

**A REVIEW OF AUTOPSY FINDINGS IN DEATHS AFTER COVID-19
VACCINATION**

Supplementary Appendix

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Author	Case	Age	Sex	Vaccine	Dose	Disease	Organ System	Period	Procedure	Post-Mortem Findings	Link to Vaccine (Y/N)
Hojberg [16]	1			Moderna		Eosinophilia	Immunological	“recent”	Autopsy	Eosinophilic enteritis, associated with ascites, and elsewhere, including the lungs and heart. Abundant eosinophils detected in tissues, including the small intestines, epicardium, and lungs.	Y, Y, Y: Y
Nushida [17]	1	14	F	Pfizer	3	MIS	MIS	2 days	Autopsy	Congestive edema of the lungs, T-cell lymphocytic and macrophage infiltration in the lungs, pericardium, and myocardium of the left atria and left ventricle, liver, kidneys, stomach, duodenum, bladder, and diaphragm.	Y, Y, Y: Y
Jeon [18]	1	19	M	Pfizer	2	Multiple sclerosis	Neurological	182 days	Autopsy	Multifocal gray-tan discoloration in the cerebrum. The lesions consisted of active and inactive demyelinated plaques in the perivenous area of the white matter. Perivascular lymphocytic infiltration and microglial cell proliferation were observed in both white matter and cortex.	Y, Y, Y: Y
Esposito [19]	1	83	M	Pfizer	2	COVID-19	MIS		Autopsy	Lungs showed massive interstitial pneumonia, areas of inflammation with interstitial lympho-plasma cell infiltrate, and interstitial edema. The liver showed granulocytes within the hepatic parenchyma. In the brain, perivascular edema and perineuronal edema was found. The heart showed myofiber breakup and colliquative myocytolysis.	Y, Y, Y: Y

Chaves [20] (individual case data unavailable)	121	84 (mean)	52 %F	Sinovac, AZ, Pfizer	1 – 2(7.63%)	SCD, MI, PE	Cardiovascular, Hematological		Autopsy	SCD was the leading cause of death with 69 cases (57.02%), followed by acute myocardial infarction in 53 patients (43.8%) and other cardiovascular diseases (aortic dissection, aortic aneurysms, arrhythmias) in 23 patients (19%). 45 of the SCD cases were secondary to acute myocardial infarction and a further 18 cases secondary to other cardiovascular diseases. In 6 cases of SCD no diagnostic findings were found. Pulmonary embolism (PE) was found in 25 cases (20.66%). Other diagnoses included respiratory failure not secondary to bacterial pneumonia in 7 patients (5.78%), metabolic conditions in 3 patients (2.47%), bacterial pneumonia in 2 patients (1.65%), neoplasia in 2 patients (1.65%), 1 case of sepsis (0.82%) and one case of sudden unexpected death in epilepsy (0.82%). 105 (86.8%) cases were cardiac/hematological related.	Y, Y, Y: Y (105 CASES) N (16 CASES)
Morz [21]	1	76	M	Pfizer	2	Encephalitis, myocarditis	MIS	21 days	Autopsy	Signs of aspiration pneumonia and systemic arteriosclerosis were evident. Brain examination uncovered acute vasculitis (predominantly lymphocytic) as well as multifocal necrotizing encephalitis of unknown etiology with pronounced inflammation including glial and lymphocytic reaction. In the heart, signs of chronic cardiomyopathy as well as mild acute lympho-histiocytic myocarditis and vasculitis were present. Only spike protein	Y, Y, Y: Y

											but no nucleocapsid protein could be detected within the foci of inflammation in both the brain and the heart. Also, mild acute splenitis, gastric mucosal bleeding, liver lipofuscinosis, and mild active nephritis were found.	
Alunni [22]	1	70	M	AZ	1	VITT	Hematological	25 days	Autopsy	Venous hemorrhagic infarction with the presence of thrombi within dural venous sinuses, and extensive hemorrhagic necrosis of the central part of the adrenal glands. Antibodies against platelet factor 4 (PF4) were strongly positive in postmortem fluids.	Y, Y, Y: Y	
Takahashi [23]	1	“90s”	M	Pfizer	3	Pericarditis	Cardiovascular	14 days	Autopsy	Dissection of the ascending aorta and pericardial hemotamponade. The heart showed a white villous surface, and the pericardium was fibrously thick. Microscopic examination revealed pericarditis with predominantly macrophage and lymphocyte infiltration.	Y, Y, Y: Y	
Murata [24]	1	30	M	Pfizer	2	Cytokine Storm	Immunological	2 days	Autopsy	No information regarding COD detected in autopsy other than congestion of primary organs. Postmortem interval inferred from postmortem phenomena and coroner’s rectal temperature measurements estimated high body temperatures for all cases at the time of death. RNA sequencing revealed that genes involved in neutrophil degranulation and cytokine signaling were upregulated.	Y, Y, Y: Y	

	2	52	M	Pfizer	2	Cytokine Storm	Immunological	3 days	Autopsy	Same as Case 1.	Y, Y, Y: Y
	3	23	M	Moderna	2	Cytokine Storm	Immunological	10 days	Autopsy	Same as Case 1.	Y, Y, Y: Y
	4	31	M	Pfizer	2	Cytokine Storm	Immunological	1 day	Autopsy	Same as Case 1.	Y, Y, Y: Y
Satomi [25]	1	61	F	Pfizer	1	Myocarditis	Cardiovascular	10 days	Autopsy	The heart showed moderate dilatation of both ventricles, and the myocardium showed an uneven color change and decreased elasticity. Histologically, severe myocarditis with extensive myocytolysis was observed. The myocarditis showed severe inflammatory cell infiltration with T-lymphocyte and macrophage predominance, and vast nuclear dust accompanying neutrophilic infiltration was observed. In the bone marrow and lymph nodes, hemophagocytosis was observed. SARS-CoV-2 nucleic acids were not detected using multivirus real-time PCR system.	Y, Y, Y: Y
Suzuki [26]	1	72	M	Pfizer	1	Adhesion ileus	MIS	3 days	Autopsy	Adhesion of the small intestine and enlargement of the duodenum and the small intestine, post sigmoid colectomy. Further, diabetic ketoacidosis, cardiomegaly, severe coronary sclerosis, and liver cirrhosis also detected.	N, N, N: N
	2	86	F	Pfizer	1	MI	Cardiovascular	6 days	Autopsy	Cardiac tamponade due to a rupture of myocardial infarction in the posterior wall, severe coronary sclerosis with thrombus in the left circumflex branch,	Y, N, Y: Y

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										cardiomegaly, cavernous hemangioma in the liver.	
3	86	F	Pfizer	1	Drowning	Other	1 day	Autopsy		Emphysema aquosum, watery gastric content. Hypertensive and diabetic nephrosclerosis.	N, N, N: N
4	91	M	Moderna	1	Ischemic heart disease, myocarditis	Cardiovascular	6 days	Autopsy		Old myocardial infarction in the post lateral wall, severe coronary artery sclerosis, leukocyte and lymphocyte infiltration in the left anterior wall, diabetic nephropathy, aortic sclerosis.	Y, N, Y: Y
5	90	M			Ischemic heart disease	Cardiovascular	3 days	Autopsy		Cardiomegaly with old infarction of the anteroseptal wall, severe coronary sclerosis, elevation of NT-pro BNP in blood (27400 pg/ml), aortic sclerosis, benign nephrosclerosis.	Y, N, N: N
6	74	F	Pfizer	1	Drowning	Other	6 days	Autopsy		Emphysema aquosum, watery gastric content, pleural effusion, coronary sclerosis, hypertensive and diabetic nephrosclerosis, old lung tuberculosis.	N, N, N: N
7	87	F	Pfizer	1	Drowning	Other	1 day	Autopsy		Emphysema aquosum, watery gastric content, pleural effusion, benign nephrosclerosis.	N, N, N: N
8	79	M	Pfizer	1	Pulmonary artery thromboembolism	Hematological	4 days	Autopsy		Thromboembolism in the bilateral pulmonary trunk, deep vein thrombosis of the left lower extremity (containing organized thrombus), cardiomegaly, coronary sclerosis, unruptured abdominal aortic aneurysm, benign nephrosclerosis.	Y, Y, Y: Y
9	80	M	Pfizer	1	Volvulus of sigmoid colon	Gastrointestinal	7 days	Autopsy		Pan-peritonitis due to a rupture of the volvulus of the sigmoid colon, chronic subdural hematoma, Alzheimer's disease.	N, N, N: N

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10	77	F	Pfizer	2	Incarceration of inguinal hernia	MIS	3 days	Autopsy	Strangulation ileus due to an incarceration of inguinal hernia, aspiration of vomitus, chronic pyelonephritis, cardiomegaly, lacuna infarction.	N, N, N: N
11	81	M		1	Ischemic heart disease	Cardiovascular	1 day	Autopsy	Severe coronary sclerosis, cardiomegaly with mild fibrotic scar, elevation of NT-pro BNP in blood (27400 pg/ml), aortic sclerosis.	Y, N, N: N
12	79	F	Pfizer	2	Ischemic heart disease	Cardiovascular	1 day	Autopsy	Severe sclerosis in the left anterior descending coronary artery, mild amyloid disposition in the interstitial space of the cardiomyocytes.	Y, N, N: N
13	76	M	Pfizer	2	Drowning	Other	1 day	Autopsy	Emphysema aquosum, watery gastric content, pleural effusion, unruptured thoracic aortic aneurysm, benign nephrosclerosis, multiple renal cysts.	N, N, N: N
14	78	F	Pfizer	1	Ischemic colitis	MIS	6 days	Autopsy	Pan-peritonitis due to extensive necrosis of the small intestine, thrombus in the peripheral side of the superior mesenteric artery, coronary sclerosis, aortic sclerosis, fatty liver.	Y, Y, Y: Y
15	82	F	Pfizer	2	Ischemic heart disease	Cardiovascular	1 day	Autopsy	Severe sclerosis with stent implantation in the right and left coronary arteries, multiple small fibrotic scars in the myocardium, elevation of NT-pro BNP in blood (9980 pg/ml), benign nephrosclerosis, aortic sclerosis.	Y, N, N: N
16	77	F	Pfizer		Malnutrition	Other	6 days	Autopsy	Body mass index 13.2, elevation of acetone in the blood (15.9 µg/ml), chronic hepatitis, hepatoma, aortic sclerosis.	N, N, N: N

