial Weakness, extremity weakness, encephalopathy, and severe refractory ITP following Moderna: https://pubmed.ncbi.nlm.nih.gov/33854395/


36yo with Bells Palsy, left arm tingling/numbness/weakness following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34336436/

50yoM with Bells Palsy after Pfizer, ongoing symptoms after 21 days: https://pubmed.ncbi.nlm.nih.gov/34330676/

21yoF nurse with Bells Palsy following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34322761/

61yoM with Bells Palsy after each dose of Pfizer: https://pubmed.ncbi.nlm.nih.gov/34281950/

57yoF with Bells Palsy <36 hours after 2nd dose of Pfizer: https://pubmed.ncbi.nlm.nih.gov/33594349/
34yoF with Bells Palsy 2 days after Moderna: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8143982/

Bells Palsy following mRNA and inactivated (CoronaVac) vaccines: a case series and nested Case-Control study: https://pubmed.ncbi.nlm.nih.gov/34411532/

2 cases of Sensory GBS following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34416410/


4 cases of GBS following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34114269/

GBS in elderly gentleman following 2nd dose of Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8253659/

GBS following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34347563/

GBS after the first dose of Pfizer: https://pubmed.ncbi.nlm.nih.gov/33758714/


GBS 10 days after AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34272622/

GBS 11 days after AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34187803/

GBS following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34330729/

7 cases of GBS following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34114256/

First manifestation of multiple sclerosis after immunization with the Pfizer-BioNTech COVID-19 vaccine: https://link.springer.com/article/10.1007/s00415-021-10648-w?fbclid=IwAR0x3lK5kKXhFcU5YSBu94YIb6owkBvNXSEfV1I1FdUTOxYviDMrbw0esq

Patient's first MS Flare following Pfizer: https://link.springer.com/article/10.1007/s00415-021-10648-w

MS Flare following AZ: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8205198/

2 cases of Parsonage Turner Syndrome following Moderna and Pfizer: https://pubmed.ncbi.nlm.nih.gov/34402669/

Transient akathisia after Pfizer: https://pubmed.ncbi.nlm.nih.gov/3413842/

Phantosmia: https://pubmed.ncbi.nlm.nih.gov/34096896/

Optic neuritis and transverse myelitis in MS patient after AstraZeneca vaccination: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8205198/
fbclid=lwAR2DGcW8Y5UxvdzcOQaBUPn6_RTZGQRSsNo6bzanyAm9yN6387E3Z6WrKII

Cytotoxic lesion of the Corpus Callousum following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34402238/


Clinical characteristics of Headache following Pfizer, a multicenter observational cohort study: https://pubmed.ncbi.nlm.nih.gov/34405142/

CVA and Thrombocytopenia following Astrazeneca: https://pubmed.ncbi.nlm.nih.gov/34175640/

CVA and Thrombocytopenia following Astrazeneca: https://pubmed.ncbi.nlm.nih.gov/34175640/


Cerebral Venous sinus thrombosis, review of European cases: https://pubmed.ncbi.nlm.nih.gov/34293217/

45 cases of Cerebral Venous thrombosis: https://pubmed.ncbi.nlm.nih.gov/34288044/

Review of European data of Cerebral venous thrombosis with cytopenia, observed in Pfizer, Moderna, and Astrazeneca https://pubmed.ncbi.nlm.nih.gov/34375510/


**Ophthalmology:**

Acute Macular Neuroretinopathy after AstraZeneca: https://www.nature.com/articles/s41433-021-01610-1.epdf?fbclid=IwAR1PuBuxzIdyCMPxFNRGsTbLL6YZw9zMBOROorfHrXAPoAOh -d5rYdyWVc

Bilateral Retinal Detachments 10 days after mRNA vaccination 22yoF: https://www.jem-journal.com/.../S0736-4679(21.../fulltext

21 cases of Uveitis following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34369440/

A case of bilateral arteritic anterior ischemic optic neuropathy and a case of bilateral acute zonal occult outer retinopathy after mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34394876/


34yoM with bilateral multifocal choroiditis following 2nd dose vaccination: https://pubmed.ncbi.nlm.nih.gov/34344280/

