

Table 1. Individual patient phenotypes and investigations

Symptom onset (days post-vaccine)	Initial Titres	Result last ab test	Clinical syndrome	Autoimmune screen	Infection screen	CSF results	SARS-CoV-2 ab titres	Duration of follow-up (days)	Last recorded EDSS
18	2400 (POS)	1600 (POS)	LETM & STM	ANA, ENA, anti-neuronal ab negative, dsDNA and AQP4 NEG	Serum Syphilis, Hep B&C, HIV, HTLV, EBV, mycoplasma NEG	WCC 0, protein 335, OCB absent, PCR NEG	N/A	257	1.5
9	3200 (POS)	1600 (POS)	LETM & STM, possible BS (ataxia)	N/A	HIV, Hep B and C & syphilis NEG	WCC 34, protein 660, OCB absent, PCR NEG	N/A	404	N/A
15	800 (POS)	300 (LOW POS)	LETM	ANA, AQP4, phospholipid ab, ENA, anti-ribosomal P, Ro, SSA, SSB, centromere B, SM, anti-Sm, RNP-68, RNP-A, Scl-70, Jo NEG	Hep B&C, HIV, Quantiferon NEG	WCC 78, OCB absent	Anti-S 551.5 AU/ml. Anti-N NEG	237	3.0
15	400 (LOW POS)	200 (LOW POS)	LETM	AQP4, ANA, MPO/PR3, beta 2 glyc, cardiolipin IgG NEG. Cardiolipin IgM 11 (ULN 10)	Syphilis, Hep B&C, HIV NEG.	WCC 56, protein 1306, OCB absent, PCR NEG	N/A	356	2.0
15	1600 (POS)	2400 (POS)	STM, ON, BS	RF, ANA and ANCA, complement, SPE, ACE, dsDNA and phospholipid ab NEG	Borrelia, syphilis, Hep B&C, HIV NEG	WCC 30, protein 528, OCB matched, PCR NEG	N/A	222	3.0
18	1600	1200 (POS)	LETM	RF, ANA, phospholipid	Borrelia	WCC 150, protein	N/A	384	1.0

Ab Antibody  
ANA Anti-nuclear antibodies  
ANCA Anti-neutrophil cytoplasmic antibodies  
ASOT Anti-streptolysin-O titre  
BS Brainstem  
C3/4 Complement factor 3 & 4  
CCP Anti-cyclic citrullinated peptide  
EBV Epstein-Bar virus  
ENA Extractable nuclear antigen antibodies  
GBS Guillain-Barre syndrome  
Hep Hepatitis  
HTLV Human T-lymphotropic virus  
LETM Longitudinally extensive transverse myelitis  
N/A No test performed/ no results available  
NEG Negative  
OCB Oligoclonal bands  
ONb Optic neuritis (bilateral)  
Onu Optic neuritis (unilateral)  
PCR Polymerase chain reaction. Minimum 10<sup>4</sup> copies/ml  
virus, Enterovirus, Herpes simplex virus  
POS Positive  
RF Rheumatoid factor  
STM Short segment myelitis  
Toxo Toxoplasma  
WCC White cell count

CSF protein expressed as mg/L  
CSF WCC expressed as No. x 10<sup>6</sup>/L

Table 2. Seronegative individuals' clinical syndromes according to vaccine type

BNT162b2	ChAdOx1S
STM and asymptomatic periventricular lesions. OCB+	LETM and bilateral cerebral lesions
Pure LETM	Pure LETM
Bilateral sequential ON	LETM and STM with facial palsy
Unilateral ON	ON and facial palsy
STM and unilateral ON. OCB+	ON, LETM, brainstem & encephalopathy; possible GBS
	STM, confirmed GBS

GBS- Guillain-Barre syndrome  
 LETM- longitudinally extensive transverse myelitis  
 OCB- oligoclonal bands  
 ON- optic neuritis  
 STM- short segment myelitis