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17	83	F	Pfizer	2	Aortic dissection	Cardiovascular	1 day	Autopsy	Rupture of aortic dissection, hemothorax, cystic medial necrosis in the aorta, aortic sclerosis.	Y, Y, N: Y
18	67	F	Pfizer	2	Pyelonephritis	Other	5 days	Autopsy	Swelling of the right kidney, neutrophil infiltration in the tubule and the interstitial space of the kidney, cardiomegaly, coronary sclerosis, end-stage kidney disease.	Y, N, N: N
19	85	M	Pfizer		Hemothorax	Respiratory	6 days	Autopsy	Hemothorax (right 350 ml, left 50 ml), multiple bullae in the apex, emphysema, coronary sclerosis, aortic sclerosis, benign nephrosclerosis.	Y, N, N: N
20	79	M	Pfizer		Gastric cancer	MIS	4 days	Autopsy	Carcinomatous peritonitis due to gastric cancer in the cardia (sized 4 × 4 cm), pneumonia, old cerebral infarction, benign nephrosclerosis, aortic sclerosis.	N, N, N: N
21	77	M	Pfizer	1	Diabetic ketoacidosis	Immunological	1 day	Autopsy	Elevation of ketone in blood (3590 µmol/l), diabetic nephropathy, cardiomegaly, old cerebral infarction.	Y, N, N: N
22	87	F		1	Drowning	Other	2 days	Autopsy	Emphysema aquosum, microbubbles in the trachea, cardiomegaly, benign nephrosclerosis, fatty liver.	N, N, N: N
23	70	F	Pfizer	2	Sigmoid colon cancer	MIS	3 days	Autopsy	Sigmoid colon cancer (sized 4 × 3.2 cm), liver metastasis with extensive hemorrhage and necrosis, lung edema, pleural effusion.	N, N, N: N
24	83	F		2	Drowning	Other	2 days	Autopsy	Emphysema aquosum, watery gastric content, cardiomegaly, aortic sclerosis, benign nephrosclerosis.	N, N, N: N
25	82	M	Pfizer	2	Lung cancer	MIS	2 days	Autopsy	Hemothorax (right 2100 ml) due to lung cancer (S6, sized 6 × 6 cm), multiple metastasis in the lung and liver, cardiomegaly, benign nephrosclerosis.	N, N, N: N

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26	74	F	Pfizer	2	Heart failure	Cardiovascular	1 day	Autopsy	Hypertrophy of the anterior mitral leaflet, cardiomegaly, elevation of NT-pro BNP in blood (6220 pg/ml), coronary sclerosis, old cerebral infarction.	Y, N, N: N
27	84	F	Pfizer	1	MI	Cardiovascular	2 days	Autopsy	Cardiac tamponade due to a rupture of myocardial infarction in the post lateral wall, aortic sclerosis.	Y, N, Y: Y
28	59	M		1	MI	Cardiovascular	6 days	Autopsy	Cardiac tamponade due to a rupture of myocardial infarction in the lateral wall, severe coronary sclerosis, cardiomegaly, aortic sclerosis.	Y, N, Y: Y
29	53	F	Pfizer	1	Alcohol intoxication	Other	3 days	Autopsy	Blood ethanol level (3.5 mg/ml), urine ethanol level (3.89 mg/ml), liver cirrhosis.	N, N, N: N
30	65	M	Pfizer		Ischemic heart disease	Cardiovascular	0 days	Autopsy	Old myocardial infarction in the anterior and lateral wall, severe sclerosis in the left coronary artery, cardiomegaly, fatty liver, aortic sclerosis.	Y, N, N: N
31	66	M	Pfizer	2	Ischemic heart disease	Cardiovascular	3 days	Autopsy	Old myocardial infarction in the anteroseptal wall, severe coronary sclerosis, lung edema, tonsillar hypertrophy.	Y, N, Y: Y
32	69	M			Unknown	Other	1 day	Autopsy	Severe postmortem change of the whole organ, malnutrition, emphysema, coronary sclerosis	Y, N, N: N
33	55	M	Pfizer	2	Bacterial pneumonia	Respiratory	0 days	Autopsy	Significant neutrophil infiltration and bacteria in the alveoli of bilateral lungs, aspiration of vomitus, myotonic dystrophy, coronary sclerosis.	Y, N, N: N
34	51	M	Pfizer	2	Bacterial pneumonia	Respiratory	2 days	Autopsy	Lobar pneumonia in the middle lobe of the right lung, elevation of CRP in blood (28.03 mg/dl), liver cirrhosis, malnutrition.	N, N, N: N

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35	40	M	Moderna	2	Ischemic heart disease	Cardiovascular	3 days	Autopsy	Severe coronary sclerosis, fatty liver.	Y, N, Y: Y
36	65	M		2	Gastric cancer	MIS	2 days	Autopsy	Gastric cancer (sized 12 × 10 cm), metastasis in multiple organs (heart, adrenal gland, bone marrow), old myocardial infarction, coronary sclerosis.	N, N, N: N
37	74	M	Pfizer	2	Ischemic heart disease	Cardiovascular	1 day	Autopsy	Severe coronary sclerosis, lung edema and congestion, old renal infarction.	Y, N, N: N
38	88	F	Pfizer	2	Strangulation ileus	MIS	2 days	Autopsy	Incarceration of hernia (greater omentum), necrosis of the jejunum, secondary pneumonia, senile amyloidosis, aortic sclerosis, benign nephrosclerosis, old lung tuberculosis.	N, N, N: N
39	55	M	Pfizer	1	Poisoning	Other	2 days	Autopsy	Methamphetamine (2.69 µg/ml), bromazepam (0.58 µg/ml) and myanserin hydrochloride (0.14 µg/ml) in blood, fatty liver.	N, N, N: N
40	24	M	Moderna	2	Myocarditis	Cardiovascular	3 days	Autopsy	Scattered necrosis and fibrosis of cardiomyocytes with a perivascular pattern of inflammatory cell infiltration (consisting of predominantly lymphocytes).	Y, Y, Y: Y
41	53	M	Pfizer	1	Ischemic heart disease	Cardiovascular	0 days	Autopsy	Severe coronary sclerosis, myocardial infarction in the anteroseptal wall, fatty liver.	Y, N, N: N
42	59	M		2	Diabetic ketoacidosis	Immunological	6 days	Autopsy	Elevation of ketone in blood (13000 µmol/l), dehydration, diabetic nephropathy, fibrosis of the pancreas, old myocardial infarction, coronary sclerosis.	Y, N, N: N

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43	47	M	Pfizer	1	Ischemic heart disease	Cardiovascular	5 days	Autopsy	Severe coronary sclerosis, contraction band in cardiomyocytes, fatty liver.	Y, N, Y: Y
44	84	M		2	Cor pulmonale	Cardiovascular	5 days	Autopsy	Hypertrophy of the right ventricle, emphysema, elevation of NT-pro BNP in blood (57900 pg/ml), bronchitis, coronary sclerosis, old cerebral hemorrhage.	Y, N, N: N
45	49	M		2	Pulmonary artery thromboembolism	Hematological	5 days	Autopsy	Thromboembolism in the bilateral pulmonary trunk, deep vein thrombosis of bilateral lower extremities (containing organized thrombus), fatty liver.	Y, Y, Y: Y
46	67	F	Pfizer	2	Ischemic heart disease	Cardiovascular	0 days	Autopsy	Severe coronary sclerosis, lung edema, benign nephrosclerosis, aortic sclerosis.	Y, N, N: N
47	56	M	Moderna	2	Ischemic heart disease	Cardiovascular	2 days	Autopsy	Cardiomegaly with multiple fibrotic scars, severe coronary sclerosis, lung edema and congestion, benign nephrosclerosis, fatty liver.	Y, N, Y: Y
48	52	M		1	Cerebral hemorrhage	Neurological	1 day	Autopsy	Transverse sinus thrombosis, massive cerebral hemorrhage (sized 10 × 10 cm) with ischemic lesion, gastromalacia.	Y, Y, Y: Y
49	48	F	Moderna	1	Diabetic ketoacidosis	Immunological	3 days	Autopsy	Elevation of ketone (9820 µmol/l) and HbA1c (10.3%) in blood, dehydration.	Y, N, N: N
50	39	M	Pfizer	2	Unknown	Other	3 days	Autopsy	Lung edema, a slight lymphocyte and macrophage infiltration in the internal space of cardiac muscle.	Y, Y, Y: Y
51	52	M	Pfizer	2	Ischemic heart disease	Cardiovascular	3 days	Autopsy	Severe coronary sclerosis, cardiomegaly, lung edema, benign nephrosclerosis, fatty liver.	Y, N, Y: Y
52	56	M	Pfizer	2	Subarachnoid	Neurological	2 days	Autopsy	Dissection of the left vertebral artery, lung edema, cardiomegaly.	Y, Y, N: Y

						hemorrhage						
	53	49	M	Pfizer	2	Unknown	MIS	0 days	Autopsy	Hypoxic encephalopathy, severe coronary sclerosis, cardiomegaly, liver cirrhosis, pneumonia.	Y, N, N: N	
	54	39	M	Moderna	2	Myocarditis	Cardiovascular	3 days	Autopsy	Scattered inflammatory cell infiltration (consisting of predominantly monocytes) in the interstitial space of cardiomyocytes/around the coronary arteries, interstitial edema, eosinophilic and wavy change of cardiomyocytes, Lung edema, coronary sclerosis.	Y, Y, Y: Y	
Mele [27]	1	54	M	J&J	1	VITT	Hematological	~21 days	Autopsy	Skull dissection showed a marked and widespread congestion and cerebral edema. The vascular structures showed thrombotic-like material within the superior sagittal sinus as well as within the transverse sinus, the sigmoid sinuses and the large saphenous vein in the proximal tract of left thigh. Microscopic examination of the thrombotic-like material revealed consolidated agglomerations of platelets and red blood cells. Inside the large saphenous vein's thrombotic material was neocapillarization and moderate intralésional fibroblastic proliferation.	Y, Y, Y: Y	
Yoshimura [28]	1	88	F	Moderna	2	VI-ARDS	Respiratory	18 days	Autopsy	Both lungs were edematous and heavy. Very early-phase diffuse alveolar damage in the whole lung without other lung diseases was found. PCR confirmed that SARS-CoV-2 was not present in the lung	Y, N, N: N	

										and other organs. The lesions were entirely immunohistochemically negative for both the SARS-CoV-2 spike and N protein.	
Roncati [29]	1	81	F	Pfizer	1	VITT	Hematological	18 days	Autopsy	Widespread thrombotic phenomena in the micro-/macrocirculation of both the lungs were found. Immunohistochemistry confirmed the presence of a large number of activated platelets inside the thrombi. Patient was negative for SARS-CoV-2 shortly before death.	Y, Y, Y: Y
	2	84	F	Pfizer	2	VITT	Hematological	122 days	Autopsy	Chest X-ray showed bilateral pneumothorax, pneumomediastinum and massive subcutaneous thoraco-abdominal emphysema extended to the upper limbs and neck thrombotic phenomena inside the lung microcirculation was found. Patient was negative for SARS-CoV-2 shortly before death.	Y, Y, Y: Y
	3	52	M	Pfizer	1	VITT	Hematological	17 days	Autopsy	Patient was negative of SARS-CoV-2. Autopsy revealed mural thrombosis of the right heart ventricle and of a subendocardial vessel.	Y, Y, Y: Y
Kang [30]	1	48	F	AZ then Pfizer	2	Myocarditis (required transplant, no death)	Cardiovascular	15 days	Necropsy (heart)	Heart transplant needed due to heart failure. Organ autopsy of the explanted heart revealed giant cell myocarditis: diffuse cardiomyocyte necrosis and mixed inflammation in the atria, ventricles, and interventricular septum. The mixed inflammatory infiltrations consisted of lymphocytes, macrophages, and eosinophils. Scattered multinucleated giant cells were detected.	Y, Y, Y: Y