Transient Oculomotor palsy following mRNA. Vaccine: https://pubmed.ncbi.nlm.nih.gov/34369471/


Anterior Uveitis following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34289406/

Reduction of Visual Acuity following Pfizer: https://link.springer.com/article/10.1007/s00011-021-01476-9?fbclid=IwAR3zAvenOwPAZmuVsx9CM7bFwOliHerfJK3M3nQCMe-3BWoT4QdNCWK7cNo

Rheumatology / Endocrinology / Orthopedics:


Systemic lupus following vaccination: https://pubmed.ncbi.nlm.nih.gov/34418261/


Lupus exacerbation following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34291477/

2 reports of Graves Disease following Pfizer: https://www.liebertpub.com/doi/pdf/10.1089/thy.2021.0142?fbclid=IwAR06kBQuAQ5ccxnAG2mgRNUIlmeiq715zfYAqrz3qvNWQClO9sbfJdwzm7c&


2 more cases of Graves disease following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34348559/

5 cases of adrenal crisis following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34358373/

2 reports of Graves Disease following Pfizer: https://www.liebertpub.com/doi/pdf/10.1089/thy.2021.0142?fbclid=IwAR06kBQuAQ5ccxnAG2mgRNUIlmeiq715zfYAqrz3qvNWQClO9sbfJdwzm7c&


Reactivation of IgA vasculitis following Moderna: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8280100/

40yoF with Henoch-Schonlein Purpura following Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8241653/

New onset mainly guttate psoriasis after Pfizer: https://pubmed.ncbi.nlm.nih.gov/3430932/

14 cases of psoriasis activation following vaccination (Moderna, Pfizer, and AstraZeneca): https://pubmed.ncbi.nlm.nih.gov/34363647/


Arthritis in the L elbow following vaccination: https://pubmed.ncbi.nlm.nih.gov/34363344/

Remitting seronegative symmetrical synovitis with pitting edema following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34348912/


Adult onset Still’s disease following mRNA vaccine: https://pubmed.ncbi.nlm.nih.gov/34316726/

**GI:**

American Journal of Gastroenterology: SARS-CoV-2 Immunization in Patients With Inflammatory Bowel Disease May Result in Disease Flares
[https://journals.lww.com/ajg/Citation/9900/SARS_CoV_2_Immunization_in_Patients_With.81.aspx?fbclid=IwAR1EMp8GGVW6_JSLJVI7FbFLe_GRpGKhOhfxomaunzthoKTrdscpwpEAoo](https://journals.lww.com/ajg/Citation/9900/SARS_CoV_2_Immunization_in_Patients_With.81.aspx?fbclid=IwAR1EMp8GGVW6_JSLJVI7FbFLe_GRpGKhOhfxomaunzthoKTrdscpwpEAoo)

Gastroparesis following Pfizer: [https://journals.lww.com/ajg/Citation/9900/Gastroparesis_After_Pfizer_BioNTech_COVID_19.28.aspx](https://journals.lww.com/ajg/Citation/9900/Gastroparesis_After_Pfizer_BioNTech_COVID_19.28.aspx)

Autoimmune hepatitis following Moderna: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8197609/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8197609/)


Autoimmune hepatitis following Pfizer: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8186938/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8186938/)

Autoimmune hepatitis (Pfizer): [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8056822/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8056822/)

Autoimmune hepatitis (Pfizer): [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8256942/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8256942/)

71yoF with Autoimmune hepatitis after mRNA vaccine (Moderna): [https://www.sciencedirect.com/science/article/pii/S0168827821018961?via%3Dihub&fbclid=IwAR21PJtmW0LIEM4j9G5yDSdYkLB0h91MmgAzh-Q__QL1HKZTDAR5egwegEM](https://www.sciencedirect.com/science/article/pii/S0168827821018961?via%3Dihub&fbclid=IwAR21PJtmW0LIEM4j9G5yDSdYkLB0h91MmgAzh-Q__QL1HKZTDAR5egwegEM)

80yoF with autoimmune hepatitis following Pfizer: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8186938/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8186938/)


35yoF with autoimmune hepatitis following Pfizer: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8056822/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8056822/)
63yoM with autoimmune hepatitis following Moderna: https://pubmed.ncbi.nlm.nih.gov/34293683/