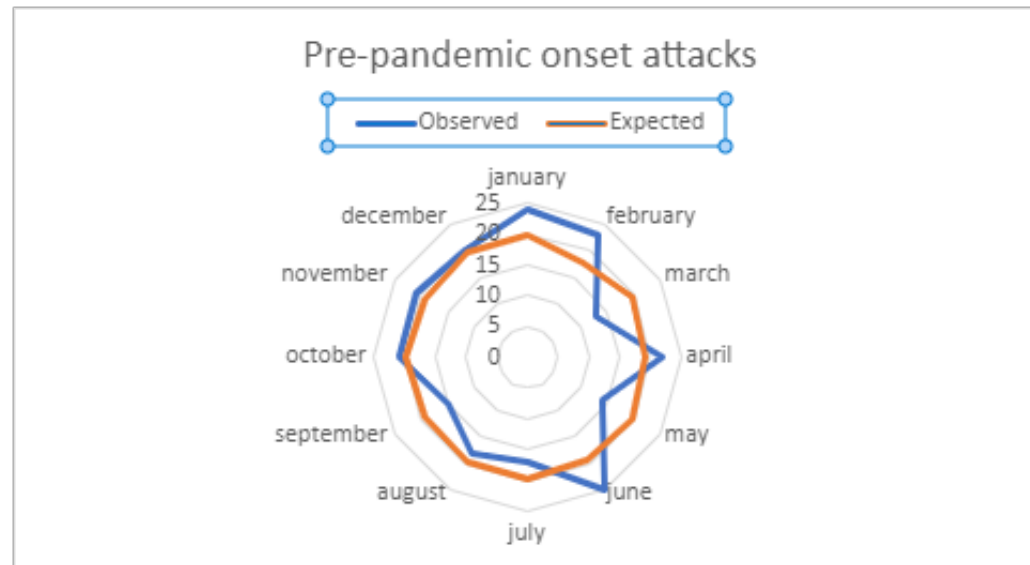
Table 3. Investigation and treatment of seronegative patients according to vaccine type

		<b>BNT162b2 (n=5)</b>	<b>ChAdOx1S (n=6)</b>
<b>Immune screen</b>	ANA	1/3	0/4
	ENAs	0/2	0/1
	ANCA	0/1	0/3
	Phospholipid antibodies	0/1	0/1
<b>Infection screen</b>	HIV	0/3	0/3
	Syphilis	0/2	0/3
	Lyme	0/1	0/3*
<b>CSF parameters</b>	Median CSF white cell count (x10 <sup>6</sup> /L)	6	4.5
	Median CSF protein (g/L)	282.5	1130
	CSF oligoclonal bands	2/3	0/5
<b>Treatment</b>	Oral steroid only	2/5	1/6**
	IVMP only	2/5	0/6
	IVIg only	0/5	1/6***
	IVMP + PLEX	1/5	1/6
	IVMP + PLEX + IVIg	0/5	2/5
	IVMP + PLEX + IVIg + CYCL	0/5	1/6

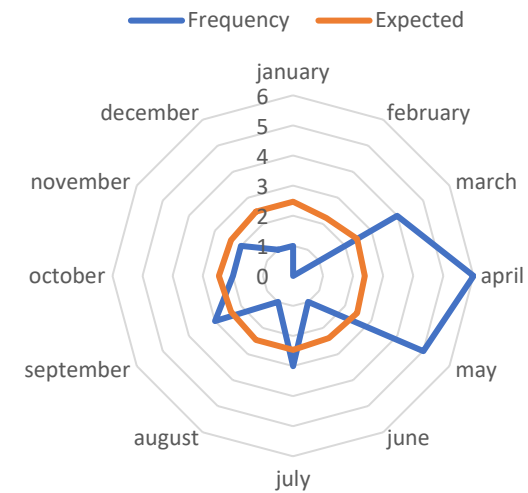
\*2 patients' screening enzyme immunoassay positive, subsequently confirmed negative  
 \*\*Presumed Bell's palsy  
 \*\*\*GBS treatment

ANA- anti-nuclear antibodies  
 ANCA- anti-neutrophil cytoplasmic antibodies  
 CYCL- cyclophosphamide  
 ENA- extractable nuclear antigen antibodies  
 IVIG- intravenous immunoglobulins  
 IVMP- intravenous methylprednisolone  
 PLEX- plasma exchange

eFigure 1. Effect of season on attack onset pre- and post-introduction of vaccine



March 2021-Feb 2022 onset attacks



Ratchet circular scan test for seasonality pre-pandemic and after vaccine introduction March 2021-February 2022. 3 month peak (March-May 2021), 57.1% events,  $p < 0.025$ .