Kamura [31]	1	57	M	Moderna	1	Thrombosis /rhabdomyolysis	MIS	53 days	Autopsy	Autopsy showed multiple microvascular arterial thrombosis, organ/muscle necrosis, and C3 deposition in the renal glomeruli were confirmed on autopsy, suggesting immune-mediated complement activation.	Y, Y, Y: Y
Ishioka [32]	1	67	M	Pfizer	1	Exacerbation of UIP	Respiratory	3 days	Autopsy	SARS-CoV-2 antigen test and polymerase chain reaction were both negative. The lungs had subpleural dense fibrosis with alternating areas of normal lung. Scattered fibroblastic foci were also observed, which was suggestive of usual interstitial pneumonia. The lung pathology report revealed diffuse alveolar damage that was characterized by infiltration of inflammatory cells and hyaline membranes with protein-rich edema fluid.	N, N, N: N
Gill [33]	1	'Teena ge'	M	Pfizer	2	Myocarditis	Cardiovascular	3 days	Autopsy	No molecular evidence of SARS-CoV-2 infection. Global myocardial injury with areas of coagulative myocytolysis and contractions bands, with a perivascular pattern of inflammation consisting of mainly neutrophils and histocytes, scant lymphocytes, and occasional eosinophils. No acute or organizing thrombi were detected. Pattern of injury is consistent with stress cardiomyopathy.	Y, Y, Y: Y
	2	'Teena ge'	M	Pfizer	2	Myocarditis	Cardiovascular	4 days	Autopsy	No molecular evidence of SARS-CoV-2 infection. As with the previous case, global myocardial injury was found but with more widespread transmural ischemic	Y, Y, Y: Y

										changes and more interstitial inflammation. Subepicardial distribution of injury was not seen. No acute or organizing thrombi were detected.	
Pomara [34]	1	37	F	AZ	1	VITT	Hematological	24 days	Autopsy	Autopsy revealed thrombosis of the cerebral venous district, of the upper and lower limbs. The organ samples were studied through light microscope both in hematoxylin-eosin and immunohistochemical examination and showed a strong inflammatory response in all samples and at the site of thrombosis.	Y, Y, Y: Y
Yeo [35]	1	86	F	Pfizer	1	Spontaneous acute right intracerebral hemorrhage	Neurological	2 days	Autopsy	In all 28 cases, anaphylactic reactions, myocarditis and pericarditis, and thrombotic complications were not detected by the examiners. All available information is given: Total Tryptase (ug/l): 5.3 IgE (IU/mL): n/a CRP (mg/L): 197 Pneumonia with consolidation changes in the lungs was found.	Y, Y, Y: Y
	2	67	M	Pfizer	1	Sigmoid volvulus	Gastrointestinal	2 days	Autopsy	Total Tryptase (ug/l): 4.4 IgE (IU/mL): n/a CRP (mg/L):28.8	N, N, N: N
	3	74	M	Pfizer	1	Coronary artery disease	Cardiovascular	0 days	Autopsy	Total Tryptase (ug/l): 18.7 IgE (IU/mL): 28.8 CRP (mg/L): 1.9	Y, Y, Y: Y
	4	86	M	Pfizer	1	Bleeding duodenal ulcer	Gastrointestinal	2 days	Autopsy	Total Tryptase (ug/l): 5.8 IgE (IU/mL): 129 CRP (mg/L): 18.4	Y, N, N: N

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5	63	M	Pfizer	2	Ischemic heart disease	Cardiovascular	1 day	Autopsy	Total Tryptase (ug/l): 20.2 IgE (IU/mL): 2529 CRP (mg/L): 1	Y, Y, Y: Y
6	67	M	Pfizer	2	Hypertensive and ischemic heart disease	Cardiovascular	3 days	Autopsy	Total Tryptase (ug/l): 18.9 IgE (IU/mL): 23.9 CRP (mg/L): 3.9	Y, Y, Y: Y
7	76	M	Pfizer	2	Ischemic heart disease	Cardiovascular	2 days	Autopsy	Total Tryptase (ug/l): 102 IgE (IU/mL): 27.5 CRP (mg/L): 21.2 Lung and splenic tissue were submitted for further histological evaluation and stained with anti-mast cell tryptase antibody. Very scattered mast cells staining positively for anti-mast cell tryptase antibody were seen in the lung tissue and only focally present in the splenic tissue.	Y, Y, Y: Y
8	91	M	Pfizer	2	Ruptured acute myocardial infarction	Cardiovascular	1 day	Autopsy	Total Tryptase (ug/l): 6.1 IgE (IU/mL): 311 CRP (mg/L): 89.8	Y, N, Y: Y
9	76	F	Pfizer	2	Subarachnoid hemorrhage due to ruptured berry aneurysm	Neurological	1 day	Autopsy	Total Tryptase (ug/l): 20.1 IgE (IU/mL): 62.9 CRP (mg/L): 7	Y, Y, Y: Y

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10	80	M	Pfizer	1	Ischemic heart disease	Cardiovascular	0 days	Autopsy	Total Tryptase (ug/l): 8.1 IgE (IU/mL): 4405 CRP (mg/L): 1.7	Y, Y, Y: Y
11	86	M	Pfizer	2	Ischemic heart disease	Cardiovascular	1 day	Autopsy	Total Tryptase (ug/l): 6.2 IgE (IU/mL): 1 CRP (mg/L): 4.8	Y, N, Y: Y
12	94	F	Pfizer	2	Hypertensive heart disease	Cardiovascular	1 day	Autopsy	Total Tryptase (ug/l): 14.9 IgE (IU/mL): 113 CRP (mg/L): 1	Y, Y, Y: Y
13	69	M	Pfizer	2	Ischemic heart disease	Cardiovascular	0 days	Autopsy	Total Tryptase (ug/l): 17.7 IgE (IU/mL): 502 CRP (mg/L): 0.3	Y, Y, Y: Y
14	63	M	Pfizer	2	Ruptured ascending aortic dissection	Cardiovascular	0 days	Autopsy	Total Tryptase (ug/l): 9.2 IgE (IU/mL): 245 CRP (mg/L): 0.6	Y, Y, N: Y
15	53	M	Pfizer	1	Acute right coronary thrombosis	Hematological	1 day	Autopsy	Total Tryptase (ug/l): 7.4 IgE (IU/mL): n/a CRP (mg/L): n/a Acute coronary thrombus was found at autopsy, which was confirmed histologically with no evidence of vasculitis or eosinophilic infiltration.	Y, Y, Y: Y
16	69	M	Pfizer	2	Severe interstitial lung disease with coronary artery disease	MIS	0 days	Autopsy	Total Tryptase (ug/l): 4.8 IgE (IU/mL): 17.8 CRP (mg/L): 19	Y, N, N: N

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17	23	M	Pfizer	2	Severe obesity, with associated cardiomyopathy, hypoventilation syndrome and obstructive sleep apnea	Cardiovascular	1 day	Autopsy	<p>Total Tryptase (ug/l): >200 IgE (IU/mL): 594 CRP (mg/L): 16.8</p> <p>The heart showed features consistent with obesity and hypertension-related changes and there was no eosinophilia detected in the organs on histological evaluation. An increased amount of mast cells staining positively for anti-mast cell tryptase antibody in the lung tissue was found.</p>	Y, Y, Y: Y
18	65	M	Moderna	2	Head injury	Other	1 day	Autopsy	<p>Total Tryptase (ug/l): 39.2 IgE (IU/mL): 173 CRP (mg/L): 28.1</p>	N, N, N: N
19	56	M	Moderna	2	Cerebral infarction with hemorrhage	Neurological	1 day	Autopsy	<p>Total Tryptase (ug/l): >200 IgE (IU/mL): 35.3 CRP (mg/L): n/a</p> <p>An increased amount of mast cells staining positively for anti-mast cell tryptase antibody in the lung tissue was found.</p>	Y, Y, Y: Y
20	52	M	Pfizer	1	Coronary artery disease	Cardiovascular	1 day	Autopsy	<p>Total Tryptase (ug/l): 28.8 IgE (IU/mL): 9.6 CRP (mg/L): 5.5</p>	Y, Y, Y: Y
21	53	M	Moderna	2	Right coronary artery anomalous origin with atherosclerotic ostial stenosis	Cardiovascular	2 days	Autopsy	<p>Total Tryptase (ug/l): 9.1 IgE (IU/mL): 279 CRP (mg/L): 17.3</p>	Y, Y, Y: Y

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22	51	M	Moderna	2	Coronary artery disease	Cardiovascular	3 days	Autopsy	Total Tryptase (ug/l): 20.4 IgE (IU/mL): 19.8 CRP (mg/L): 5.9	Y, Y, Y: Y
23	53	F	Pfizer	2	Coronary atherosclerosis	Cardiovascular	1 day	Autopsy	Total Tryptase (ug/l): 8.4 IgE (IU/mL): 42.5 CRP (mg/L): 10.1	Y, N, Y: Y
24	33	M	Moderna	2	Multi organ failure following cardiac arrest due to right ventricular dysplasia	MIS	1 day	Autopsy	Total Tryptase (ug/l): 10.3 IgE (IU/mL): 243 CRP (mg/L): 155	Y, Y, Y: Y
25	39	M	Pfizer	1	Ischemic heart disease	Cardiovascular	0 days	Autopsy	Total Tryptase (ug/l): 43.4 IgE (IU/mL): 513 CRP (mg/L): 2.4 Lung and splenic tissue were submitted for further histological evaluation and stained with anti-mast cell tryptase antibody. Very scattered mast cells staining positively for anti-mast cell tryptase antibody were seen in the lung tissue and only focally present in the splenic tissue.	Y, Y, Y: Y
26	72	F	Pfizer	1	Ischemic heart disease	Cardiovascular	2 days	Autopsy	Total Tryptase (ug/l): 44.5 IgE (IU/mL): 6.3 CRP (mg/L): 0.5	Y, Y, Y: Y