16 cases of liver injury following Pfizer and Moderna: a multicenter case series: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8324396/

Liver injury in a liver transplant patient following mRNA vaccination: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8214934/


**ID:**

Herpes Zoster following Moderna: https://pubmed.ncbi.nlm.nih.gov/34397201/

Herpes Zoster reactivation following Moderna: https://pubmed.ncbi.nlm.nih.gov/34316506/


2 cases of herpes zoster in healthy young adults following vaccination: https://pubmed.ncbi.nlm.nih.gov/34363257/


6 cases of Herpes Zoster following Pfizer: https://pubmed.ncbi.nlm.nih.gov/33848321/


Varicella zoster reactivation and mRNA vaccines as a trigger: https://pubmed.ncbi.nlm.nih.gov/34316507/

**Renal:**
IgA Nephropathy after mRNA vaccine: https://pubmed.ncbi.nlm.nih.gov/34278290/

ANCA glomerulonephritis after Moderna: https://www.kidney-international.org/article/S0085-2538(21)00555-X/fulltext

Nephrotic Syndrome following AstraZeneca: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8257404/

ANCA associated Glomerulonephritis following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34423176/

ANCA associated vasculitis following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34416184/

IgA and crescentic glomerulonephritis following Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8141343/


De novo vasculitis after Moderna: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8166777/

3 cases of minimal change disease following 2nd dose of mRNA vaccine: https://pubmed.ncbi.nlm.nih.gov/34337193/

Minimal Change disease and Severe AKI following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34242687/

Minimal Change Disease Following Pfizer: https://pubmed.ncbi.nlm.nih.gov/33839200/

Minimal Change Disease relapse following Pfizer: https://www.ajkd.org/article/S0272-6386(21)00627-2/fulltext

MCD relapse following Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8137360/

MCD relapse following Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8098029/

Severe MCD relapse 3 days following Pfizer: https://europepmc.org/article/pmc/pmc8156905

Minimal change disease and AKI following Pfizer: https://www.kidney-international.org/article/S0085-2538(21)00493-2/pdf

Minimal Change disease following Moderna: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8149162/

IgA nephropathy in 2 pediatric patients after Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8256683/

IgA and crescentic glomerulonephritis following Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8141343/
3 cases of IgA nephropathy patients developing exacerbations following mRNA vaccine: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8166778/

2 cases of IgA nephropathy patients developing exacerbations following moderna: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7987498/

IgA nephropathy flare up following Moderna: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8079938/

IgA Nephropathy after mRNA vaccine: https://pubmed.ncbi.nlm.nih.gov/34278290/

IgA nephropathy in 2 pediatric patients after Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8256683/

2 cases of IgA Nephropathy patients developing hematuria after Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8329426/

IgA nephropathy flare-up following vaccination: https://pubmed.ncbi.nlm.nih.gov/34415336/

Membranous nephropathy following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34419553/

Membranous nephropathy following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34332960/

ANCA-Associated Vasculitis Following Pfizer-BioNTech: https://www.ajkd.org/article/S0272-6386(21)00742-3/fulltext?fbclid=IwAR1NWbOTsNpAQK6qF-FvAdnlc1gMsYHzkLO7PKB8AIHkV-iLnhGScTFpPfo


**Hematology/Oncology:**

Thrombosis with Thrombocytopenia following Moderna: https://www.acpjournals.org/doi/full/10.7326/L21-0244

TTP Following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34264514/

DVT and PE and positive HIT panel following mRNA Vaccine: https://pubmed.ncbi.nlm.nih.gov/34117206/

Superior ophthalmic Vein Thrombosis and Thrombocytopenia following AstraZeneca: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8265377/

Autoimmune hemolytic anemia: https://pubmed.ncbi.nlm.nih.gov/34150386/

Autoimmune hemolytic anemia following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34258873/
ITP Exacerbation in 12% of chronic patients: https://pubmed.ncbi.nlm.nih.gov/34075578/

ITP Exacerbation in previous stable patient following Pfizer: https://academic.oup.com/ofid/advance-article/doi/10.1093/ofid/ofab343/6308965