										Lung and splenic tissue were submitted for further histological evaluation and stained with anti-mast cell tryptase antibody. Very scattered mast cells staining positively for anti-mast cell tryptase antibody were seen in the lung tissue and only focally present in the splenic tissue.	
	27	60	M	Pfizer	1	Ischemic heart disease	Cardiovascular	2 days	Autopsy	Total Tryptase (ug/l): 9.7 IgE (IU/mL): 24 CRP (mg/L): 2.3	Y, N, Y: Y
	28	67	M	Pfizer	2	Head injury	Other	1 day	Autopsy	Total Tryptase (ug/l): 52 IgE (IU/mL): 59.3 CRP (mg/L): 3.2 Lung and splenic tissue were submitted for further histological evaluation and stained with anti-mast cell tryptase antibody. Very scattered mast cells staining positively for anti-mast cell tryptase antibody were seen in the lung tissue and only focally present in the splenic tissue.	Y, Y, Y: Y
Ameratunga [36]	1	57	F	Pfizer	1	Myocarditis	Cardiovascular	3 days	Autopsy	Left pleural mass originating from the mediastinum was found. Multifocal inflammatory cell infiltration in the myocardium and areas of eosinophil-rich inflammatory aggregates with myocyte necrosis were found. An abundant eosinophilic infiltrate with myocyte	Y, Y, Y: Y

										necrosis was observed. Antibodies to SARS-CoV-2 were not detected.	
Gunther [37]	1	54	M	AZ	1	VITT	Hematological	~121 days	Autopsy	A residual thrombus in the left sinus transversus without evidence for other thromboembolic pathology in the brain or other solid organs was found. The brain showed signs of severe edema and several hemorrhages were detectable mostly in the left hemisphere. Microscopic analysis revealed large hemorrhages, as well as small perivascular hemorrhages and extensive neuronal death together with brain edema. Also, a florid bronchopneumonia and a small liver hemangioma were diagnosed.	Y, Y, Y: Y
Permezel [38]	1	63	M	AZ	1	ADEM	Neurological	32 days	Autopsy	Serial coronal sections of the brain showed multiple areas of ill-defined demyelination in the white matter of the left superior frontal gyrus, the right cingulate gyrus extending into the corpus callosum, and in the left and right parietal regions. Histological examination confirmed the presence of large geographic areas of acute demyelination, focally in a perivenular distribution. The foci were characterized by loss of myelin. The lesions showed reactive astrocytes, microglia, and foamy macrophages. No evidence of meningitis, vasculitis or encephalitis was found. No virus was found in the brain.	N, Y, Y: Y
Choi [39]	1	22	M	Pfizer	1	Myocarditis	Cardiovascular	5 days	Autopsy	Histological examination of the heart showed isolated atrial myocarditis, with	Y, Y, Y: Y

										neutrophil and histiocyte predominance. Immunohistochemical C4d staining showed scattered single-cell necrosis of myocytes which was not accompanied by inflammatory infiltrates. Extensive contraction band necrosis was seen in the atria and ventricles. There was no evidence of microthrombosis or infection in the heart and other organs.	
Schneider [40]	1	82	M	Moderna	1	Most likely severe pre-existing cardiac changes with infarction scars	Cardiovascular	1 day	Autopsy	Severe coronary sclerosis, massive cardiac hypertrophy, extensive myocardial infarction scars, anaphylaxis diagnostics negative.	Y, N, N: N
	2	91	F	Moderna	1	Most likely severe pre-existing cardiac changes with infarction scars	Cardiovascular	1 day	Autopsy	Severe coronary sclerosis, massive cardiac hypertrophy, myocardial infarction scars, anaphylaxis diagnostics negative.	Y, N, N: N
	3	32	F	AZ	1	Massive cerebral hemorrhage	Neurological	12 days	Autopsy	Massive cerebral hemorrhage, anti-PF4 heparin antibody tests: positive, HIPA-Test: positive, PIPA-Test: positive.	Y, Y, Y: Y
	4	34	F	AZ	1	Recurrent myocardial infarction	Cardiovascular	1 day	Autopsy	Obesity, massive cardiac hypertrophy, myocardial infarction scars, fresh	Y, N, Y: Y

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					in the presence of massive cardiac hypertrophy					myocardial infarction, anaphylaxis diagnostics negative.	
5	48	F	AZ	1	Bleeding from ruptured aorta	Hematological	10 days	Autopsy	Aortic dissection with rupture, high blood loss.	Y, Y, Y: Y	
6	65	M	Pfizer	1	Myocarditis in the presence of severe pre-existing cardiac changes	Cardiovascular	1 day	Autopsy	Severe coronary sclerosis, massive cardiac hypertrophy, myocardial infarction scars, myocarditis, anaphylaxis diagnostics negative.	Y, Y, Y: Y	
7	71	M	Pfizer	1	Most likely severe pre-existing cardiac changes with infarction scars	Cardiovascular	1 day	Autopsy	Massive cardiac hypertrophy, coronary sclerosis, anaphylaxis diagnostics negative.	Y, N, Y: Y	
8	57	F	Moderna	2	Hyperglycemic coma	MIS	6 days	Autopsy	Severe coronary sclerosis, fatty liver, high levels of glucose and lactate in CSF and aqueous humor exceeding the cumulative levels of Traub.	Y, Y, Y: Y	
9	63	M	AZ	1	Most likely severe pre-existing	Cardiovascular	14 days	Autopsy	Severe coronary sclerosis, cardiac hypertrophy, myocardial infarction scars, liver cirrhosis.	Y, N, Y: Y	

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					cardiac changes						
10	61	M	AZ	1	Most likely severe pre-existing cardiac changes with infarction scars	Cardiovascular	1 day	Autopsy	Severe coronary sclerosis, massive cardiac hypertrophy, anaphylaxis diagnostics negative.	Y, N, Y: Y	
11	71	M	AZ		Pulmonary embolism in the presence of DVT	Hematological	10 days	Autopsy	DVT, pulmonary embolism, severe coronary sclerosis, massive cardiac hypertrophy, myocardial infarction scars, VITT-diagnostics negative.	Y, Y, Y: Y	
12	38	F	AZ	2	Hypoxic brain damage following an anaphylactic reaction to anesthetics	MIS	8 days	Autopsy	Multiple fresh thrombi, including in the cerebral venous sinuses, cardiac hypertrophy, fresh myocardial infarction, hypoxic brain damage, anti-PF4 heparin antibody tests: positive, HIPA-Test: positive, PIPA-Test: positive.	Y, Y, Y: Y	
13	72	F	Pfizer	1	Massive cerebral hemorrhage	Neurological	12 days	Autopsy	Massive cerebral hemorrhage, coronary sclerosis, cardiac hypertrophy, VITT diagnostics negative.	Y, Y, Y: Y	
14	65	F	AZ	1	CVT and cerebral hemorrhage with hypoxic	Neurological	10 days	Autopsy	Signs of a bleeding diathesis, cerebral hemorrhages, CVT, mild coronary sclerosis, anti-PF4 heparin antibody tests: positive, HIPA-Test: positive, PIPA-Test: positive.	Y, Y, Y: Y	

						brain damage					
	15	79	M	Pfizer	2	Pulmonary embolism in the presence of DVT	Hematological	6 days	Autopsy	DVT, massive pulmonary embolism, coronary sclerosis, pericarditis, chronic pulmonary emphysema, VITT diagnostics negative.	Y, Y, Y: Y
	16	57	M	AZ		Recurrent myocardial infarction	Cardiovascular	2 days	Autopsy	Severe coronary sclerosis, massive cardiac hypertrophy, extensive myocardial infarction scars, fresh myocardial infarction.	Y, Y, Y: Y
	17	72	F	Pfizer	2	Coronary thrombosis with fresh myocardial infarction	Cardiovascular	0 days	Autopsy	Severe coronary sclerosis with coronary thrombosis, myocardial infarction scars, fresh myocardial infarction, anaphylaxis diagnostics negative.	Y, Y, Y: Y
	18	69	M	J&J	1	Coronary thrombosis with fresh myocardial infarction	Cardiovascular	9 days	Autopsy	CVT, severe coronary sclerosis with coronary thrombosis, massive cardiac hypertrophy, fresh myocardial infarction, anti-PF4 heparin antibody tests: positive, HIPA-Test: positive, PIPA-Test: positive.	Y, Y, Y: Y
Verma [41]	1	42	M	Moderna	2	Myocarditis	Cardiovascular	~14 days	Autopsy	Autopsy revealed biventricular myocarditis. An inflammatory infiltrate admixed with macrophages, T-cells, eosinophils, and B cells was also observed.	Y, Y, Y: Y
Wiedmann [42]	1	34	F	AZ	1	VITT	Hematological	8 days	Autopsy	Autopsy showed an edematous brain with sparse subarachnoid hemorrhage and a large hemorrhagic infarction in the right hemisphere. Thrombi were present in both transverse sinuses. Scattered petechial and flame-shaped hemorrhages were observed on the skin, peritoneal membranes, and mucosal surfaces.	Y, Y, Y: Y

2	42	F	AZ	1	VITT	Hematological	25 days	Autopsy	At autopsy, a red-white clot was confirmed present in the left transverse and sigmoid sinus, as well as remnants of white clots attached to the endothelium in the sagittal sinus. Massive hemorrhagic infarction was present in the left hemisphere. In the lungs, peripheral areas with infarction were demonstrated. Microscopic examination confirmed multiple arteriolar thrombi in organization. In addition, small venules with intraluminal fibrin clots were present in several lung lobes and in the myocardium.	Y, Y, Y: Y
3	37	F	AZ	1	VITT	Hematological	11 days	Autopsy	Examination revealed a large hemorrhagic infarction in the left cerebral hemisphere, extensive hemorrhagic changes in the cerebellum, as well as focal white substance hemorrhages in the cerebral hemispheres and in the brainstem. Thrombi were present in the left transverse and sigmoid sinuses. Scattered small hemorrhages were observed on the skin and peritoneal membranes.	Y, Y, Y: Y
4	54	F	AZ	1	VITT	Hematological	9 days	Autopsy	Examination demonstrated a white clot in the posterior sagittal sinus and both transverse sinuses. Massive hemorrhagic venous infarction was confirmed in the right parietal lobe and bilateral hemorrhagic infarctions in multiple cortical areas. There were multiple extra-cerebral manifestations of coagulation disturbance, with leech-like white thrombi	Y, Y, Y: Y

											in the inferior vena cava, left subclavian trunk, right inter-atrial septum, and both portal and hepatic veins. Microscopically, these extra-cerebral thrombi were rich in platelets, fibrin, and leukocytes with abundance of monocytes, and were attached to the endothelium, but without signs of organization. In the spleen, subcapsular hemorrhages were present as well as multiple intralobular arterioles with fibrinoid necrosis.	
Pomara [43]	1	50	M	AZ	1	VITT	Hematological	16 days	Autopsy	Portal vein thrombosis with smaller thrombi in the splenic and upper mesenteric veins was found. Intracranial hemorrhage in the subarachnoid region was detected. The microscopic examination revealed numerous vascular thrombi and intense hemorrhagic phenomena localized in the meningeal space and extravasated in the brain tissue.	Y, Y, Y: Y	
	2	37	F	AZ	1	VITT	Hematological	24 days	Autopsy	Occlusive thrombus in the superior sagittal sinus and a very large hemorrhage in the frontal cerebral lobe was found. Moreover, in the axillary region of the left arm, a thrombus was detected. The microscopic examination revealed numerous vascular thrombi and intense hemorrhagic phenomena localized in the meningeal space and extravasated in the brain tissue.	Y, Y, Y: Y	
Althaus [44]	1	48	F	AZ	1	VITT	Hematological	16 days	Autopsy	Autopsy showed complete thrombotic obstruction of the straight, sagittal, and transversal cerebral sinuses, subarachnoid	Y, Y, Y: Y	

										hemorrhage, cerebral edema and bilateral pulmonary embolism in mid-sized arteries and obstruction of glomerular arterioles and capillaries by hyaline microthrombi containing fibrin and platelets.	
	2	24	M	AZ	1	VITT	Hematological	17 days	Autopsy	Autopsy showed massive cerebral hemorrhage and cerebral edema, bilateral pulmonary thromboembolism, and obstruction of glomeruli by hyaline microthrombi.	Y, Y, Y: Y
Edler [45]	1	'elderly'	F	Pfizer	1	Pulmonary artery embolism	Hematological	5 days	Autopsy	Autopsy revealed pulmonary artery embolism with infarction of the right lower lobe of the lung with deep leg vein thromboses on both sides. On the left upper arm, an injection site was found over the deltoid muscle. The axillary lymph nodes appeared inconspicuous macroscopically. A postmortem nasopharyngeal swab for SARS-CoV-2 RNA was negative.	Y, Y, Y: Y
	2	'elderly'	M	Pfizer	1	COVID-19 Pneumonia	Respiratory	12 days	Autopsy	The autopsy revealed chronic and acute pancreatitis. Pneumonia was confirmed as the cause of death. Histologically, the markedly congested lungs showed alveoli filled with activated type II pneumocytes, fibroblasts, and partially lined with hyaline membranes. Giant cells and squamous metaplasia were present in some areas. The medium-sized arteries showed predominantly lymphocellular infiltrates in the outer wall layers. Microthromboses were found in small arterioles. Shortly before death, the	Y, Y, Y: Y

										patient was PCR positive for SARS-CoV-2 RNA.	
	3	'elderly'	M	Pfizer	1	MI	Cardiovascular	2 days	Autopsy	From the autopsy, organ pathologies typical of old age were found in the form of signs of chronic obstructive pulmonary disease (COPD) and chronic renal dysfunction. The cause of death was a recurrent myocardial infarction with severe coronary heart disease and severe general arteriosclerosis. The lungs showed, besides advanced organized ones, a fresh, non-fulminant pulmonary artery thromboembolism in peripheral segments. Signs of an acute inflammatory event or a systemic abnormality (of the type of a vaccination complication) could not be verified; individual axillary lymph nodes were swollen near the injection site	Y, Y, Y: Y
Hansen [46]	1	86	M	Pfizer	1	Renal/respiratory failure	MIS	26 days	Autopsy	Autopsy revealed acute bilateral bronchopneumonia with abscesses, sometimes being surrounded by bacterial cocci. There were no findings of commonly described manifestations of COVID-19-associated pneumonitis. In the heart, we found biventricular hypertrophy (weight 580 g) and histologically, we diagnosed ischemic cardiomyopathy. We detected amyloidosis of the transthyretin type in the heart and to a lesser extent in the lungs. The kidneys revealed both chronic damage with arteriolosclerosis and interstitial fibrosis, and acute renal failure with hydropic tubular degeneration. The	N, Y, Y: Y

										examination of the brain revealed a left parietal pseudocystic tissue necrosis, which was diagnosed as an old infarction area. SARS-CoV-2 RNA was detected in nearly all organs examined except for the liver and the olfactory bulb. Patient tested positive for COVID-19 2 days before death, with no clinical symptoms typically ascribed to COVID-19.	
Baronti [47]	1	69	M	Pfizer	1	MI	Cardiovascular	2 days	Autopsy	Hemopericardium, heart laceration on the posterior wall of the left ventricle, pre-existing critical three-vessel atherosclerotic disease, and coronary thrombosis were detected. Coronary thrombosis of right coronary artery with significant stenosis. MI at the rupture site was seen.	Y, N, Y: Y
	2	58	M	Pfizer	2	MI	Cardiovascular	0 days	Autopsy	Pre-existing three-vessel atherosclerotic disease, coronary thrombosis, and hypoplastic right coronary artery were found. Coronary thrombosis of left anterior descending artery was seen. IHC diagnostic of MI. PM-CMR indicated ischemic damage.	Y, Y, Y: Y
	3	76	M	Pfizer	1	MI	Cardiovascular	21 days	Autopsy	Hemopericardium, heart laceration posterior wall of the left ventricle, and pre-existing three-vessel atherosclerotic disease was found. MI at the rupture site was seen.	Y, Y, Y: Y
	4	68	M	Pfizer	2	MI	Cardiovascular	3 days	Autopsy	Pre-existing three-vessel atherosclerotic disease and coronary thrombosis were detected. Coronary thrombosis of left anterior descending artery was seen. IHC	Y, Y, Y: Y

										diagnostic of MI. PM-CMR indicated ischemic damage.	
	5	50	F	Moderna	1	MI	Cardiovascular	0 days	Autopsy	Pre-existing three-vessel atherosclerotic disease and coronary thrombosis were found. Coronary thrombosis of left anterior descending artery detected. IHC diagnostic of MI. PM-CMR indicated ischemic damage.	Y, Y, Y: Y
Ittiwut [48]	1	23	M	Sinovac then AZ	2	Unexplained	Other	1 day	Autopsy	‘Unexplained’: Patient had no underlying conditions, reported having a fever, headache, and fatigue before death.	N, Y, Y: Y
	2	33	M	Sinovac then AZ	2	Unexplained	Other	1 day	Autopsy	‘Unexplained’: Patient had schizophrenia and took clonazepam, diazepam, and fluoxetine.	N, Y, Y: Y
	3	43	M	2 Sinovac, then Pfizer	3	Dilated cardiomyopathy (DCM)	Cardiovascular	1 day	Autopsy	Autopsy found DCM in the heart. Patient reported fever and myalgia before death and had asthma and gout.	Y, Y, Y: Y
	4	46	M	Sinovac	1	Unexplained	Other	3 days	Autopsy	‘Unexplained’: Patient had hyperthyroidism.	N, Y, Y: Y
	5	28	F	Sinovac	1	Ventricular dysplasia	Cardiovascular	7 days	Autopsy	Autopsy indicated arrhythmogenic right ventricular dysplasia.	Y, Y, Y: Y
	6	35	M	Sinopharm	1	Unexplained	Other	1 day	Autopsy	‘Unexplained’: Patient complained of fever and knee pain before death.	N, Y, Y: Y
	7	36	M	Sinovac then AZ	2	Unexplained	Other	1 day	Autopsy	‘Unexplained’: Patient had alcoholic hepatitis.	N, Y, Y: Y
	8	38	M	Sinopharm	2	Coronary atherosclerosis	Cardiovascular	1 day	Autopsy	Autopsy indicated coronary atherosclerosis.	Y, Y, Y: Y
	9	72	M	AZ	1	Coronary atherosclerosis	Cardiovascular	1 day	Autopsy	Autopsy indicated coronary atherosclerosis. Patient complained of chest pain before death.	Y, Y, Y: Y

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	10	53	F	AZ	1	Thalassemia with liver cirrhosis	Hematological	1 day	Autopsy	Autopsy found thalassemia with liver cirrhosis. Patient had Beta thalassemia.	N, Y, Y: Y
	11	59	F	AZ	1	Coronary atherosclerosis	Cardiovascular	1 day	Autopsy	Autopsy indicated coronary atherosclerosis.	Y, Y, Y: Y
	12	34	M	AZ	1	Unexplained	Other	1 day	Autopsy	‘Unexplained’	N, Y, Y: Y
	13	56	M	Moderna	1	Coronary atherosclerosis	Cardiovascular	4 days	Autopsy	Autopsy indicated coronary atherosclerosis.	Y, Y, Y: Y
Greinacher [49]	1	49	F	AZ	1	VITT	Hematological	10 days	Autopsy	Autopsy revealed cerebral venous thrombosis. Before death, portal-vein thrombosis including the splenic and upper mesenteric veins was detected; in addition, small thrombi were visualized in the infrarenal aorta and both iliac arteries.	Y, Y, Y: Y
Mauriello [50]	1	48	F	AZ	1	VITT	Hematological	39 days	Autopsy	Autopsy examination revealed a massive cerebral hemorrhage complicated by a purulent abscess involving the right fronto-temporo-parietal lobes, the nucleus of the right base, with midline shift and wedging of the cerebellar tonsils and an internal and external haemocephalus. Bilateral confluent foci of bronchopneumonia associated to a right apical pulmonary infarction of both lungs were also observed. Postmortem analysis of bone marrow, including hematoxylin and eosin stain, immunohistochemistry, and transmission electron microscopy (TEM), showed focal megakaryocyte	Y, Y, Y: Y

										hyperplasia associated with morphological dysplastic changes.	
Bjørnstad-Tuveng [51]	1	“young”	F	AZ	1	VITT	Hematological	~10 days	Autopsy	Postmortem examination showed antibodies to PF4, and fresh small thrombi were found in the transverse sinus, frontal lobe and pulmonary artery.	Y, Y, Y: Y
Scully [52]	1	52	F	AZ	1	VITT	Hematological	~>10 days	Autopsy	Postmortem examination found thrombosis in the lungs and intestine, CVT, ICH.	Y, Y, Y: Y
Choi [53]	1	38	M	J&J	1	SCLS	Hematological	2 days	Autopsy	Autopsy results showed no evidence of acute infection or cardiovascular disease in the internal organs. We identified pulmonary edema, pleural effusion, and pericardial effusion. Although pulmonary edema is atypical in acute SCLS attacks (leak phase), prolonged cardiopulmonary resuscitation and fluid administration might have affected the autopsy findings. Histopathologic findings in both kidneys suggested autolysis or acute tubular necrosis.	Y, Y, Y: Y
Schwab [54]	1	46	M	Pfizer	1	Myocarditis	Cardiovascular	0 days	Autopsy	Histological examination showed inflammatory infiltration of the myocardium. The infiltrate was focal and interstitial. It was predominantly detected in sections taken from the right ventricular wall and interventricular septum. The histological and immunohistochemical characterization revealed that the inflammatory infiltrate was predominantly composed of lymphocytes. Micro focal myocyte injury	Y, Y, Y: Y

										was demonstrable. Lacked pre-existing, clinically relevant heart disease.	
2	50	F	Moderna	1	Myocarditis	Cardiovascular	1 day	Autopsy	Histological examination showed inflammatory infiltration of the myocardium. The infiltrate was focal and interstitial. It was predominantly detected in sections taken from the right ventricular wall and interventricular septum. The histological and immunohistochemical characterization revealed that the inflammatory infiltrate was predominantly composed of lymphocytes. Micro focal myocyte injury was demonstrable. An inflammatory infiltration of the epicardium and the subepicardial fat tissue was concomitantly found. Lacked pre-existing, clinically relevant heart disease.	Y, Y, Y: Y	
3	62	F	Pfizer	1	Myocarditis	Cardiovascular	7 days	Autopsy	Histological examination showed inflammatory infiltration of the myocardium. The infiltrate was focal and interstitial. It was predominantly detected in sections taken from the right ventricular wall and interventricular septum. The histological and immunohistochemical characterization revealed that the inflammatory infiltrate was predominantly composed of lymphocytes. Micro focal myocyte injury was demonstrable. An inflammatory infiltration of the epicardium and the subepicardial fat tissue was concomitantly	Y, Y, Y: Y	

										found. Lacked pre-existing, clinically relevant heart disease.	
4	55	M	Pfizer	2	Myocarditis	Cardiovascular	4 days	Autopsy	<p>Histological examination showed inflammatory infiltration of the myocardium. The infiltrate was focal and interstitial. It was predominantly detected in sections taken from the right ventricular wall and interventricular septum. The histological and immunohistochemical characterization revealed that the inflammatory infiltrate was predominantly composed of lymphocytes. An inflammatory infiltration of the epicardium and the subepicardial fat tissue was concomitantly found. Lacked pre-existing, clinically relevant heart disease.</p>	Y, Y, Y: Y	
5	75	F	Pfizer	1	Myocarditis	Cardiovascular	1 day	Autopsy	<p>Histological examination showed inflammatory infiltration of the myocardium. The infiltrate was focal and interstitial. It was predominantly detected in sections taken from the right ventricular wall and interventricular septum. The histological and immunohistochemical characterization revealed that the inflammatory infiltrate was predominantly composed of lymphocytes. An inflammatory infiltration of the epicardium and the subepicardial fat tissue was concomitantly found. Lacked pre-existing, clinically relevant heart disease. Analysis for potential infectious agents causing a myocarditis</p>	Y, Y, Y: Y	