ITP following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34155844/

ITP following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34382388/

ITP in 1st trimester of pregnancy 13 days following vaccination in the US: https://pubmed.ncbi.nlm.nih.gov/34420249/

Secondary ITP and resulting hemorrhage and hematoma after minor oral surgery after Pfizer: https://pubmed.ncbi.nlm.nih.gov/34314875/

3 cases of ITP following Pfizer and Astra Zeneca: https://www.mjhid.org/index.php/mjhid/article/view/4669/4043

Treatment Guide to Thrombotic Thrombocytopenia Following Vaccination: https://www.hematology.org/covid-19/vaccine-induced-immune-thrombotic-thrombocytopenia

36 Cases of ITP following Pfizer and Moderna: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8011062/

20 cases of Thrombocytopenia following Pfizer and Moderna: https://onlinelibrary.wiley.com/doi/10.1002/ajh.26132


84yoM with ITP following Pfizer: https://link.springer.com/article/10.1007/s11739-021-02778-w

41yoF with ITP following Pfizer: https://casereports.bmj.com/content/14/5/e242220

69yoF with refractory ITP following Pfizer: https://journals.lww.com/americantherapeutics/Citation/2021/08000/Immune_Thrombocytopenic_Purpura_Associated_With.24.aspx

20yoF with ITP following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34381692/

3 cases reports of ITP following Pfizer and J&J: https://ehoonline.biomedcentral.com/articles/10.1186/s40164-021-00235-0

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74yoM with ITP following Moderna: https://www.dovepress.com/severe-refractory-immune-thrombocytopenia-occurring-after-sars-cov-2-v-peer-reviewed-fulltext-article-JBM

3 cases: recurrent AvWD and acquired hemophilia A after Moderna, PNH flare following Moderna, and ITP flare following Moderna: [https://ashpublications.org/bloodadvances/article/5/13/2794/476324/](https://ashpublications.org/bloodadvances/article/5/13/2794/476324/)

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3 cases of ITP in elderly patients following vaccination: [https://www.hindawi.com/journals/crithem/2016/7913092/](https://www.hindawi.com/journals/crithem/2016/7913092/)


ITP and diffuse papular rash following Moderna: [https://www.scienceopen.com/document_file/691feaa0-8e64-40c4-9553-40382bd5ac48/](https://www.scienceopen.com/document_file/691feaa0-8e64-40c4-9553-40382bd5ac48/)

ITP and AIHA following Moderna: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8274740/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8274740/)


Thrombocytopenia in a teen with sickle cell disease following Pfizer: [https://pubmed.ncbi.nlm.nih.gov/34331506/](https://pubmed.ncbi.nlm.nih.gov/34331506/)


Malignant CVA due to VITT following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34341358/

Haemophagocytosis and atypical lymphocytes on bone marrow biopsy following vaccination: https://pubmed.ncbi.nlm.nih.gov/34312842/

4 cases of axillary adenopathy following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34303188/


Cervical lymphadenopathy following Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8204135/

13 cases of Cervical lymphadenopathy: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8241354/


Avid left axillary nodes and intense diffuse splenic uptake and moderate diffuse bone marrow uptake on PET 1 week after vaccination: https://pubmed.ncbi.nlm.nih.gov/34269722/

Axillary adenopathy following AstraZeneca resulting in possible misinterpretation of PET scan in metastatic melanoma patient: https://pubmed.ncbi.nlm.nih.gov/34414110/

163 cases of axillary adenopathy following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34257025/

Ipsilateral axillary adenopathy following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34333959/


Supraclavicular lymphadenopathy following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34414929/

50yoM with adenopathy following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34406229/

Review of 24 cases of lymphadenopathy and their ultrasound findings in the US: https://pubmed.ncbi.nlm.nih.gov/34356507/


Mammographic and sonographic findings in the breast and axillary tail following vaccination: https://pubmed.ncbi.nlm.nih.gov/34340203/


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Abnormal PET following vaccination: https://onlinelibrary.wiley.com/doi/full/10.1002/pbc.29262

Vaccination effect on tracer uptake with FDG-PET/CT: https://pubmed.ncbi.nlm.nih.gov/34308402/

Positive PET following vaccination: https://pubmed.ncbi.nlm.nih.gov/34301777/

3 cases of HLH following AstraZeneca: https://jcp.bmj.com/content/early/2021/07/22/jclinpath-2021-207760

Cardiac:

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Tachycardia following Pfizer: 3 cases in those previously infected with COVID-19: https://pubmed.ncbi.nlm.nih.gov/33858709/

Fulminant myocarditis and systemic hyperinflammation in 2 patients following mRNA: https://pubmed.ncbi.nlm.nih.gov/34416319/

Review of 214 myocarditis cases: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8233865/

Myocarditis in 23 military members: https://jamanetwork.com/journals/jamacardiology/fullarticle/2781601

Review of 15 published cases of myocarditis: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8272967/

Review of 29 published cases of acute myopericarditis following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34356586/

Vaccination associated myocarditis in Adolescents: https://pubmed.ncbi.nlm.nih.gov/34389692/
mRNA vaccination and myocarditis in adolescents: https://pubmed.ncbi.nlm.nih.gov/34393110/

Association of myocarditis with mRNA vaccination, a case review in children: https://pubmed.ncbi.nlm.nih.gov/34374740/

Two cases of myocarditis: https://pubmed.ncbi.nlm.nih.gov/34166884/

Recurrence of myocarditis after vaccination: https://pubmed.ncbi.nlm.nih.gov/34166671/

Intravenous injection of mRNA vaccine can induce acute myopericarditis in mouse model: https://pubmed.ncbi.nlm.nih.gov/34406358/

The Novel platform of mRNA vaccines and myocarditis: clues into the potential underlying mechanism: https://pubmed.ncbi.nlm.nih.gov/34312010/

3 cases of acute infarct-like myocarditis (2 Pfizer, 1 AstraZeneca): https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8325525/


Acute myocarditis following vaccination: https://pubmed.ncbi.nlm.nih.gov/34331307/


Myocarditis in a 15yo following Pfizer: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8369878/

Acute myocarditis following Pfizer in a healthy man with previous COVID infection: https://pubmed.ncbi.nlm.nih.gov/34367386/


Cardiac imaging of acute myocarditis following mRNA in a 24yoM: https://pubmed.ncbi.nlm.nih.gov/34402228/


13 cases of Myocarditis in adolescents following Pfizer:
8 cases of myocarditis in adolescents following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34319393/

3 cases of cardiac manifestation following Pfizer: https://academic.oup.com/qjmed/advance-article/doi/10.1093/qjmed/hcab177/6311674

4 cases of Myocarditis and their Cardiac MRI findings: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8245050/


6 cases of men age 17-37 with myocarditis: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8219373/

Review of 214 myocarditis cases: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8233865/

70yoF with myocarditis following J&J Vaccination: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8270733/

Myopericarditis in young adults presenting to the ED: https://pubmed.ncbi.nlm.nih.gov/34310793/

Pericarditis following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34364831/

2 cases of histological confirmed myocarditis following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34407340/

2 cases of acute MI <24 hours after mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34364657/

Frequent PVS and NSVT following 2nd dose of Pfizer: https://pubmed.ncbi.nlm.nih.gov/34275963/


63yoF with Takotsubo cardiomyopathy following Moderna: https://pubmed.ncbi.nlm.nih.gov/34330629/

**Dermatology/Plastics:**

Steven Johnson Syndrome following Pfizer: https://www.sciencedirect.com/science/article/pii/S2212440321005058


Two cases of papulo-pustular rosacea-like eruptions following Pfizer and AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34416044/


Pityriasis Rubra Pilaris like eruption following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34379821/

3 cases of new onset acral hand lesions following mRNA vaccine: https://pubmed.ncbi.nlm.nih.gov/34310777/

2 patients with eczematous cutaneous reactions following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34236729/

New onset synovitis and palmoplantar psoriasis flare up after Pfizer: https://pubmed.ncbi.nlm.nih.gov/34236728/


Purpura annularis telangiectodes following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34236717/

Flagellate Purpura following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34416052/

Symmetrical drug related intertriginous and flexural exanthema like eruption following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34399001/


Vitiligo following Pfizer: https://onlinelibrary.wiley.com/doi/10.1111/ced.14842

Delayed skin reactions following mRNA vaccine: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8288253/