										revealed low viral copy numbers of human herpes virus 6.	
Hirschbuhl [55]	1	50s	M	Pfizer	1	COVID-19 pneumonia	Respiratory	~10 days	Autopsy	<p>Acute and organizing DAD, small areas with acute pneumonia.</p> <p>SARS-CoV-2 spike serology [normal:<0.8 U/ml]: 21</p> <p>SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: 14</p>	N, N, N: N
	2	70s	M	Pfizer	1	COVID-19 pneumonia	Respiratory	~18 days	Autopsy	<p>Acute DAD with focal signs of organization.</p> <p>SARS-CoV-2 spike serology [normal:<0.8 U/ml]: 45</p> <p>SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: 1.3</p>	N, N, N: N
	3	70s	F	Pfizer	1	COVID-19 pneumonia	Respiratory	~192 days	Autopsy	<p>Acute DAD, hemorrhage, congestion, acute pneumonia, aspergillosis.</p> <p>SARS-CoV-2 spike serology [normal:<0.8 U/ml]: >2500</p> <p>SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: 2.8</p>	N, N, N: N
	4	90s	F	Pfizer	2	COVID-19 pneumonia	Respiratory	~23 days	Autopsy	<p>Acute and organizing DAD.</p> <p>SARS-CoV-2 spike serology [normal:<0.8 U/ml]: 34</p>	N, N, N: N

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										SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: n.a.	
5	60s	M	Pfizer	1	COVID-19 pneumonia	Respiratory	~8 days	Autopsy	Acute DAD.	N, N, N: N	
6	60s	F	AZ	1	Traumatic (cerebral bleeding)	Neurological	~19 days	Autopsy	No DAD, emphysema, mild edema.	N, Y, Y: Y	
7	50s	M	Pfizer	1	COVID-19 pneumonia	Respiratory	~25 days	Autopsy	No DAD, severe congestion, edema, fibrosis, emphysema.	N, N, N: N	
8	70s	M	AZ	1	COVID-19 pneumonia	Respiratory	~46 days	Autopsy	Acute and organizing DAD, aspergillosis.	N, N, N: N	
9	60s	F		1	COVID-19 Pneumonia	Respiratory	~5 days	Autopsy	Acute DAD, severe congestion, acute pneumonia.	N, N, N: N	
10	80s	M	Pfizer	1	COVID-19 Pneumonia	Respiratory		Autopsy	Acute DAD. SARS-CoV-2 spike serology [normal:<0.8 U/ml]: <0.8	N, N, N: N	
11	50s	F	AZ	1	COVID-19 Pneumonia	Respiratory	~20 days	Autopsy	Acute DAD, acute pneumonia, organizing pneumonia.	N, N, N: N	
12	70s	M	Pfizer	1	COVID-19 Pneumonia	Respiratory	~17 days	Autopsy	Acute and organizing DAD.	N, N, N: N	
13	70s	F	Pfizer	1	Cardiac failure	Cardiovascular		Autopsy	No DAD, congestion, emphysema.	Y, N, N: N	
14	70s	M	Pfizer	1	Hemorrhagic shock	Hematological	~14 days	Autopsy	Acute DAD, hemorrhage, congestion, acute pneumonia.	Y, Y, Y: Y	
15	90s	F	Pfizer	1	COVID-19 pneumonia	Respiratory	~39 days	Autopsy	Acute DAD, severe acute pneumonia.	N, N, N: N	
16	60s	F	AZ	1	Cerebral ischemia	Neurological	~33 days	Autopsy	Organizing pneumonia, microthrombi.	Y, Y, Y: Y	
17	70s	M	Pfizer	2	COVID-19 pneumonia and MI	MIS		Autopsy	Acute DAD.	N, Y, Y: Y	

										<p>SARS-CoV-2 spike serology [normal:<0.8 U/ml]: 407</p> <p>SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: negative</p>	
18	80s	M	Pfizer	2	COVID-19 pneumonia and cardiac failure	MIS	~254 days	Autopsy	<p>Mild acute DAD, acute pneumonia, aspergillosis, severe emphysema, severe congestion.</p> <p>SARS-CoV-2 spike serology [normal:<0.8 U/ml]: <0.8</p> <p>SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: negative</p>	N, N, N: N	
19	80s	F	AZ	2	COVID-19 associated respiratory failure	Respiratory	~68 days	Autopsy	<p>No DAD, congestion of blood vessels in lung parenchyma.</p>	N, N, N: N	
20	80s	F	Pfizer	2	COVID-19 pneumonia	Respiratory	~292 days	Autopsy	<p>Mild acute DAD and acute pneumonia.</p> <p>SARS-CoV-2 spike serology [normal:<0.8 U/ml]: >2500</p> <p>SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: negative</p>	N, Y, Y: Y	
21	70s	F	Pfizer	2	MI or pulmonary embolism COVID-19 associated	Hematological	~152 days	Autopsy	<p>Mild unspecific alterations to lung parenchyma, no DAD.</p> <p>SARS-CoV-2 spike serology [normal:<0.8 U/ml]: 278</p>	Y, Y, Y: Y	

										SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: negative	
22	70s	M	Pfizer	2	Sepsis	Other	~234 days	Autopsy	Acute pneumonia, very mild acute DAD, marked mixed pneumoconiosis. SARS-CoV-2 spike serology [normal:<0.8 U/ml]: >2500 SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: negative	N, Y, Y: Y	
23	70s	M	Sinovac	2	COVID-19 pneumonia	Respiratory	~41 days	Autopsy	Mild acute DAD, congestion. SARS-CoV-2 spike serology [normal:<0.8 U/ml]: <0.8 SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: 2.89	N, N, N: N	
24	60s	F	Pfizer	2	Aspiration pneumonia	Respiratory	~107 days	Autopsy	Emphysema, acute pneumonia.	N, N, N: N	
25	60s	M	Pfizer	2	COVID-19 pneumonia	Respiratory	~106 days	Autopsy	Acute/organizing DAD severe emphysema, acute pneumonia. SARS-CoV-2 spike serology [normal:<0.8 U/ml]: >2500 SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: negative	N, Y, Y: Y	

A Review of Autopsy Findings in Deaths After COVID-19 Vaccination - Supplementary Appendix

	26	70s	M	Pfizer	2	COVID-19 pneumonia	Respiratory	~170 days	Autopsy	Moderate acute DAD. SARS-CoV-2 spike serology [normal:<0.8 U/ml]: 223 SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: 33	N, N, N: N
	27	70s	M	Pfizer	2	COVID-19 pneumonia	Respiratory	~168 days	Autopsy	Acute/organizing DAD. SARS-CoV-2 spike serology [normal:<0.8 U/ml]: >2500 SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: 21.6	N, N, N: N
	28	50s	M	Pfizer	2	COVID-19 pneumonia	Respiratory	~156 days	Autopsy	Organizing DAD with residual acute DAD, aspergillosis. SARS-CoV-2 spike serology [normal:<0.8 U/ml]: 154 SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: 11.1	N, N, N: N
	29	90s	F	Pfizer	2	Myocardial infarction and nephric abscess	Cardiovascular	~121 days	Autopsy	In lungs, UIP, no DAD SARS-CoV-2 spike serology [normal:<0.8 U/ml]: >2500 SARS-CoV-2 nucleocapsid serology [normal:< COI 1]: 120	Y, N, N: N
Hoshino [56]	1	27	M	Moderna	1	Myocarditis	Cardiovascular	36 days	Autopsy	An autopsy revealed asymmetric left ventricular hypertrophy, thickening of the right ventricular wall (550 g; LV wall, 11–16 mm; RV wall, 5–7 mm), myxomatous	Y, Y, Y: Y

										<p>degeneration of the posterior leaflet of the mitral valve, and hypertrophy of the posteromedial papillary muscle. Microscopic findings revealed that cardiac myocytolysis and widespread fibrosis were observed, and significant mixed inflammatory infiltration (T cells, macrophages, and eosinophils) was observed in the left ventricular free wall and the anterior portion of the ventricular septum.</p>	
Colombo [57]	1	78	F	Pfizer	2	COVID-19 ARDS	Respiratory	195 days	Autopsy	<p>COVID-19 positive. Autopsy found patient died of acute respiratory distress syndrome.</p> <p>Brain atrophy found, possibly due to pre-diagnosed Parkinson's.</p> <p>Lung findings: Edema, bilateral fibrosis.</p> <p>Heart findings: Eccentric hypertrophy, biventricular dilation. Moderate aortic atherosclerosis; coronary stenosis above 50%.</p>	N, N, N: N
	2	81	M	Pfizer	2	MI, respiratory failure, abdominal fibromatosis, pulmonary embolism	MIS	270 days	Autopsy	<p>COVID-19 positive. Autopsy found patient died of myocardial infarction, respiratory failure due to bacterial bronchopneumonia and abdominal fibromatosis. Patient had chronic ischemic cardiomyopathy.</p>	Y, N, Y: Y

										<p>Lung findings: Congestion, lower lobe fibrosis and pneumonia, pulmonary embolism.</p> <p>Heart findings: Eccentric hypertrophy, biventricular dilation. Aortic and mitral valve stenosis; moderate aortic atherosclerosis.</p>	
3	60	F	Pfizer	2	Heart failure and small bowel ischemia	MIS	188 days	Autopsy	<p>COVID-19 positive. Autopsy found patient died of heart failure due to auricle thrombosis and small bowel ischemia. Patient had paroxysmal AFib, active cancer for 5 years.</p> <p>Lung findings: Edema and congestion. Lower left lung fibrosis. Right lung pneumonia.</p> <p>Heart findings: Biventricular dilation, mild aortic atherosclerosis.</p>	Y, N, N: N	
4	66	M	Pfizer	2	Respiratory failure, cardiomyopathy, encephalopathy	MIS	250 days	Autopsy	<p>COVID-19 positive. Autopsy found patient died of respiratory failure due to bacterial pneumonia, cirrhotic cardiomyopathy, and encephalopathy.</p> <p>Brain findings: Patient had microglial activation, swollen astrocytes with pale nuclei, eosinophilic nucleoli, scanty cytoplasm, perivascular blood extravasations. Patient was previously diagnosed with hepatic encephalopathy.</p>	Y, N, N: N	