Delayed cutaneous hypersensitivity reaction following AstraZeneca: https://pubmed.ncbi.nlm.nih.gov/34351606/
Cutaneous skin manifestation following Moderna with Hypersensitivity reaction Histopathology: https://pubmed.ncbi.nlm.nih.gov/34414254/

Bacillus Calmette-Guerin scar flare after mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34344774/

Palms and Soles Itchiness following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34391695/

Resistant pruritis skin rash following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34358176/

Necrotic eschars at injection sites one week after 2nd dose of Pfizer: https://pubmed.ncbi.nlm.nih.gov/34337117/


Delayed local skin reactions: https://www.nejm.org/doi/full/10.1056/NEJMc2102131?fbclid=IwAR0P6wjXiO4swT4wz0IJEJBx7v14e2Si-O9AbOuhlIVisVHFhc_kGEy7pyj0

Additional 12 Patients with Delayed Local Reactions: https://www.nejm.org/doi/full/10.1056/NEJMc2102131

16 patients delayed hypersensitivity reactions after Moderna: https://jamanetwork.com/journals/jamadermatology/fullarticle/2779643

138 Delayed Hypersensitivity Reactions following vaccination: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8294276/


2 cases of delayed local reactions following Moderna: https://journals.lww.com/infectdis/Fulltext/2021/07000/Delayed_Skin_Rash_After_Receiving_SARS_CoV_2_mRNA.19.aspx

13 cases delayed local reactions following mRNA vaccine: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab518/6291929


405 cases of dermatologic reactions following Pfizer, Moderna, and Astra Zeneca: https://pubmed.ncbi.nlm.nih.gov/34254291/

Erythema Migrans like rash after Moderna: https://pubmed.ncbi.nlm.nih.gov/34250736/

Bullous eruption following Pfizer: https://pubmed.ncbi.nlm.nih.gov/34416058/


Immune Response to fillers and breast implants after vaccination: https://pubmed.ncbi.nlm.nih.gov/34174765/


Urticarial Vasculitis following vaccination: https://journals.lww.com/amjdermatopathology/Citation/9000/Unique_Case_of_Urticarial_Skin_Eruptions_After.97698.aspx


Moderna Vaccine Induced Skin Rash: https://pubmed.ncbi.nlm.nih.gov/34423142/


Cutaneous lymphocytic vasculitis following mRNA vaccine: https://pubmed.ncbi.nlm.nih.gov/34327795/

Pfizer induced reactivation of varicella and resulting small vessel vasculitis: https://pubmed.ncbi.nlm.nih.gov/34310759/

2 cases of skin color discoloration following mRNA vaccination: https://pubmed.ncbi.nlm.nih.gov/34310755/

A case series of rare cutaneous adverse events following vaccination: https://pubmed.ncbi.nlm.nih.gov/34363637/
3 cases of vesiculobullous non-IgE-mediated cutaneous reactions to Pfizer: https://pubmed.ncbi.nlm.nih.gov/34363258/

**Miscellaneous:**


Perturbation of blood glucose following vaccination, a review of 20 adults: https://pubmed.ncbi.nlm.nih.gov/34375490/


**Rebuttal about Functional Neurologic Disorders and Vaccination:** https://onlinelibrary.wiley.com/doi/full/10.1002/ana.26160?fbclid=IwAR3C-QQc-ZDEDoCu0fWNQuVYzybC3qYHGekCaicU5-I_bOUz4N52j1wjJ0

International call for vaccine adverse reaction investigation: https://www.researchgate.net/publication/351670290_SARS-CoV-2_mass_vaccination_Urgent_questions_on_vaccine_safety_that_demand_answers_from_international_health_agencies_regulatory_authorities_governments_and_vaccine_developers?fbclid=IwAR1Gwfel6khY8ObziHNTGZriwS0Gez0CCp8zjaHIlICJ9lfceD2EkJdMKmYw

**Concerns about the lipid nanoparticle in the mRNA contributing to adverse reactions:** https://www.biorxiv.org/content/10.1101/2021.03.04.430128v1.full?fbclid=IwAR2yUJH9kAb01O2PJ46AfBvQANuGiQvZd3ROs4R8qNJF6CZ4f255hDdRsSY