										<p>Lung findings: Edema and congestion. Focal fibrosis and right lung pneumonia.</p> <p>Heart findings: Concentric hypertrophy. Moderate aortic atherosclerosis; coronary stenosis.</p>	
	5	75	M	Pfizer	2	Pneumonia, brain hemorrhaging	MIS	298 days	Autopsy	<p>COVID-19 positive. Autopsy found patient died of rheumatoid arthritis related organizing pneumonia.</p> <p>Brain findings: Perivascular microhemorrhages, microglial nodules and astroglial activation due to ischemic hypoxic damage with small vessels damage and hyaline arteriosclerosis. Patient was previously diagnosed with epilepsy and cerebral vasculopathy.</p> <p>Lung findings: Congestion, bilateral focal fibrosis, lower left lobe pneumonia.</p> <p>Heart findings: Biventricular dilation, mild aortic atherosclerosis.</p>	Y, N, N: N
Mosna [58]	1	71	M	Pfizer	2	GBS	Neurological	10 days	Autopsy	<p>The pleural cavity revealed firm adhesion between the visceral and parietal pleura on the right side. The lungs were bilaterally increased in size and weight (right 1260 g, left 950 g. Histological examination indicated post-aspiration absceding bronchopneumonia as the immediate cause of death of the patient.</p>	N, Y, Y: Y

											Gross and microscopic examination of the brain tissue and meninges did not reveal any pathological changes apart from slight edema. A thorough examination of the peripheral nerves of the lumbar plexus showed areas of focal demyelination, prevalently perivascular infiltration by T-lymphocytes with a slight prevalence of T-cytotoxic over T-helper phenotype and the presence of numerous macrophages.	
Kaimori [59]	1	72	F	Pfizer	1	TMA	Hematological	2 days	Autopsy	Autopsy revealed multiple microthrombi in the heart, brain, liver, kidneys, and adrenal glands. The thrombi were CD61 and CD42b positive and were located in the blood vessels primarily in the pericardial aspect of the myocardium and subcapsular region of the adrenal glands; their diameters were approximately 5-40 µm. Macroscopically, a characteristic myocardial hemorrhage was observed, and the histopathology of the characteristic thrombus distribution, which differed from that of hemolytic uremic syndrome and disseminated intravascular coagulation, suggested that the underlying pathophysiology may have been similar to that of thrombotic microangiopathy	Y, Y, Y: Y	

References

16. Hojberg Y, Abdeljaber M, Prahlow JA. Generalized Eosinophilia Following Moderna COVID-19 Vaccine Administration: A Case Report. *Acad Forensic Pathol.* 2023 Mar;13(1):9-15. doi: 10.1177/19253621231157933. Epub 2023 Mar 28. PMID: 37091194; PMCID: PMC10119868.
17. Nushida H, Ito A, Kurata H, Umemoto H, Tokunaga I, Iseki H, Nishimura A. A case of fatal multi-organ inflammation following COVID-19 vaccination. *Leg Med (Tokyo).* 2023 Mar 20;63:102244. doi: 10.1016/j.legalmed.2023.102244. Epub ahead of print. PMID: 36990036; PMCID: PMC10027302.
18. Jeon YH, Choi S, Park JH, Lee JK, Yeo NS, Lee S, Suh YL. Sudden Death Associated With Possible Flare-Ups of Multiple Sclerosis After COVID-19 Vaccination and Infection: A Case Report and Literature Review. *J Korean Med Sci.* 2023 Mar 13;38(10):e78. doi: 10.3346/jkms.2023.38.e78. PMID: 36918031; PMCID: PMC10010908.
19. Esposito M, Cocimano G, Vanaria F, Sessa F, Salerno M. Death from COVID-19 in a Fully Vaccinated Subject: A Complete Autopsy Report. *Vaccines (Basel).* 2023 Jan 9;11(1):142. doi: 10.3390/vaccines11010142. PMID: 36679987; PMCID: PMC9865400.
20. Chaves JJ, Bonilla JC, Chaves-Cabezas V, Castro A, Polo JF, Mendoza O, Correa-Rodríguez J, Piedrahita AC, Romero-Fandiño IA, Caro MV, González AC, Sánchez LK, Murcia F, Márquez G, Benavides A, Quiroga MDP, López J, Parra-Medina

- R. A postmortem study of patients vaccinated for SARS-CoV-2 in Colombia. *Rev Esp Patol.* 2023 Jan-Mar;56(1):4-9. doi: 10.1016/j.patol.2022.09.003. Epub 2022 Oct 31. PMID: 36599599; PMCID: PMC9618417.
- 21.** Mörz M. A Case Report: Multifocal Necrotizing Encephalitis and Myocarditis after BNT162b2 mRNA Vaccination against COVID-19. *Vaccines (Basel).* 2022 Oct 1;10(10):1651. doi: 10.3390/vaccines10101651. PMID: 36298516; PMCID: PMC9611676.
- 22.** Alunni V, Bernardi C, Chevalier N, Cabusat C, Quatrehomme G, Torrents J, Biglia E, Gaillard Y, Drici MD. Postmortem PF4 antibodies confirm a rare case of thrombosis thrombocytopenia syndrome associated with ChAdOx1 nCoV-19 anti-COVID vaccination. *Int J Legal Med.* 2023 Mar;137(2):487-492. doi: 10.1007/s00414-022-02910-1. Epub 2022 Oct 27. PMID: 36289074; PMCID: PMC9607767.
- 23.** Takahashi M, Kondo T, Yamasaki G, Sugimoto M, Asano M, Ueno Y, Nagasaki Y. An autopsy case report of aortic dissection complicated with histiolymphocytic pericarditis and aortic inflammation after mRNA COVID-19 vaccination. *Leg Med (Tokyo).* 2022 Nov;59:102154. doi: 10.1016/j.legalmed.2022.102154. Epub 2022 Sep 29. PMID: 36191411; PMCID: PMC9519380.
- 24.** Murata K, Nakao N, Ishiuchi N, Fukui T, Katsuya N, Fukumoto W, Oka H, Yoshikawa N, Nagao T, Namera A, Kakimoto N, Oue N, Awai K, Yoshimoto K, Nagao M. Four cases of cytokine storm after COVID-19 vaccination: Case report. *Front Immunol.* 2022 Aug 15;13:967226. doi: 10.3389/fimmu.2022.967226. PMID: 36045681; PMCID: PMC9420842.

- 25.** Satomi H, Katano H, Kanno H, Kobayashi M, Ohkuma Y, Hashidume N, Usui T, Tsukada S, Ito I. An autopsy case of fulminant myocarditis after severe acute respiratory syndrome coronavirus 2 vaccine inoculation. *Pathol Int.* 2022 Oct;72(10):519-524. doi: 10.1111/pin.13267. Epub 2022 Aug 30. PMID: 36040128; PMCID: PMC9537995.
- 26.** Suzuki H, Ro A, Takada A, Saito K, Hayashi K. Autopsy findings of post-COVID-19 vaccination deaths in Tokyo Metropolis, Japan, 2021. *Leg Med (Tokyo).* 2022 Nov;59:102134. doi: 10.1016/j.legalmed.2022.102134. Epub 2022 Aug 20. PMID: 36037554; PMCID: PMC9392553.
- 27.** Mele F, Tafuri S, Stefanizzi P, D Amati A, Calvano M, Leonardelli M, Macorano E, Duma S, De Gabriele G, Introna F, De Donno A. Cerebral venous sinus thrombosis after COVID-19 vaccination and congenital deficiency of coagulation factors: Is there a correlation? *Hum Vaccin Immunother.* 2022 Nov 30;18(6):2095166. doi: 10.1080/21645515.2022.2095166. Epub 2022 Jul 27. PMID: 35895937; PMCID: PMC9746424.
- 28.** Yoshimura Y, Sasaki H, Miyata N, Miyazaki K, Okudela K, Tateishi Y, Hayashi H, Kawana-Tachikawa A, Iwashita H, Maeda K, Ihama Y, Hatayama Y, Ryo A, Tachikawa N. An autopsy case of COVID-19-like acute respiratory distress syndrome after mRNA-1273 SARS-CoV-2 vaccination. *Int J Infect Dis.* 2022 Aug;121:98-101. doi: 10.1016/j.ijid.2022.04.057. Epub 2022 Apr 30. PMID: 35500794; PMCID: PMC9054706.
- 29.** Roncati L, Manenti A, Corsi L. A Three-Case Series of Thrombotic Deaths in Patients over 50 with Comorbidities Temporally after modRNA COVID-19 Vaccination. *Pathogens.* 2022 Apr 3;11(4):435. doi: 10.3390/pathogens11040435. PMID: 35456110; PMCID: PMC9032304.

- 30.** Kang DH, Na JY, Yang JH, Moon SH, Kim SH, Jung JJ, Cha HJ, Ahn JH, Park YW, Cho SY, Yu HK, Lee SH, Park MY, Kim JW, Byun JH. Fulminant Giant Cell Myocarditis following Heterologous Vaccination of ChAdOx1 nCoV-19 and Pfizer-BioNTech COVID-19. *Medicina (Kaunas)*. 2022 Mar 20;58(3):449. doi: 10.3390/medicina58030449. PMID: 35334625; PMCID: PMC8950462.
- 31.** Kamura Y, Terao T, Akao S, Kono Y, Honma K, Matsue K. Fatal thrombotic microangiopathy with rhabdomyolysis as an initial symptom after the first dose of mRNA-1273 vaccine: A case report. *Int J Infect Dis*. 2022 Apr;117:322-325. doi: 10.1016/j.ijid.2022.02.031. Epub 2022 Feb 18. PMID: 35189339; PMCID: PMC8853962.
- 32.** Ishioka Y, Makiguchi T, Itoga M, Tanaka H, Taima K, Goto S, Tasaka S. Acute Exacerbation of Interstitial Lung Disease After SARS-CoV-2 Vaccination: A Case Series. *Chest*. 2022 Dec;162(6):e311-e316. doi: 10.1016/j.chest.2022.08.2213. PMID: 36494131; PMCID: PMC9723271.
- 33.** Gill JR, Tashjian R, Duncanson E. Autopsy Histopathologic Cardiac Findings in 2 Adolescents Following the Second COVID-19 Vaccine Dose. *Arch Pathol Lab Med*. 2022 Aug 1;146(8):925-929. doi: 10.5858/arpa.2021-0435-SA. PMID: 35157759.
- 34.** Pomara C, Salerno M, Esposito M, Sessa F, Certo F, Tripodo C, Rappa F, Barbagallo GM. Histological and immunohistochemical findings in a fatal case of thrombotic thrombocytopenia after ChAdOx1 nCov-19 vaccination. *Pathol Res Pract*. 2022 Mar;231:153796. doi: 10.1016/j.prp.2022.153796. Epub 2022 Feb 4. PMID: 35144085.
- 35.** Yeo A, Kuek B, Lau M, Tan SR, Chan S. Post COVID-19 vaccine deaths - Singapore's early experience. *Forensic Sci Int*. 2022 Jan 19;332:111199. doi: 10.1016/j.forsciint.2022.111199. Epub ahead of print. PMID: 35078041; PMCID: PMC8767909.

- 36.** Ameratunga R, Woon ST, Sheppard MN, Garland J, Ondruschka B, Wong CX, Stewart RAH, Tatley M, Stables SR, Tse RD. First Identified Case of Fatal Fulminant Necrotizing Eosinophilic Myocarditis Following the Initial Dose of the Pfizer-BioNTech mRNA COVID-19 Vaccine (BNT162b2, Comirnaty): an Extremely Rare Idiosyncratic Hypersensitivity Reaction. *J Clin Immunol.* 2022 Apr;42(3):441-447. doi: 10.1007/s10875-021-01187-0. Epub 2022 Jan 3. PMID: 34978002; PMCID: PMC8720536.
- 37.** Günther A, Brämer D, Pletz MW, Kamradt T, Baumgart S, Mayer TE, Baier M, Autsch A, Mawrin C, Schönborn L, Greinacher A, Thiele T. Complicated Long Term Vaccine Induced Thrombotic Immune Thrombocytopenia-A Case Report. *Vaccines (Basel).* 2021 Nov 17;9(11):1344. doi: 10.3390/vaccines9111344. PMID: 34835275; PMCID: PMC8622649.
- 38.** Permezel F, Borojevic B, Lau S, de Boer HH. Acute disseminated encephalomyelitis (ADEM) following recent Oxford/AstraZeneca COVID-19 vaccination. *Forensic Sci Med Pathol.* 2022 Mar;18(1):74-79. doi: 10.1007/s12024-021-00440-7. Epub 2021 Nov 4. PMID: 34735684; PMCID: PMC8567127.
- 39.** Choi S, Lee S, Seo JW, Kim MJ, Jeon YH, Park JH, Lee JK, Yeo NS. Myocarditis-induced Sudden Death after BNT162b2 mRNA COVID-19 Vaccination in Korea: Case Report Focusing on Histopathological Findings. *J Korean Med Sci.* 2021 Oct 18;36(40):e286. doi: 10.3346/jkms.2021.36.e286. PMID: 34664804; PMCID: PMC8524235.
- 40.** Schneider J, Sottmann L, Greinacher A, Hagen M, Kasper HU, Kuhnen C, Schlepper S, Schmidt S, Schulz R, Thiele T, Thomas C, Schmeling A. Postmortem investigation of fatalities following vaccination with COVID-19 vaccines. *Int J Legal*

Med. 2021 Nov;135(6):2335-2345. doi: 10.1007/s00414-021-02706-9. Epub 2021 Sep 30. PMID: 34591186; PMCID: PMC8482743.

41. Verma AK, Lavine KJ, Lin CY. Myocarditis after Covid-19 mRNA Vaccination. *N Engl J Med.* 2021 Sep 30;385(14):1332-1334. doi: 10.1056/NEJMc2109975. Epub 2021 Aug 18. PMID: 34407340; PMCID: PMC8385564.
42. Wiedmann M, Skattør T, Stray-Pedersen A, Romundstad L, Antal EA, Marthinsen PB, Sørvoll IH, Leiknes Ernstsens S, Lund CG, Holme PA, Johansen TO, Brunborg C, Aamodt AH, Schultz NH, Skagen K, Skjelland M. Vaccine Induced Immune Thrombotic Thrombocytopenia Causing a Severe Form of Cerebral Venous Thrombosis With High Fatality Rate: A Case Series. *Front Neurol.* 2021 Jul 30;12:721146. doi: 10.3389/fneur.2021.721146. PMID: 34393988; PMCID: PMC8363077.
43. Pomara C, Sessa F, Ciaccio M, Dieli F, Esposito M, Giammanco GM, Garozzo SF, Giarratano A, Prati D, Rappa F, Salerno M, Tripodo C, Mannucci PM, Zamboni P. COVID-19 Vaccine and Death: Causality Algorithm According to the WHO Eligibility Diagnosis. *Diagnostics (Basel).* 2021 May 26;11(6):955. doi: 10.3390/diagnostics11060955. PMID: 34073536; PMCID: PMC8229116.
44. Althaus K, Möller P, Uzun G, Singh A, Beck A, Bettag M, Bösmüller H, Guthoff M, Dorn F, Petzold GC, Henkes H, Heyne N, Jumaa H, Kreiser K, Limpach C, Luz B, Maschke M, Müller JA, Münch J, Nagel S, Pötzsch B, Müller J, Schlegel C, Viardot A, Bänzner H, Wolf M, Pelzl L, Warm V, Willinek WA, Steiner J, Schneiderhan-Marra N, Vollherbst D, Sachs UJ, Fend F, Bakchoul T. Antibody-mediated procoagulant platelets in SARS-CoV-2-vaccination associated immune thrombotic

thrombocytopenia. *Haematologica*. 2021 Aug 1;106(8):2170-2179. doi: 10.3324/haematol.2021.279000. PMID: 34011137; PMCID: PMC8327736.

45. Edler C, Klein A, Schröder AS, Sperhake JP, Ondruschka B. Deaths associated with newly launched SARS-CoV-2 vaccination (Comirnaty®). *Leg Med (Tokyo)*. 2021 Jul;51:101895. doi: 10.1016/j.legalmed.2021.101895. Epub 2021 Apr 17. PMID: 33895650; PMCID: PMC8052499.
46. Hansen T, Titze U, Kulamadayil-Heidenreich NSA, Glombitza S, Tebbe JJ, Röcken C, Schulz B, Weise M, Wilkens L. First case of postmortem study in a patient vaccinated against SARS-CoV-2. *Int J Infect Dis*. 2021 Jun;107:172-175. doi: 10.1016/j.ijid.2021.04.053. Epub 2021 Apr 16. PMID: 33872783; PMCID: PMC8051011.
47. Baronti A, Gentile F, Manetti AC, Scatena A, Pellegrini S, Pucci A, Franzini M, Castiglione V, Maiese A, Giannoni A, Pistello M, Emdin M, Aquaro GD, Di Paolo M. Myocardial Infarction Following COVID-19 Vaccine Administration: *Post Hoc, Ergo Propter Hoc?* *Viruses*. 2022 Jul 27;14(8):1644. doi: 10.3390/v14081644. PMID: 36016266; PMCID: PMC9413746.
48. Ittiwut C, Mahasirimongkol S, Srisont S, Ittiwut R, Chockjamsai M, Durongkadech P, Sawaengdee W, Khunphon A, Larpadisorn K, Wattanapokayakit S, Wetchaphanphesat S, Arunotong S, Srimahachota S, Pittayawonganon C, Thammawijaya P, Sutdan D, Doungngern P, Khongphatthanayothin A, Kerr SJ, Shotelersuk V. Genetic basis of sudden death after COVID-19 vaccination in Thailand. *Heart Rhythm*. 2022 Aug 5;19(11):1874–9. doi: 10.1016/j.hrthm.2022.07.019. Epub ahead of print. PMID: 35934244; PMCID: PMC9352648.

- 49.** Greinacher A, Thiele T, Warkentin TE, Weisser K, Kyrle PA, Eichinger S. Thrombotic Thrombocytopenia after ChAdOx1 nCov-19 Vaccination. *N Engl J Med.* 2021 Jun 3;384(22):2092-2101. doi: 10.1056/NEJMoa2104840. Epub 2021 Apr 9. PMID: 33835769; PMCID: PMC8095372.
- 50.** Mauriello A, Scimeca M, Amelio I, Massoud R, Novelli A, Di Lorenzo F, Finocchiaro S, Cimino C, Telesca R, Chiocchi M, Sun Q, Wang Y, Shi Y, Novelli G, Melino G. Thromboembolism after COVID-19 vaccine in patients with preexisting thrombocytopenia. *Cell Death Dis.* 2021 Aug 3;12(8):762. doi: 10.1038/s41419-021-04058-z. PMID: 34344867; PMCID: PMC8328816.
- 51.** Bjørnstad-Tuveng TH, Rudjord A, Anker P. Fatal cerebral haemorrhage after COVID-19 vaccine. *Tidsskr Nor Laegeforen.* 2021 Apr 29;141. English, Norwegian. doi: 10.4045/tidsskr.21.0312. PMID: 33928772.
- 52.** Scully M, Singh D, Lown R, Poles A, Solomon T, Levi M, Goldblatt D, Kotoucek P, Thomas W, Lester W. Pathologic Antibodies to Platelet Factor 4 after ChAdOx1 nCoV-19 Vaccination. *N Engl J Med.* 2021 Jun 10;384(23):2202-2211. doi: 10.1056/NEJMoa2105385. Epub 2021 Apr 16. PMID: 33861525; PMCID: PMC8112532.
- 53.** Choi GJ, Baek SH, Kim J, Kim JH, Kwon GY, Kim DK, Jung YH, Kim S. Fatal Systemic Capillary Leak Syndrome after SARS-CoV-2 Vaccination in Patient with Multiple Myeloma. *Emerg Infect Dis.* 2021 Nov;27(11):2973-2975. doi: 10.3201/eid2711.211723. Epub 2021 Aug 30. PMID: 34459725; PMCID: PMC8544977.

- 54.** Schwab C, Domke LM, Hartmann L, Stenzinger A, Longerich T, Schirmacher P. Autopsy-based histopathological characterization of myocarditis after anti-SARS-CoV-2-vaccination. *Clin Res Cardiol.* 2023 Mar;112(3):431-440. doi: 10.1007/s00392-022-02129-5. Epub 2022 Nov 27. PMID: 36436002; PMCID: PMC9702955.
- 55.** Hirschbühl K, Schaller T, Märkl B, Claus R, Sipos E, Rentschler L, Maccagno A, Grosser B, Kling E, Neidig M, Kröncke T, Spring O, Braun G, Bösmüller H, Seidl M, Esposito I, Pablik J, Hilsenbeck J, Boor P, Beer M, Dintner S, Wylezich C. High viral loads: what drives fatal cases of COVID-19 in vaccinees? - an autopsy study. *Mod Pathol.* 2022 Aug;35(8):1013-1021. doi: 10.1038/s41379-022-01069-9. Epub 2022 Apr 1. PMID: 35365771; PMCID: PMC8974809.
- 56.** Hoshino N, Yanase M, Ichiyasu T, Kuwahara K, Kawai H, Muramatsu T, Ishii H, Tsukamoto T, Morimoto SI, Izawa H. An autopsy case report of fulminant myocarditis: Following mRNA COVID-19 vaccination. *J Cardiol Cases.* 2022 Dec;26(6):391-394. doi: 10.1016/j.jccase.2022.06.006. Epub 2022 Jul 4. PMID: 35812802; PMCID: PMC9250935.
- 57.** Colombo D, Del Nonno F, Marchioni L, Lalle E, Galli P, Vaia F, Falasca L. Autopsies Revealed Pathological Features of COVID-19 in Unvaccinated vs. Vaccinated Patients. *Biomedicines.* 2023 Feb 14;11(2):551. doi: 10.3390/biomedicines11020551. PMID: 36831087; PMCID: PMC9953314.
- 58.** Mosna K, Vadkerti P, Papp L, Palkovic M, Janega P, Babal P. Guillain-Barré syndrome with lethal outcome following covid-19 vaccination - case report supported by autopsy examination. *The Open Neurology Journal.* 2022 Mar 10;16(1). doi:10.2174/1874205x-v16-e2207270

- 59.** Kaimori R, Nishida H, Uchida T, Tamura M, Kuroki K, Murata K, Hatakeyama K, Ikeda Y, Amemiya K, Nishizono A, Daa T, Mori S. Histopathologically TMA-like distribution of multiple organ thromboses following the initial dose of the BNT162b2 mRNA vaccine (Comirnaty, Pfizer/BioNTech): an autopsy case report. *Thromb J.* 2022 Oct 6;20(1):61. doi: 10.1186/s12959-022-00418-7. PMID: 36203145; PMCID: PMC9540301.